

3.7 Cultural Resources

This section of the Environmental Impact Report (EIR) characterizes the existing cultural resources within the Phase 2 project area at the Eden Landing Ecological Reserve (ELER, or Reserve) and analyzes whether implementation of the project-level actions of the phased restoration efforts associated with the South Bay Salt Pond (SBSP) Restoration Project would cause a substantial adverse change to historical resources. The information presented is based on a review of existing cultural resources within the area and other pertinent federal, state, and local regulations, which are presented in Section 3.7.2, Regulatory Setting. Section 3.7.1, Physical Setting, is included to establish the origin and environmental and cultural context of the resources. Using this information as context, an analysis of the cultural-resources-related environmental impacts of the project is presented for each alternative in Section 3.7.3, Environmental Impacts and Mitigation Measures. The program-level mitigation measures described in Chapter 2, Alternatives, would be implemented as part of the project. Therefore, this section only includes additional, project-level mitigation measures, as needed.

3.7.1 Physical Setting

The South Bay, including the SBSP Restoration Project, includes portions of San Mateo, Santa Clara, and Alameda Counties and comprises approximately 50,000 acres of shoreline mudflats and marshes as well as low hills and valleys ranging from sea level to approximately 25 feet (8 meters) above mean sea level in elevation. The Eden Landing Phase 2 project area is solely within Alameda County, includes over 2,000 acres, and is depicted on two United States Geological Survey 7.5-minute topographical quadrangle maps: *Redwood Point* and *Newark* (Figure 3.7-1). Vegetation within the project areas consists of marsh species, including cordgrasses, pickleweeds, and other salt-tolerant plant species.

The Area of Potential Effects (APE) for the Eden Landing Phase 2 project area includes all areas of potential ground disturbance, staging, etc., within the following ponds of the ELER: E1, E1C, E2, E2C, E4, E4C, E5, E5C, E6, E6C, and E7 (Figure 3.7-1). It also includes the Alameda County Flood Control and Water Conservation District (ACFCWCD)-owned J-ponds and a section of existing high marsh habitat; levees bordering ponds and inholding still owned by Cargill; and portions of the channels and fringing marshes along Old Alameda Creek (OAC) and the Alameda Creek Flood Control Channel (ACFCC).

Methodology

A program-level record search was performed by the Northwest Information Center (NWIC) of the California Historical Resources Information System in Rohnert Park, California, in September 2013 (NWIC file 13-0330) and a project-level follow-up search by AECOM on June 2016 (NWIC 15-1787). The updated record search covered the APE for the Eden Landing Phase 2 alternatives and a ¼-mile search radius.

The results of previous surveys—conducted in 2006 and 2007 by United States Fish and Wildlife Service (USFWS) archaeologists and architectural historians for the 2007 SBSP Restoration Project Final Environmental Impact Statement/Report (2007 Final EIS/R; Speulda-Drews and Valentine 2007, 2009) and by various others—were also relied on to establish existing conditions.

The purpose of the NWIC search was to determine the location and nature of previously recorded cultural resources within the Eden Landing Phase 2 APE and assess whether cultural resource inventory surveys had been previously conducted within the APE. In addition, the record search and associated background documentary review provides the context for cultural resources in the APE.

The NWIC search included examination of information resources such as:

- Office of Historic Preservation Historic Property Directory;
- California Inventory (1996);
- California Historic Landmarks (1996);
- National Register of Historic Places (2000 and updates);
- California Points of Historical Interest (1992 and updates); and
- Historic maps.

The NWIC search identified nine previously recorded cultural resources studies that documented surveys covering portions of the APE (Table 3.7-1). Most of these studies focused on the northern boundary of the current APE along OAC, where Eden Landing ponds E1, E7, and E6 are located. The NWIC search identified one previously recorded cultural resource (P-01-11437, the Eden Landing Salt Works Historic Landscape) within the Eden Landing Phase 2 APE (Table 3.7-2). In addition, the Eden Landing Salt Works Historic Landscape includes one cultural resource (FWS-07-12-01) that was not identified by the NWIC search. This resource was recorded as a domestic refuse scatter in the vicinity of the J. Quigley Alvarado Salt Works (Valentine and Speulda-Drews 2007) in the northern portion of ponds E7 and E6 along OAC. The State Historic Preservation Office (SHPO) concurred that the J. Quigley Alvarado Salt Works' (FWS-07-12-01) is eligible for the National Register of Historic Places under Criteria A and D (OHP 2009).

Table 3.7-1 Previous Cultural Resource Inventories within the Eden Landing Phase 2 APE

PONDS	NUMBER OF INVENTORIES
Bay Ponds (Ponds E1, E2, E4, and E7)	1
Inland Ponds (Ponds E5, E6, and E6C)	6*
Southern Ponds (Ponds E1C, E2C, E4C, and E5C)	6*

*Denotes a portion of a previously conducted study also lies within this pond.

Table 3.7-2 Previously Recorded Cultural Resources within the Eden Landing Phase 2 APE

PONDS	RECORDED RESOURCES	
	PREHISTORIC	HISTORIC-ERA
Bay Ponds (Ponds E1, E2, E4, and E7)	0	2
Inland Ponds (Ponds E5, E6, E6C)	0	0*
Southern Ponds (Ponds E1C, E2C, E4C, and E5C)	0	1

* Denotes a portion of a previously recorded resource also lies within this pond.

In addition to the resources and inventory studies identified during the NWIC search, the Eden Landing Salt Works Historic Landscape and FWS 07-12-01 have been recorded as part of the USFWS's ongoing consultation with the SHPO to resolve adverse effects for the broader SBSP Restoration Project (Speulda-Drews and Valentine 2007). As a part of this recordation, many of the accessible portions of the levees within each pond complex were surveyed. Figure 3.7-2 depicts those areas previously surveyed near Eden Landing, including surveys conducted for the SBSP Restoration Project programmatic analysis and those areas surveyed subsequently for the Eden Landing Phase 2 actions.

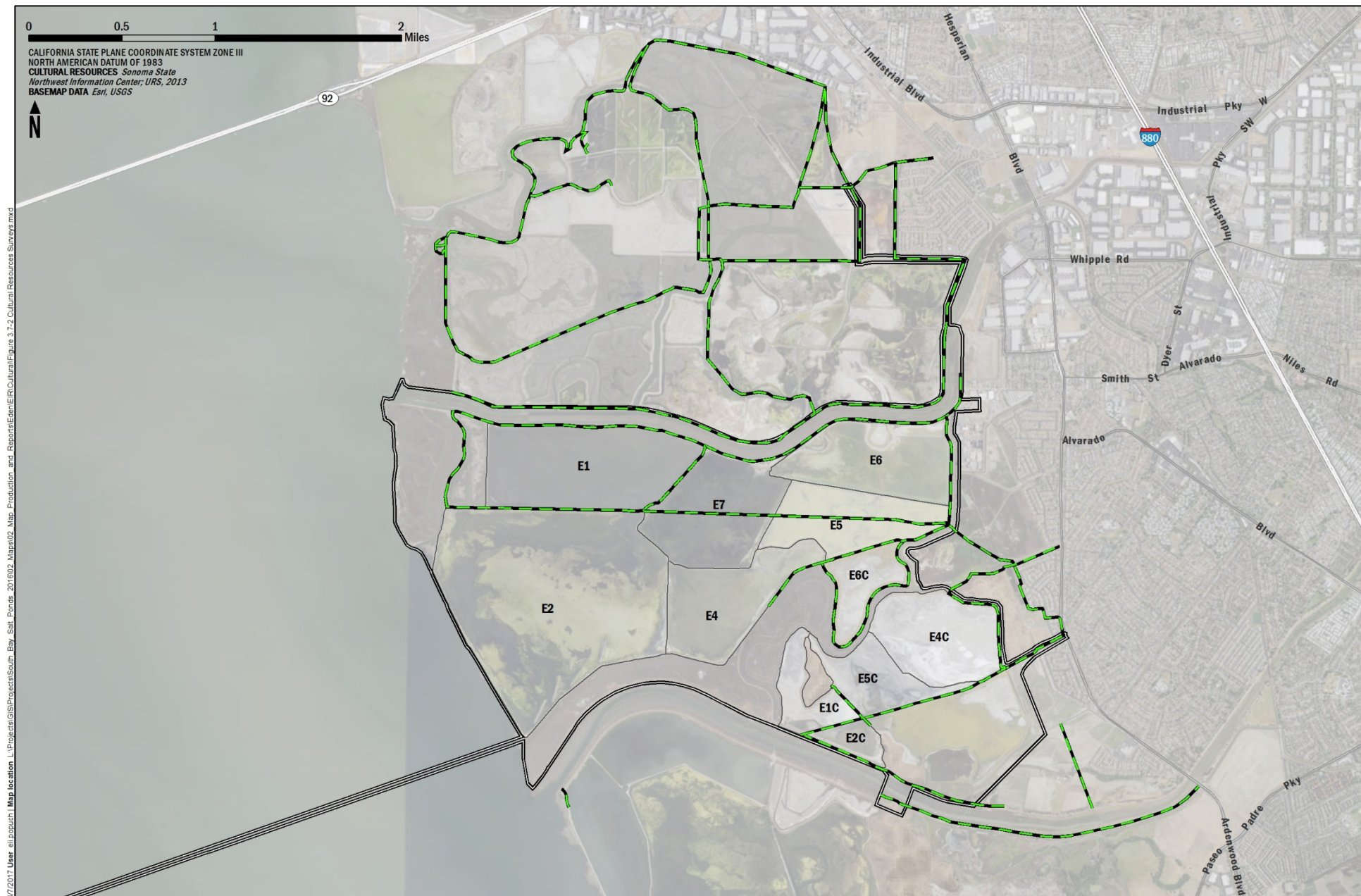
Regional Setting

The 2007 Final EIS/R contains a thorough explanation of the prehistoric setting, history of archaeological research in the region, ethnographic setting, and historic setting—including the Spanish and Mexican periods, the Gold Rush, and subsequent American development of the South Bay. Although these broad-context statements are useful in understanding the broader historic context of the project area, much of the information is not directly relevant to the specific resources identified within the Eden Landing Phase 2 APE. Brief summaries of the historic contexts are included below, with more attention given to those topics that have direct relevance to an understanding of the resources within the Eden Landing Phase 2 APE. For a more general discussion of the cultural resources setting of the project area, please refer to Section 3.8 of the 2007 Final EIS/R.

Geomorphic Setting

This brief discussion of soils and geologic units provides a context for both archaeological materials, which have been influenced by geomorphic changes in the Bay Area over the past ca. 13,500 years (roughly the time that humans have occupied California), and paleontological resources (fossils, etc.), which are subsumed under the cultural resources discipline by the California Environmental Quality Act (CEQA). For a more complete analysis of the geologic setting, see Section 3.4, Geology, Soils, and Seismicity. The soils underlying the Phase 2 APE consist of youngest bay mud over semi-consolidated alluvial deposits (Witter et al. 2006). The bay mud ranges from 20 to 40 feet thick within the APE (McDonald et al. 1978). The bay mud within the APE was most likely deposited in the last approximately 4,000 years, as sea levels stabilized and sedimentation at the bay margin began to keep pace with sea-level rise. The bay mud is overlain by Quaternary alluvial sediments of variable lithology, which represent the historic ground surface during the late Pleistocene and early Holocene, prior to inundation of San Francisco Bay (Bay).

The entire southern rim of San Francisco Bay has been heavily used since humans entered the region. Rising sea levels and concomitant sedimentation likely have buried older prehistoric sites. Gold Rush-era placer mining resulted in the deposition of hundreds of millions of cubic meters of sediment around the Bay, likely burying additional prehistoric and early historic sites along the Bay's edge. Agriculture, the salt industry, and other bayshore development have contributed to the destruction or obscuration of evidence of human use.



LEGEND

- Eden Landing Phase 2 Project Area
- Southern Eden Landing Ponds
- Previous Survey (Various)

AECOM

South Bay Salt Pond Restoration Project

Figure 3.7-2
Cultural Resources Surveys

Prehistoric Setting

Prehistoric use of the bayshore has been clearly identified, but the density of occupation and use have most likely been underestimated because so many sites have been obscured by the processes noted above. Semi-systematic documentation of the most visible prehistoric resources did not begin until the early twentieth century, by which time it was noted that many mound and shellmound sites had already been damaged or destroyed (Nelson 1909). Prehistoric sites generally cluster in the vicinity of a water source or other relatively obvious resources such as food collection areas (e.g., oak trees) or tool stone deposits. However, being able to predict likely site locations does not mean that they have all been found. Rather, it is assumed that many sites will never be found unless a construction project of some type accidentally uncovers them.

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (11,500 to 6,000 B.C.). Their social units are thought to have been small and highly mobile. Known sites have been identified in the contexts of ancient pluvial lake shores and coastlines, as evidenced by such characteristic hunting implements as fluted projectile points and chipped stone crescent forms. Few archaeological sites have been found in the Bay Area that date to the Paleo-Indian or the ensuing Lower Archaic (6,000 to 3,000 B.C.) periods. The lack of sites from earlier periods may be because of high sedimentation rates (inundation of the bay by the Pacific Ocean and the associated alluvial deposition), leaving the earliest sites deeply buried and inaccessible.

During the Middle Archaic Period (3,000 to 500 B.C.) the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways, including the establishment of the first shellmound sites along the Bay shore. The current body of archaeological evidence indicates that the mounds served multiple purposes as residential places, ceremonial locations, and burial sites with many diverse and complex aspects.

The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (500 B.C. to A.D. 700). Exchange systems become more complex and formalized and evidence of regular, sustained trade between groups was seen for the first time. Several technological and social changes characterized the Emergent Period (A.D. 700 to 1800). The bow and arrow were introduced, ultimately replacing the dart and atlatl. Territorial boundaries between groups became well established. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (A.D. 1500 to 1800), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, increasing quantities of goods moved greater distances, and vocational specialists arose to govern various aspects of production and exchange.

Ethnographic Setting

At the time of European contact, the Eden Landing Phase 2 project area and its vicinity were occupied by Costanoan, also known as Ohlone, tribal groups. For a discussion of the lifeways and history of these groups, please refer to the 2007 Final EIS/R.

Historic Setting

In addition to the historic context developed for the 2007 Final EIS/R, a very in-depth history of the South Bay salt works has been developed in a separate document: *Historic Context of the South Bay Salt Pond Restoration Project* which was an appendix to the 2007 Final EIS/R (Watt 2005). The report focuses on the historic-era conversion of the salt marshes and development of salt ponds, the rise of the salt industry, and the types of features and structures associated with this industry. Given that most of the identified historic-era resources in the APE are associated with this history, portions of that context are included in the following sections. However, for a more complete discussion of the historic context, please refer to the EDAW 2005 document, available online: <http://www.southbayrestoration.org/documents/permit-related/Historic%20Salt%20AppendixD.pdf>

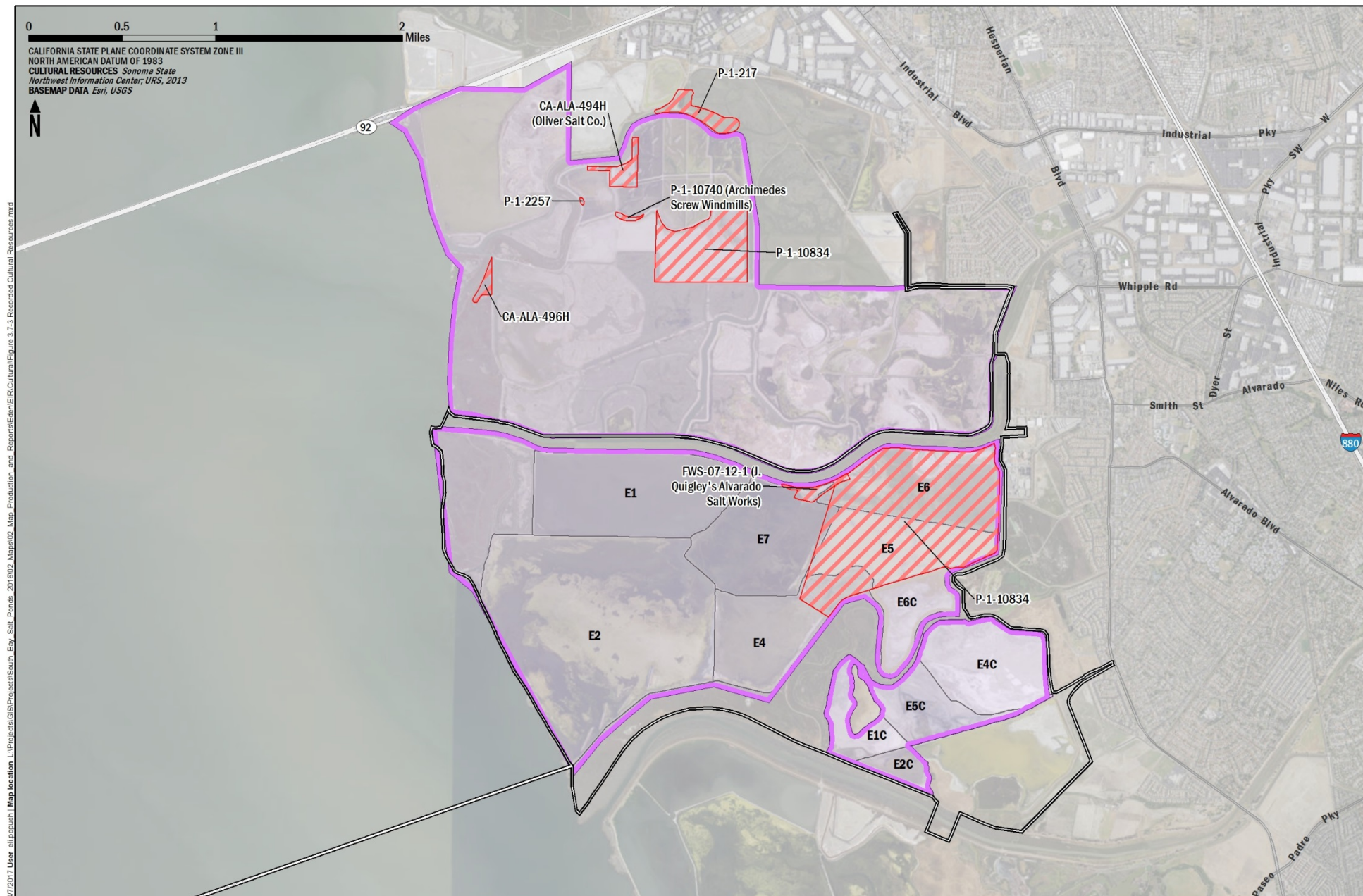
Spanish and Mexican Periods

Twenty-one years after the establishment of Mission San Francisco de Asís by Juan Bautista de Anza in San Francisco in 1776, Fermiin Francisco de Lausén established Mission San José using labor from the Native Americans from Mission Santa Clara de Asís (Payne 1987). The Santa Clara Valley was a prime location for a mission because of its mild winters and long growing season for crops. Another three missions were built in the Santa Clara Valley: Santa Clara de Asís (1777), Santa Cruz (1791), and San Juan Bautista (1797). The missions were self-sustaining, raising a variety of grains and crops (including an extensive orchard or olive and fruit trees), as well as livestock such as cattle, horses, and sheep. Mission San José duplicated the Native American methods of harvesting salt by scraping it off rocks or naturally-occurring ponds along the bay margin. Missionaries eventually produced enough salt to export moderate quantities to Europe (Watt 2005).

Mexico achieved independence from Spain in 1821, and in 1822 California was declared a territory of the Mexican republic. In 1834, the Mexican government secularized the missions and divided their land holdings into ranchos; portions of several ranchos are in the project area. Rancho *Potrero de los Cerritos* is located within the Eden Landing Phase 2 APE (Beck and Haase 1974). During this time, Americans also began migrating to Alta California, and tensions rose as the new settlers began to occupy the rancho lands. The Mexican War of 1846 ended with the signing of the Treaty of Guadalupe Hidalgo in February 1848 and the cession of California to the United States.

American Period Industry

The most obvious evidence of human occupation in the project area is the various salt works structures and remnants, ditches and levees, the salt ponds themselves, and the detritus (historic and modern) that has collected around them (Figure 3.7-3). The Phase 2 SBSP Restoration Project area is clearly part of a larger, contiguous complex that lines almost the entire southern rim of San Francisco Bay. The Eden Landing Salt Works was determined to retain sufficient integrity to be considered a cultural landscape, as defined by the National Park Service (NPS), and to meet the eligibility criteria for listing to the National Register of Historic Places (NRHP) (and, by extension, to the California Register of Historical Resources [CRHR]) (see the definition of a cultural landscape in Section 3.7.2, Regulatory Setting).



LEGEND

- Eden Landing Phase 2 Project Area
- Eden Landing Salt Works Historic Landscape District
- Cultural Resource Discussed in Text

The first construction of levees to create artificial salt ponds in the Bay Area was completed by John Johnson in 1853 (EDAW 2005). Johnson homesteaded near Mt. Eden, north of the Eden Landing project area, and “squatted” on a small tract of 14 acres that he enclosed with levees for the production of salt. His first harvest measured 25 tons and was shipped to San Francisco by schooner for the hide and leather tanning trade (EDAW 2005). The San Francisco Bay, with its natural tidal marshlands, was a prime environment to be modified for the mining of salt. Gradually the Mt. Eden area along the East Bay shoreline stretching from San Lorenzo Creek south to Alvarado (present-day Union City) developed into several small salt producing operations mostly run by Danish and German immigrant families. Between 1850 and 1910 there were more than 25 different small salt operations located between Mt. Eden Creek and Coyote Hills Slough, with ponds ranging in size from 30 to 50 acres (Speulda-Drews and Valentine 2007).

Initially, the demand for salt was fairly low; this crude product was mostly used for preserving food and hides. However, an effort to improve the inferior quality of Bay salt shifted the reliance on imports and increased the demand for local salt (Ver Planck 1958). Likewise, after the discovery in 1859 of the Comstock Lode in Nevada, it became cost prohibitive to import foreign salt used in the process for treating silver ores compared to the local product, and demands for Bay Area salt increased (EDAW 2005). Despite suffering bouts of over production, the salt industry grew during the latter half of the 19th century with several standout companies capable of producing more than 10,000 tons of salt per year: Union Pacific, Carmen Island, Oliver Salt, and American Salt Company (Ver Planck 1958). Of those four companies, only Carmen Island was located within the Eden Landing Phase 2 APE (Figure 3.7-4).

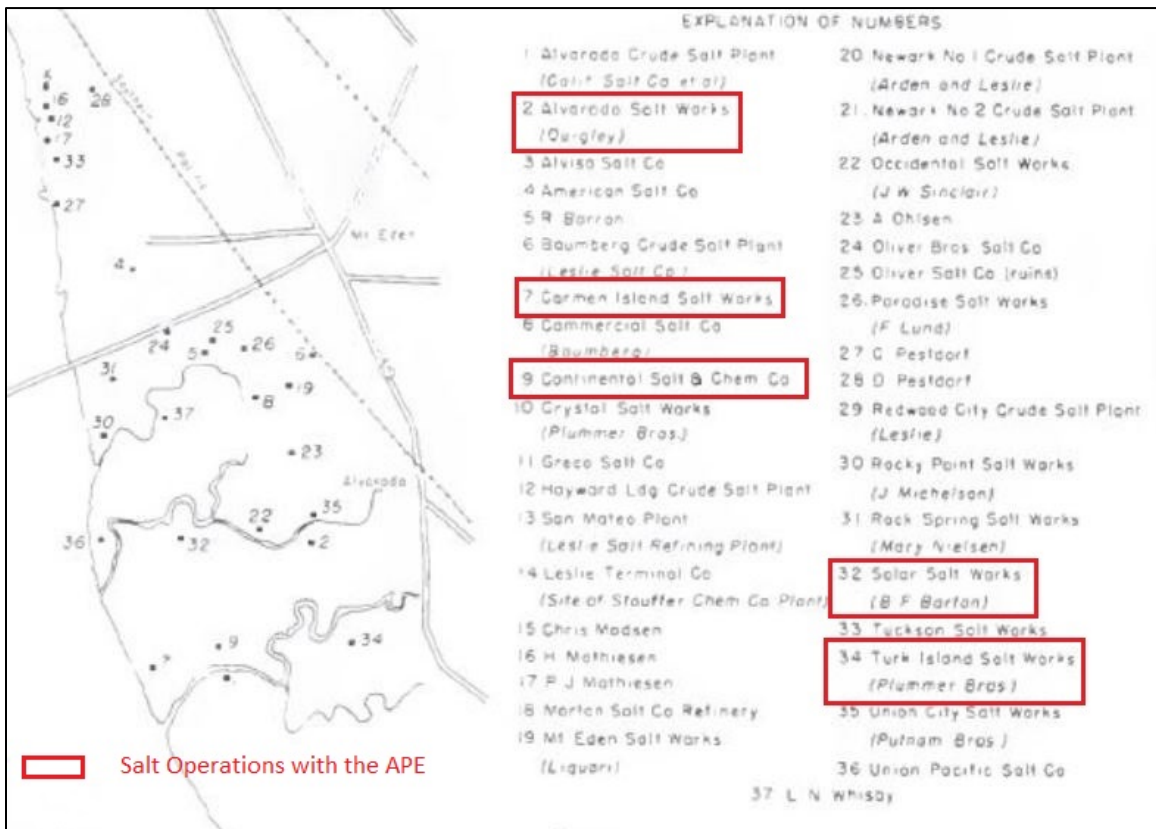


Figure 3.7-4. Salt Operations within the Eden Landing Phase 2 APE (in red) (Ver Planck 1958: Figure 1:n.d.)

From 1910 through the late 1920s, the market demand for salt increased beyond the capacity of the small producers. Larger salt manufacturing companies began to organize and consolidate the smaller operations in order to meet demand. Prior to the consolidation, four salt companies were operating within the current APE: 1) Alvarado Salt Works (owned by John Quigley) located in pond E6; 2) Carmen Island Salt Works located in pond E2; 3) Plummer Brothers located in pond in E5C; and, 4) Solar Salt Works (owned by B.F. Barton) located in pond E1 (Ver Planck 1958). With the founding of three new salt producers: the California Salt Company (1901), the Continental Salt and Chemical Company (1900), and the Leslie Salt Refining Company (1901), the consolidation of the smaller operations, including those within the current APE, began and changed the industry in the Bay area forever (Ver Planck 1958). A handful of companies, including Carmen Island Salt Works, were immediately absorbed by the California Salt Company, which later became the Leslie-California Salt Company in 1924. The Plummer Brothers operated until 1920, when they were bought by the Turk Island Salt Company, which was later absorbed in 1927, again, by the Leslie-California Salt Company. The Continental Salt & Chemical Company located in pond E2 was also sold to the Leslie-California Salt Company in the mid-1920s (Ver Planck 1958). The Alvarado Salt Works was sold in 1908 to West Shore Salt Company, which only reported production for another two years (Ver Planck 1958). The Solar Salt Works was owned by Pioneer Salt Company after the death of Barton around 1916, then continued production until the late 1920s when it was sold to the Oliver Salt Company; the Leslie-California Salt Company absorbed the Oliver Salt Company in 1931 (Ver Planck 1958). By 1930, the number of salt operations dropped from 28 to only five; and by the 1940s, Leslie Salt Company became the only major operator in the region (EDAW 2005; Ver Planck 1958).

The Leslie Salt Refining Company was established in 1901. After acquiring the California Salt Company and the Continental Salt and Chemical Company, it was reincorporated as the Leslie-California Salt Company in 1924. The company continued to purchase or lease operations in order to increase efficiency and production, and grew into the largest salt-producing company in San Francisco. For a complete discussion of the evolution of the salt industry in the South Bay and associated features of this industry on the landscape, see the EDAW 2005 report referenced earlier in this section (<http://www.southbayrestoration.org/documents/permit-related/Historic%20Salt%20AppendixD.pdf>).

Project Setting

The Eden Landing pond complex—the southern half of which includes the Bay Ponds, the Inland Ponds, and the Southern Ponds—are all part of the larger Eden Landing Salt Works Historic Landscape (P-01-11437). The larger Eden Landing Salt Works Historic Landscape was evaluated by USFWS for NRHP eligibility as a historic salt works landscape.

It was determined that the Eden Landing Salt Works retains sufficient integrity and that it meets

“eligibility criteria A and D as defined by the NRHP as a historic landscape. The integrity of the district is diminished by over-printing and removal of the processing plants, residences, landings, and small-scale features. Yet, the overall Eden Landing Salt Pond Historic Landscape provides an opportunity to interpret the evolution of the solar salt industry. Distinctive features of the Eden Landing Salt Pond Historic Landscape are reflected by the pattern of spatial organization, circulation networks, and adapting the natural environmental conditions. Creation of the solar salt manufacturing landscape required building levees, harnessing the tidal surge, and transporting water among the ponds. Character defining elements of the historic landscape are the perimeter levees, interior pond divisions, archaeological sites associated with the family-owned processing plants and landings, and the Archimedes screw pump. Non-contributing elements include the

modern water-control structures, pumphouses, and hunting blinds.” (Speulda-Drews and Valentine 2007:19-20)

The SHPO concurred with this determination of eligibility in 2010 (OHP 2010:2).

Numerous smaller cultural features, such as hunting blinds, landings, and piers were also identified by USFWS during surveys of the Eden Landing pond complex in 2007. The SHPO concurred that these smaller features lacked integrity and were considered non-contributing elements of the historic landscape. Likewise, water control structures are scattered throughout ponds. As there are no water control structures that are more than 50 years old, they are considered non-contributing (Valentine and Speulda-Drews 2007).

Bay Ponds

Two previously recorded cultural resources are within the APE for the Phase 2 Eden Landing area of the Bay Ponds, which includes E1, E2, E4, and E7 (Figure 3.7-3). A portion of the Union City Alvarado Salt Ponds (P-01-10834) is located partially within Pond E7, with the majority extending east into Pond E6 of the Inland Ponds. This resource was determined not eligible for listing in the NRHP as the “salt ponds/levees and related features...does not have enough historic authenticity or enough integrity to be able to convey its importance during the period of significance (1862-1896)” (Shoup and Baker 2007; Speulda-Drews and Valentine 2007). Shoup and Baker (2007:5) included the caveat in their evaluation that “if, in the future, the overall Alameda County Leslie Salt Company operations are evaluated as an historic landscape, it is conceivable that some of the levees/ponds...may be considered contributing elements.” The USFWS agreed with this assessment and the Union City Alvarado Salt Ponds (P-01-10834) is included within the Eden Landing Salt Works Historic Landscape as a contributing element.

Also partially within Pond E7 and E6 (of the Inland Ponds) is the archaeological site for the J. Quigley Alvarado Salt Works (FWS-07-12-1). Valentine and Speulda-Drews (2007) reported that this site contains a domestic scatter, railroad ties, and boardwalk associated from John Quigley’s salt works that was in operation in 1862 until 1909. Based on ceramics identified on site, it may be possible this resource is “associated with a short-term camp inhabited by the Japanese or Chinese contract laborers working at the Alvarado Salt Works” (Speulda-Drews and Valentine 2007). The J. Quigley Alvarado Salt Works (FWS-07-12-1) was determined eligible for listing in the NRHP under criteria A and D (OHP 2009).

Inland Ponds

As discussed above, two previously recorded cultural resources—the Union City Alvarado Salt Ponds (P-01-10834) and the J. Quigley Alvarado Salt Works (FWS-07-12-1)—are partially located within the Eden Landing APE for the Phase 2 Eden Landing area of the Inland Ponds (Figure 3.7-3). The Inland Ponds include Ponds E5, E6, and E6C (Figure 3.7-3).

Southern Ponds

The Southern Ponds include Ponds E1C, E2C, E4C, and E5C and are located north of the ACFCC, south of the Inland Ponds (Figure 3.7-3). These ponds do not contain any known cultural resources. Only small portions of the eastern and southern levees were subject to previous cultural resources investigations (Bard and Ogrey 1982; Reese 2005; Speulda-Drews and Valentine 2007) (Figure 3.7-2).

3.7.2 Regulatory Setting

A number of federal, state, regional, and local regulations have been established to protect cultural resources and preserve them for future generations. In California, the two most applicable sets of legislation include Section 106 of the National Historic Preservation Act (NHPA) (Section 106), and CEQA.

Federal Regulations

Section 106 requires federal agencies to take into consideration the potential effects of proposed undertakings on historic properties, and to allow the Advisory Council on Historic Preservation the opportunity to comment on a proposed undertaking. Historic properties are cultural resources listed on or considered eligible for inclusion in the NRHP. The regulations implementing Section 106¹ are promulgated by the Secretary of the Interior, as codified in Title 36 Code of Federal Regulations (CFR) Part 800.

Section 106 requirements apply to properties both on the NRHP and not formally determined eligible but that are considered to meet the eligibility requirements (may include situations where SHPO arrives at a consensus regarding a historic property). This consensus may be reached through the provisions of a Programmatic Agreement or other such document or may result from case-by-case consultation. The NHPA authorizes the Secretary of the Interior to maintain and expand a National Register of districts, sites, buildings, structures and objects of significance in American history, architecture, archaeology, engineering and culture. A property may be listed in the NRHP if it meets criteria for evaluation as defined in 36 CFR 60.4:

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 values, 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.

There is also a requirement for an APE map, as described in Section 106 and codified in Title 36 CFR 800.4(a)(1). USFWS submitted a letter to the SHPO on July 16, 2004, requesting confirmation of the APE map for the SBSP Restoration Project. The APE map designates the SBSP Restoration Project boundary, as shown on Figure 1-2 of the 2007 Final EIS/R, as the Project's APE. The SHPO sent a letter to USFWS dated November 19, 2004, indicating that the agency concurred with USFWS's determination of the project's APE. The Phase 2 Eden Landing APE falls completely within the 2007 APE and, therefore, does not require additional concurrence from SHPO.

¹ Documents that include the full text of Section 106 and guidance on working with its provisions may be found at <http://www.achp.gov/work106.html>.

The Section 106 review process occurs in four steps: initiation of the process; identification of historic properties; assessment of adverse effects; and resolution of adverse effects. Public involvement, particularly from Native Americans, is strongly encouraged during each of these steps. Section 106 consultation with Native Americans is the responsibility of the lead agency and, therefore, is not included in this document.

Cultural Landscapes

As discussed above, the SBSP Restoration Project area is a heavily modified environment that has been evaluated as a historic cultural landscape, representative of the late-nineteenth- and early-twentieth-century development of industrial salt production along the south San Francisco Bay shore. Project goals to reestablish tidally influenced salt marsh are intended to change the existing landscape, in direct contradiction to the many years of human-made modifications. To properly document, assess, and evaluate cultural landscapes, USFWS uses the NPS guidelines. These guidelines provide standards for undertaking a cultural landscape analysis, including procedures for identifying, evaluating, and managing cultural landscapes in the United States.

The SBSP Restoration Project Historic Context Report (EDAW 2005) was used in conjunction with an evaluation framework developed in consultation with the SHPO to determine the significant features of the solar salt industry landscape. As discussed above, the determination was made that the Eden Landing Salt Works ponds constitute a Historic Landscape with the primary contributing elements being “the perimeter levees, interior pond divisions, archaeological sites associated with the family-owned processing plants and landings, and the Archimedes screw pump. Non-contributing elements include the modern water-control structures, pumphouses, and hunting blinds.” (Speulda-Drews and Valentine 2007:19-20). The Archimedes screw pumps are not located within the current APE. The SHPO has concurred with a finding of adverse effect on the Eden Landing Works Historic Landscape, which is considered a historic property under Section 106, and Historic American Landscape Survey (HALS) documentation has been undertaken as mitigation for effects to this historic landscape. For a more complete description of NPS guidelines and definitions with regards to cultural landscapes, please refer to the 2007 Final EIS/R.

State Regulations

CEQA offers directives regarding impacts on historical resources, unique archaeological resources, and unique paleontological resources. CEQA states generally that if implementation of a project would result in significant environmental impacts, then public agencies should determine whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives. This general mandate applies equally to significant environmental effects related to certain cultural resources.

Only significant cultural resources (e.g., “historical resources” and “unique archaeological resources”) need to be addressed. The CEQA Guidelines (AEP 2016) define a “historical resource” as, among other things, “a resource listed or eligible for listing on the CRHR (CEQA Guidelines, Section 15064.5, subd. (a)(1); see also Public Resources Code Sections 5024.1, 21084.1). A historical resource may be eligible for inclusion on the CRHR, as determined by the State Historical Resources Commission or the lead agency, if the resource:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage; or

- (2) Is associated with the lives of persons important in our past; or
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

A resource is presumed to constitute a “historical resource” if it is included in a “local register of historical resources” unless “the preponderance of evidence demonstrates that it is not historically or culturally significant” (CEQA Guidelines, Section 15064.5, subd. (a)(2)). In addition, the CEQA Guidelines requires consideration of unique archaeological sites (Section 15064.5). (See also Public Resources Code Section 21083.2.) A “unique archaeological resource” is defined as: “an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.” (Section 21083.2(h))

If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archaeological resource as outlined in the Public Resource Code (Section 21083.2), it is entitled to special protection or attention under CEQA. Treatment options under Section 21083.2 of CEQA include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation.

CEQA also requires assessment of impacts to paleontological resources. Although CEQA does not define what “a unique paleontological resource or site” is, the definition of a unique archaeological resource described above is considered equally applicable to recognizing a unique paleontological resource. CEQA Section 15064.5 (a)(3)(D), which indicates “generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history,” provides additional guidance.

Public Resources Code Section 15064.5(e) of the state CEQA Guidelines requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, Section 15064.5(d) of the CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans as identified by the Native American Heritage Commission and directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Regional/Local Regulations

The Eden Landing Phase 2 project area lies within Hayward, California where the goals and policies for the preservation and protection of cultural resources are documented in the resources listed below. The

similar goals and policies from the adjacent Union City are also included for completeness, though they apply only indirectly.

City of Hayward: The Hayward 2040 General Plan (City of Hayward 2014) includes the following relevant cultural goals and policies:

Historic Districts and Resources:

Goal LU-8: Preserve Hayward’s historic districts and resources to maintain a unique sense of place and to promote an understanding of the regional and community history.

LU-8.3 Historic Preservation Ordinance: The City shall maintain and implement its Historic Preservation Ordinance to safeguard the heritage of the city and to preserve historic resources.

LU08.6 Historic Preservation Standards and Guidelines: The City shall consider *The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* when evaluating development applications and City projects involving historic resources, or development applications that may affect scenic views of the historic context of nearby historic resources.

City of Union City. Union City’s 2002 General Plan (City of Union City 2002) includes the following relevant cultural resources goals and policies:

Archaeological and Historical Resources:

Goal NHR-C.1: To protect, to the extent possible, the City’s significant archaeological and historical resources.

Policies:

- NHR-C.1.3: The City shall encourage the preservation of public landmarks.
- NHR-C.1.4: The City shall use appropriate State and Federal standards in evaluating the significance of historical resources found in the city.
- NHR-C.1.5: The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures and sites.
- NHR-C.1.6: The City shall support efforts to protect and recover archaeological resources.

3.7.3 Environmental Impacts and Mitigation Measures

Overview

This section describes environmental impacts and mitigation measures related to cultural resources. It includes a discussion of the criteria used to determine the significance of impacts. This discussion includes consideration of resources under NHPA and CEQA, but without offering the confusion of using two sets of similar terminology. The impacts and mitigation measures below are generally discussed using CEQA language such as “significant impacts” rather than “adverse effects.” Potential impacts are characterized by evaluating direct, indirect, short-term (temporary), and long-term effects. Impact evaluations for the Action Alternatives are assessed based on the existing conditions described in Section 3.7.1, Physical Setting, and not the proposed conditions that would occur under the No Action

Alternative.² This approach is consistent with CEQA, which requires that project impacts be evaluated against existing conditions. In this case, the No Action Alternative represents no change from current management direction or level of management intensity provided in the Adaptive Management Plan (AMP) and other Eden Landing Ecological Reserve management documents and practices.

As a reminder, cultural resources may be historic or prehistoric. The word “historic” may be a temporal reference, or it may signify the importance of a resource from either the historic or prehistoric era. A “historical resource,” as defined by CEQA, is a site that is eligible or potentially eligible for listing on the CRHR. For example, a resource that dates to the historic-era does not inherently mean that it has the significance to qualify as a historical resource (CEQA) or historic property (NHPA). The reader must follow the context of the discussion to understand which use of the word is being made.

Significance Criteria

NHPA

Under NHPA, if it is determined that historic properties may be affected by an undertaking, the agency proceeds with the Section 106 process, assessing adverse effects (called significant impacts under CEQA). The definition of adverse effects is found in Section 800.5(a)(1) of the regulations of NHPA. The definition of adverse effects states:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with The Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

² “No Action Alternative” is the NEPA term. It corresponds to the CEQA term “No Project Alternative.” This EIR uses No Action throughout.

- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This significance criterion is discussed below in Phase 2 Impact 3.7-2, which addressees the potential disturbance of the historic salt ponds and associated structures, which may be considered a significant cultural landscape within the Phase 2 project.

CEQA

According to the CEQA Guidelines, an impact to a cultural resource is considered significant if implementation of the proposed project or alternatives under consideration would:

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

The CEQA Guidelines (California Code of Regulations Section 15064.5) define “substantial adverse change” as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings. The significance criteria listed above are included in Impact 3.7-1, which addresses the potential disturbance of known or unknown cultural resources located within the Eden Landing Phase 2 project ponds, and in Impact 3.7-2, which addressees the potential disturbance of the historic salt ponds and associated structures that may be considered a significant cultural landscape within the Eden Landing Phase 2 project ponds.

As explained in Section 3.1.2, although both the CEQ Regulations for Implementing NEPA (CEQ 2015) and the CEQA Guidelines (AEP 2016) were considered during the impact analysis, impacts identified in this EIR are characterized using CEQA terminology.

Program-Level Evaluation Summary

Three program-level alternatives were considered and evaluated in the 2007 Final EIS/R: the No Action Alternative (Programmatic Alternative A); the Managed Pond Emphasis (Programmatic Alternative B); and the Tidal Marsh Emphasis (Programmatic Alternative C). Programmatic Alternative C was selected and is the alternative implemented under the Phase 1 restoration actions completed to date. Therefore, a summary of the impacts for Programmatic Alternative C from the 2007 Final EIS/R is provided below.

Under Programmatic Alternative C, the 2007 Final EIS/R concluded that impacts to unanticipated cultural resources would be less than significant with implementation of SBSP Mitigation Measure 3.8-1 (discussed in Chapter 2, Alternatives) and that impacts to the historic salt ponds cultural landscape would

be less than significant with implementation of SBSP Mitigation Measure 3.8-2 (also discussed in Chapter 2).

As discussed above, since completion of the 2007 Final EIS/R, implementation of Mitigation Measure 3.8-2 has consisted of surveys and determinations of eligibility for the Alviso Salt Works Historic Landscape and the Eden Landing Salt Works Historic Landscape, and the Ravenswood salt works was determined to not constitute a historic resource. Mitigation for impacts to the Alviso and Eden Landing landscapes was codified in the *Memorandum of Agreement between the U.S. Fish & Wildlife Service and the California State Historic Preservation Officer, Regarding the South Bay Salt Pond Restoration Project, Including Restoration of Former Industrial Salt Ponds to Tidal Salt Marsh and Other Wetland Habitats, Including the Former Salt Works Sites within the Alviso Unit on the Don Edwards San Francisco Bay National Wildlife Refuge and California Department of Fish and Game's Eden Landing Ecological Reserve; Alameda and Santa Clara Counties, California* (MOA) (USFWS 2012, also included as Appendix F). Execution of the Memorandum of Agreement (MOA) constitutes completion of the Section 106 process. All stipulations of the MOA, including survey and recordation, have been completed, except for stipulation IIB—which consists of public interpretation that would be included as part of Phase 2—and ongoing monitoring stipulations that will occur during each phase of the SBSP Restoration Project.

Although impact evaluation to paleontological resources was not directly addressed in the 2007 Final EIS/R, such an analysis was not considered necessary due to the nature of sediments within the project's vertical APE and the lack of potential for impacts. As described above in "Geomorphic Setting," the project area is underlain by late Holocene bay mud. Project impacts would be focused on the built-up levees themselves, with some minimal excavation into underlying sediments (channels, etc.). Impacts would be confined to historic-era fill or the underlying bay mud, with no potential for harboring unique paleontological resources. As such, there is no need for additional consideration of paleontological impacts.

Project-Level Evaluation

Phase 2 Impact 3.7-1: Potential disturbance of known or unknown cultural resources.

The scale and scope of the SBSP Restoration Project area necessarily means that there is a wide range of known and unknown cultural resources that may be disturbed by some aspect of individual restoration activities. Because of natural geomorphic processes and historic-era landscape modifications, some of these resources may be obscured, and only encountered during project-related earthmoving activities. Accidental discoveries made during construction may be unavoidable; however, as emphasized in the NHPA, CEQA, and local plans and policies, wherever practicable, preservation of cultural resources is preferred over additional damage and/or data recovery.

Alternative Eden A (No Action). Under the No Action Alternative, no new activities would be implemented as part of the Eden Landing Phase 2 project. The California Department of Fish and Wildlife (CDFW) would continue maintaining and operating the ponds as part of the ELER and according to the *Eden Landing Ecological Reserve System E2 and E2C Operation Plan* and the activities described in the AMP, and in accordance with current CDFW practices. Therefore, Alternative A would not adversely affect historical resources.

Alternative Eden A Level of Significance: No Impact

Alternative Eden B. The historic-era cultural landscape remnants of the Union City Alvarado Salt Ponds (P-01-10834) (Baker and Smith 2007), is partially located within the Bay Pond E7 and the Inland Ponds (E4, E5, E6), south of OAC. Baker and Smith (2007) evaluated this resource and found it not to be eligible for the NRHP due to lack of “historic authenticity or enough integrity to...convey its importance.” Likewise, this resource is included in the MOA as not eligible for the NRHP, and not included in the treatment plan (USFWS 2012: Attachment 2). As such, P-01-10834 does not need to be considered further.

Located within, and to the west of, the Union City Alvarado Salt Ponds (P-01-10834) in Ponds E6 and E7, an historic-era archaeological site (FSW-07-12-1) was recorded by Valentine and Speulda-Drews (2007) near a proposed breach location along OAC and a proposed pilot channel between Ponds E6 and E7. This resource contains a domestic artifact scatter (including ceramic tableware fragments and glass food container fragments), railroad ties, and boardwalk. Due to its proximity to the J. Quigley Alvarado Salt Works, Speulda-Drews and Valentine (2007) surmised it may have been a short-term camp for laborers working at the Alvarado Salt Works. FSW-07-12-1 was evaluated and determined eligible under Criteria A and D of the NRHP (OHP 2009); and raising bottom elevations in the Bay and Inland Ponds, the excavation of a pilot channel, and increased inundation from the breach would cause a substantial adverse change to FSW-07-12-01. Mitigation Measure ILC in the MOA accounts for archaeological resources within the ELER that are contributing elements of the historic landscape and will be dealt with according to the treatment plan (USFWS 2012). The treatment plan includes documentation with photography, GPS (global positioning system) mapping, and limited subsurface testing of features and selective surface collection, in addition to yearly monitoring until the salt marsh habitat has been reestablished (USFWS 2012: Attachment 2). For the Oliver Salt Works site in northern Eden Landing, annual monitoring was conducted for 5 years until the marsh was re-established. It is anticipated that a similar duration would be required at the Alvarado Salt Works. Implementation of the treatment plan will resolve the project-related impacts associated with known cultural resources.

There is also a potential that previously undocumented cultural resources are present below the surface, which were not evident during surveys (including the potential for submerged resources such as shipwrecks). SBSP Mitigation Measure 3.8-1, described in Chapter 2, Alternatives, would be implemented as part of the Eden Landing Phase 2 project to reduce potential impacts to unrecorded cultural resources including submerged archaeological sites or submerged historic resources. Measures include site surveys, pre-construction contractor education, construction monitoring, and procedures for unanticipated finds or if human remains are found. For example, measures for site surveys include requirements that qualified professional archaeologists inventory portions of the restoration site that have not been previously examined. If surveys reveal the presence of cultural resources (e.g., unusual amounts of shell, animal bone, bottle glass, ceramics, and structure/building remains), and those resources have not been dealt with sufficiently in any Cultural Landscape documentation, the resources would be documented according to current professional standards. Depending on the evaluation, additional measures may be required, including avoidance of the resource through changes in construction methods. If there are unanticipated finds, the contractor shall be instructed to halt operation in the vicinity of the find and follow the appropriate contact procedures. Work shall not resume in the vicinity of the find until a qualified professional archaeologist has had the opportunity to examine the finds, identify the materials, and determine their possible significance. Note that the title to abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State of California.

Pile driving may be required to install bridges, water control structures, and the offloading facility. During bridge construction, piles would likely be driven in the slough separating the Inland Ponds from the Southern Ponds. Approximately 30 temporary mooring piles would also be driven in the deepwater channel of the Bay, to secure the offloader, landing barges, delivery vessels, and supporting equipment. While there is a very low potential for encountering archaeological material within bay mud, some isolated burials have been found. If the pile driving activity is deep enough to extend below the bay mud, then there is also some potential for encountering archaeological resources in the deeper strata (although no such sites have been found to date). Geotechnical borings could provide information about the presence of cultural resources prior to pile driving and if those areas were found to have cultural resources, additional protection measures would be implemented as indicated in SBSP Mitigation Measure 3.8-1. Since mitigation measures required by the MOA and SBSP Mitigation Measure 3.8-1 would be implemented as part of the Eden Landing Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Eden B Level of Significance: Less than Significant

Alternative Eden C. As discussed above for Alternative Eden B, cultural resource FWS-07-12-1 is within the northeastern portion of these ponds. A viewing platform and trail are proposed in the area, as well as a water control structure on the OAC levee, improvement to the interior levee between Ponds E6 and E7, the creation of a habitat transition zone within Pond E7, and raising bottom elevations in the Bay Ponds. All of these proposed improvements would cause a substantial adverse change to FWS-07-12-01, with the increased inundation and the possibility of vandalism. However, this site is included in the MOA and the implementation of the treatment plan, which includes monitoring and data collection, will resolve the project-related impacts associated with known cultural resources. Alternative Eden C could have similar impacts to previously undocumented cultural resources as those discussed in Alternative Eden B. Pile driving for bridge crossing at OAC and the ACFCC could also occur. Since mitigation measures required by the MOA and SBSP Mitigation Measure 3.8-1 (described in Chapter 2, Alternatives) would be implemented as part of the Eden Landing Phase 2 project including procedures for unanticipated finds, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Eden C Level of Significance: Less than Significant

Alternative Eden D. As discussed above, cultural resource FWS-07-12-1 is within the northeastern portion of these ponds. A water control structure on the OAC levee, the excavation of a pilot channel between Ponds E6 and E7, and raising bottom elevations in the Bay and Inland Ponds are proposed. These actions would cause an adverse change to FWS-07-12-1. However, this site is included in the MOA and the implementation of the treatment plan, which includes monitoring and data collection, will resolve the project-related impacts associated with known cultural resources. Alternative Eden D could have similar impacts to previously undocumented cultural resources as those discussed in Alternative Eden B. Since mitigation measures required by the MOA and SBSP Mitigation Measure 3.8-1 (described in Chapter 2, Alternatives) would be implemented as part of the Eden Landing Phase 2 project including procedures for unanticipated finds, project-related impacts to recorded or unrecorded cultural resources would be less than significant.

Alternative Eden D Level of Significance: Less than Significant

Phase 2 Impact 3.7-2: Potential disturbance of the historic salt ponds and associated structures which may be considered a significant cultural landscape.

Alternative Eden A (No Action). Under the No Action Alternative, no new activities would be implemented as part of the Eden Landing Phase 2 project. The California Department of Fish and Wildlife (CDFW) would continue maintaining and operating the ponds as part of the ELER and according to the *Eden Landing Ecological Reserve System E2 and E2C Operation Plan* and the activities described in the AMP, and in accordance with current CDFW practices. Therefore, Alternative A would not adversely affect historical resources.

Alternative Eden A Level of Significance: No Impact

Alternative Eden B. As discussed in Section 3.7.1, Physical Setting, the southern Eden Landing ponds are a contributing element of the Eden Landing Salt Works Historic Landscape, which has been determined by the SHPO to be a historic property and, therefore, is considered a historical resource under CEQA as well. The proposed Phase 2 project activities would cause substantial adverse change to the ponds and other landscape features that are contributing elements of the historic landscape. These impacts were previously identified in the 2007 Final EIS/R. Because SBSP Mitigation Measure 3.8-1 (described in Chapter 2, Alternatives) would be implemented as part of the Phase 2 project, project-related impacts to recorded or unrecorded cultural resources would be less than significant. The primary element of this mitigation measure is the determination of eligibility of the cultural landscapes and completion of HALS recordation for those pond complexes considered to be historic landscapes. The HALS mitigation for the SBSP Restoration Project was codified in the MOA (USFWS 2012). SHPO concurred with the determination of eligibility for the Eden Landing Salt Works Historic Landscape (OHP 2010). The HALS recordation has since been completed by USFWS for the Eden Landing Salt Works (HALS CA-91), accepted by the NPS, and submitted to the SHPO and Library of Congress for curation. Given the execution of the MOA and associated treatment plan and mitigation measures, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Eden B Level of Significance: Less than Significant

Alternative Eden C. As discussed above for Alternative Eden B, the entire Eden Landing unit has been determined to be a historic property by the SHPO and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Eden C Level of Significance: Less than Significant

Alternative Eden D. As discussed above for Alternative Eden B, the entire Eden Landing unit has been determined to be a historic property by the SHPO and Phase 2 impacts to the historic landscape have been previously mitigated through execution of the MOA and associated treatment plan and mitigation measures, including HALS documentation. As such, Phase 2 impacts have already been reduced to a less-than-significant level.

Alternative Eden D Level of Significance: Less than Significant

Impact Summary

Phase 2 impacts to cultural resources and the levels of significance are summarized in Table 3.7-3. The levels of significance are those remaining after implementation of program-level mitigation measures, project-level design features, and the AMP and other Eden Landing Ecological Reserve management documents and practices. The cultural resources analysis required no project-level mitigation measures to reduce the impacts to a level that was less than significant.

Table 3.7-3 Phase 2 Summary of Impacts – Cultural Resources

IMPACT	ALTERNATIVE EDEN A	ALTERNATIVE EDEN B	ALTERNATIVE EDEN C	ALTERNATIVE EDEN D
Phase 2 Impact 3.7-1: Potential disturbance of known or unknown cultural resources.	NI	LTS	LTS	LTS
Phase 2 Impact 3.7-2: Potential disturbance of the historic salt ponds and associated structures which may be considered a significant cultural landscape.	NI	LTS	LTS	LTS

Notes:

Alternative Eden A is the No Action Alternative (No Project Alternative under CEQA).

LTS = Less than Significant

NI = No Impact