

4.15 Cultural and Paleontological Resources

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4.15.1 Introduction

This section discusses the potential for the various components of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) to affect previously identified and/or inadvertently discovered cultural and paleontological resources. Cultural resources include architectural resources, archaeological resources, traditional cultural properties, and human remains. Paleontological resources include fossilized remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils.

Based on CEQA Guidelines Section 15064.5(a), historical resources include, but are not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a lead agency considers a resource to be “historically significant” if the resource meets the criteria for listing in the California Register of Historical Resources (California Register) (Public Resources Code [PRC] 5024.1).

Under the National Historic Preservation Act (54 U.S.C. § 300301 et seq.) implementing regulations, historic properties are defined as any prehistoric or historic-era district, site, building, structure, or object included on, or eligible for inclusion on, the National Register of Historic Places (National Register) (54 U.S.C. § 300308). Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (NPS, 1990). Historic properties that meet federal criteria are also considered historical resources under CEQA, in accordance with PRC Section 5024.1(d)(1). Historical resources and historic properties refer to significant architectural/structural resources, significant archaeological resources (including maritime resources such as shipwrecks), and traditional cultural properties.

4.15.1.1 Definitions

Cultural Resources

Architectural/Structural Resources

Architectural/structural resources are typically elements of the built environment, including but not limited to buildings, structures, objects, sites, and districts; these resources range from single-family residences, stores, schools, and factories to downtown commercial districts, ranches, military bases, roads, railroads, bridges, tunnels, gardens, and statues. The term “structure” is used to create distinction between infrastructure and facilities, such as roads, railroads, trails, bridges, dams, canals, ditches, and retaining walls, and buildings made for purposes other than human shelter such as barns, sheds, or workshops. A structure that has lost its historical configuration or pattern of organization through deterioration or demolition (e.g., bridge footings, foundations) is usually considered a ruin and categorized as an archaeological site.

Archaeological Resources and Traditional Cultural Properties

An archaeological site is defined as “the location of a significant event, a prehistoric or historic-era occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure” (NPS, 1990). Prehistoric archaeological materials might include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, adobe, or wooden footings, foundations, and walls; artifact-filled wells or privies, and sheet refuse; or deposits of metal, glass, and/or ceramic refuse. Shipwrecks and other maritime related resources such as remnant wharfs and piers can be considered archaeological resources. Faunal and floral remnants can be associated with both prehistoric and historic-era sites. Human remains can be associated with archaeological sites or found in an isolated context.

A Traditional Cultural Property (TCP) is a property that is eligible for inclusion in the National Register based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. The cultural significance of a TCP is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, snails, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries not only provide a historical record of past plant and animal life but can assist geologists in dating rock formations. In addition, fossil discoveries can expand our understanding of the time periods and geographic ranges of existing and extinct flora or fauna.

4.15.1.2 Area of Potential Effects

The Area of Potential Effects (APE) is the study area for architectural/structural, archaeological, and paleontological resources and is the area that could be affected by the proposed project. This analysis relies on the federal definition of APE, which is “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR 800.16(b)). The proposed project is equivalent to the federal undertaking.

Direct APE (Archaeological/Paleontological APE)

The *direct* APE (also the archaeological and paleontological APE) is identical to the lateral extent of the project area boundary (see **Figures 3-2** and **3-3** through **3-15** in Chapter 3, Description of the Proposed Project). Like the project area boundary, the direct APE represents all areas where construction-related ground disturbance could occur, including open excavations, construction work areas, and staging areas. Not all portions of the direct APE (project area boundary) would necessarily be disturbed. The horizontal direct APE for nonlinear facilities (i.e., the MPWSP Desalination Plant, subsurface slant wells, Terminal Reservoir, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station) is based on the anticipated footprint and construction-related disturbance associated with each facility.

The standard width of the direct APE for pipelines proposed in undeveloped areas is approximately 100 feet; for pipelines proposed within existing roadways, the width of the direct APE is equal to the width of the road right-of-way (typically 30 to 100 feet from curb to curb). Pipeline trenches would generally be no more than 6 feet wide, except in areas with sandy soils and where there are no constraints to excavating a wider trench (i.e., known resources, geography, existing utilities, or other facilities that restrict the construction area). In these areas, a trench width of up to 10 or 15 feet could potentially be used to reduce costs related to shoring the trench. For all pipelines, the length of the direct APE is equal to the length of the proposed pipeline.

The depth of the direct APE varies for each of the project components. Pipeline depths would average 8 feet below the ground surface, with deeper excavations required where pipelines would be installed via trenchless technologies (i.e. jack and bore, horizontal directional drilling, etc.). The maximum construction area for the Desalination Plant would be the 25-acre development area. Depth of ground disturbance for the facilities would not exceed 12 feet below ground surface. The slant wells would be approximately 900 to 1,000 feet long and drilled at approximately 14 degrees below horizontal to extend up to 356 feet seaward of the MHW line (except #8, which would not extend past the MHW line) and to a depth of 190 to 210 feet beneath the sea floor. The direct APE for the subsurface slant wells includes an area within MBNMS.

Indirect APE (Architectural/Structural APE)

The *indirect* APE (also the architectural and structural APE) encompasses the direct APE as well as the area of indirect impact, which for historic architectural resources includes the viewshed or setting visible from a project component as well as the area subject to construction-related vibration.

The horizontal extent of the indirect APE is inclusive of any areas that could be subject to significant vibration effects from construction equipment. For project pipelines that are proposed in roadways, the indirect APE encompasses the width of the road right-of-way (typically 50 to 75 feet from curb to curb) as well as buildings and structures within 45 feet of the outside curb. The indirect APE for the subsurface slant wells and the ASR-5 and ASR-6 Wells encompass a 25-foot radius from the point of insertion (i.e., from the locations where the drill rigs would be operated). For project components in unpaved areas, the indirect APE is 45 feet from the centerline of the pipeline or a 45-foot buffer from a project component. For pipeline installations that would require trenchless construction techniques employing installation of sheet piles, the indirect APE is 85 feet from the jacking or receiving pit.

With respect to project effects on the viewshed or setting visible from a project component, the majority of the project components would be constructed below ground (i.e., pipelines) and would not affect the viewshed or setting associated with potential historical resources. For aboveground components, the viewshed and/or setting visible from a project component is included in the indirect APE. Section 4.14, Aesthetic Resources, further addresses the potential aesthetic and visual quality impacts associated with implementation of the proposed project.

4.15.2 Setting / Affected Environment

The study area for evaluation of cultural and paleontological resources impacts is the area of direct and indirect impact for the proposed project as described above in Section 4.15.1.2 Area of Potential Effects.

4.15.2.1 Cultural Setting

This section presents a brief overview of the environmental, geological, ethnographic, and historical background of the project vicinity. The project area extends across portions of unincorporated Monterey County and the cities of Marina, Seaside, Sand City, and Monterey. This section has been partially adapted from Jones and Holson (2009).

Natural Environment

The Monterey Bay area is bounded on the north by the Santa Cruz Mountains and on the south by the Gabilan and Santa Lucia Mountains. There are extensive alluvial plains in the southern half of the area between the coast and the mountains. A great submarine canyon extends from Moss Landing into the Pacific Ocean (Gordon, 1996).

The Monterey Bay area has two seasons—a cooler, wetter winter season and a warmer, drier summer season. Average annual rainfall in this area ranges from 15 to 27 inches, increasing with elevation. This area is temperate, with weather conditions varying from cloudy and rainy to clear and fair.

The Monterey Bay area is home to a vast array of floral and faunal species that would have been utilized by both prehistoric and early historic-period populations. Mayer and Laudenslayer (1988)

describe the two dominant habitats in the Monterey Bay area as coastal oak woodland and coniferous montane hardwood. Native to coastal oak woodland is the coast live oak tree. During the Mission Period (1769–1834), early settlers in the area affected the integrity of this habitat through the introduction of agriculture and animal husbandry; in addition, the importation of aggressive annual species hindered the development of young oaks. As a result, portions of the woodland have become open woodlands or savannas. Over 60 species of mammals and over 110 species of birds—including California quail, deer, and squirrel—live in the coastal oak woodland habitat. A variety of tree species are found in coniferous montane hardwood habitat, including coast live oak, big-leaf maple, Pacific madrone, tan oak, canyon live oak, Coulter pine, and coastal redwood. Animals found in the coniferous montane hardwood habitat include California quail, plain titmouse, scrub jay, rufous-sided towhee, Bewicks wren, bush tit, and acorn woodpecker, among others.

Geological Context

The California coast has undergone dramatic landscape changes since humans began to inhabit the region more than 10,000 years ago. Rising sea levels and increased sedimentation into streams and rivers are among the changes (Helley et al., 1979). In many places, the interface between older land surfaces and Holocene-age landforms are marked by a well-developed buried soil profile (or “paleosol”). Paleosols preserve the composition and character of the earth’s surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archaeological resources if the area was occupied or settled by humans (Meyer and Rosenthal, 2007). Because human populations have grown since the arrival of the area’s first inhabitants, younger paleosols (late Holocene) are more likely to yield archaeological resources than older paleosols (early Holocene or Pleistocene).

The direct APE intersects several geologic deposits, including artificial fill, Holocene-age dune sand, Holocene-age alluvial deposits, older Pleistocene-age marine terrace deposits, and bedrock (**Figure 4.15-1**). A geoarchaeological assessment completed for the Transportation Agency for Monterey County’s (TAMC) Light Rail Transit Project indicated that portions of the direct APE have a high sensitivity for buried archaeological resources (Meyer in Ruby, 2010). According to Meyer’s assessment (Meyer in Ruby, 2010:29), the potential for buried archaeological resources can be determined based on three assumptions:

- Archaeological sites tend to be located near perennial water sources;
- Archaeological deposits from successive time periods are more common because the density of human populations increased over time; and
- The longer a landform remained at the surface, the greater the probability that any one spot on that landform was occupied.

The Monterey Bay area locations determined to have the highest potential for buried archaeological sites are associated with channels or estuaries (Meyer in Ruby, 2010) that traverse the direct APE. This includes Tembladero Slough and Salinas River.

Based on the above-described geoarchaeological assessment, there is potential for deeply buried, well-developed soil horizons to be present in portions of the direct APE, and thus potential for

archaeological resources associated with those buried soils to be encountered during project work. Those locations include Tembladero Slough near Castroville and the Salinas River (see **Figure 4.15-1**). It is not recommended that additional subsurface investigations for deeply buried sites be conducted for the proposed project for the following reasons: few deeply buried sites have been previously discovered in the Monterey Bay vicinity, ground disturbance in the direct APE at locations with a high archaeological sensitivity would be relatively narrow (generally 6 feet wide) and linear (rather than areal); and the active coastal dune environment may have destroyed, disturbed, and/or removed archaeological materials.

Prehistoric Context

Archaeologists have developed individual cultural chronological sequences tailored to the archaeology and material culture of each subregion of California. Each of these sequences is based principally on the presence of distinctive cultural traits and stratigraphic separation of deposits. Jones et al. (2007) provide a framework for the interpretation of the Central Coast and the Monterey Bay Area. The authors divide human history on the Central Coast into six broad periods: the *Paleo-Indian Period* (pre-8000 B.C.), the *Early Archaic Period* (8000 to 3500 B.C.), the *Early Period* (3500 to 600 B.C.), the *Middle Period* (600 B.C. to A.D. 1000), the *Middle/Late Transition Period* (1000 to 1250 A.D.), and the *Late Period* (A.D. 1250–1769). The periods have been largely defined on the basis of distinctive bead types; typological analysis and radiocarbon dating of *Olivella* beads show the bead sequence in the Monterey Bay Area as generally similar to those of the California Central Valley and the Santa Barbara coast. Economic patterns, stylistic aspects, and regional phases further subdivide cultural periods into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

Evidence of human habitation during the *Paleo-Indian Period*, characterized by big-game hunters occupying broad geographic areas, has not yet been discovered in the Monterey Bay Area. The oldest known occupation of the Monterey Bay area dates from ca. 5000 B.C., however data representing this earliest occupation is limited. The *Early Archaic Period* is represented by the *Millingstone Culture* (800 to 3500 B.C.) and is marked by large numbers of handstones and/or millingslabs, crude core and cobble-core tools, and less abundant flake tools and large side-notched projectile points. Millingstone components have been identified at locations in Monterey County near Elkhorn Slough and Monterey Peninsula. Faunal remains indicate that Millingstone people exploited shellfish, fish, birds, and mammals, and with a majority of Millingstone sites less than 25 kilometers from the shoreline there appears to have been a focus on shellfish consumption.

The *Early* and *Middle Periods* are represented by the *Hunting Culture* (3500 B.C. to A.D. 1250), which was marked by large quantities of stemmed and notched projectile points. During the *Early Period* (3500 to 600 B.C.), the first cut shell beads and the mortar and pestle are documented in burials, indicating the beginning of a shift from mobility to sedentism. During the *Middle Period*, (600 B.C. to A.D. 1000), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider



205335.01 Monterey Peninsula Water Supply Project
Figure 4.15-1
 Culturally Sensitive Areas

NOTE:
 *Refer to figure 4.2-2 for "A" geologic cross-section information and 4.2-3 for "B" geologic cross-section information.

SOURCE: CGS, 2002

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range of environments suggest that the economic base was more diverse and required logistical hunting techniques. Coastal habitation was still preferred but large Hunting Culture middens have also been identified in inland valleys.

The *Late Period* (A.D. 1250–1769) is distinguished from the Hunting Culture by large amounts of Desert side-notched and Cottonwood arrow points, small bifacial bead drills, bedrock mortars, hopper mortars, distinct *Olivella* bead types, and steatite disk beads. These assemblages represent social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. This differs dramatically from the Hunting Culture materials and may represent developments associated with population increase, environmental changes, and ethnic migrations.

Ethnographic Setting

Based on a compilation of ethnographic, historic, and archaeological data, Milliken et al. (2009) describes a group known as the Ohlone, who once occupied the general vicinity of the project area. While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these “static” descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native adaptability and self-identity. California’s Native Americans never saw themselves as members of larger “cultural groups,” as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy (1978) describes the language group spoken by the Ohlone, known as “Costanoan.” This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The proposed project is in the greater Rumsen-speaking tribal area; their territory extended from Point Sur northward to the lower Pajaro River, and included the present-day cities of Monterey, Seaside, Marina, and Carmel. Dialects of the Rumsen language were spoken by four independent local tribes, including *Rumsen* in Monterey, *Ensen* of the Salinas vicinity, *Calenda Ruc* of the central shoreline of Monterey Bay, and *Sargentaruc* of the Big Sur Coast. Five villages were present in their territory at the time of Spanish contact: *Achasta*, *Tucutnut*, *Soccorronda*, *Echilat* and *Ichxenta* (Milliken et al., 2009).

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of

clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone, while not federally recognized, still have a strong presence in the Monterey Bay Area, and are highly interested in their historic and prehistoric past.

Historic-Era Background

This brief history of Monterey County was adapted from *Historic Spots in California* (Hoover et al., 2002) and supplemented by Breschini et al. (1983). The following discussion summarizes the major events of the post-contact period in the project vicinity.

Spanish Period

Although the first Spanish incursions into the Monterey area began in the early 17th century (with the 1602 Vizcaino expedition), it was not until over a century later that the Spanish government took an active interest in colonizing the territory then known as Alta California. Captain Gaspar de Portola led a land expedition to Monterey by way of the coast in 1769 (Hoover et al., 2002). The first Spanish exploration of the Salinas Valley followed in 1774, when Don Juan Bautista de Anza's expedition established a route through the valley to Monterey. This route was known as El Camino Real, the Royal Road.

The mission system was an important institution in the colonization process of Alta California, the purpose of which was to Christianize the native people and turn them into tax-paying, Spanish-speaking colonists. The methods practiced by the Franciscan friars emphasized Hispanic modes at the expense of the traditional culture. The Spanish established 21 missions along El Camino Real, from San Diego to Sonoma, as well as presidios and pueblos. In the Monterey Bay area, Spanish authorities founded a presidio and mission in 1790 (further discussion below, in regional history). Other nearby Missions and pueblos also affected the native population of Monterey County, and established a new immigrant population.

Life for the new converts was (at best) difficult under the mission system. Converts were given European names and pressured to take up a sedentary way of life. Instead of relying on traditional skills such as fishing and gathering, converts were taught agricultural and pastoral techniques to produce supplies for the mission. Although the native population never completely abandoned their traditional lifeways, the social structure was severely disrupted. Many Native Americans died from European diseases to which they had no resistance, as well through abuse, violence, neglect, and military incursions. In contrast, the new colonial population prospered and grew, as did the animal populations and agricultural products that they brought with them.

Mexican Period

Spanish control of California ended with Mexican independence in 1821. In 1834, the Mexican government secularized the missions, freeing the Native Americans from the control of the missionaries. Returning to their traditional way of life was difficult, however, since land holdings were given to Mexican settlers ("Californios") rather than reverting to original ownership. A few Native Americans were granted land, but records show that, for the most part, the indigenous

people quickly lost ownership through land claims disputes and sales. Native people became increasingly marginalized as a result of decreasing population, the stresses of mission life, and the erosion of traditional knowledge. Some Native Americans returned to their villages and resumed their traditional economy, replacing bows and arrows with guns. Others found jobs as vaqueros, or cowboys, on the ranchos operated by Mexican settlers. Census records show the number of Native Americans declined steadily into the 20th century.

In Monterey County, 76 land grants were made to Mexican settlers, more than in any other county (Beck and Haase, 1980). The lands adjacent to the Salinas River were highly valued and accounted for approximately one-half of the total land grants made in Monterey County. Some grantees used their land to establish ranches with enormous, free-ranging herds of horses and Spanish cattle. Cattle powered the Californio economy; cattle hides and tallow were the medium of exchange in business transactions among the Californios and with many trading ships that came from the American east coast.

By 1846, the population of Alta California was comprised of an estimated 8,000 settlers and 10,000 indigenous people (Breschini and Haversat, 1983). This figure represents a drastic decline in the Native American population from the estimated 133,500 in 1770. During Mexican control of Alta California, several hundred Americans settled; some of the Americans became citizens of Alta California by marrying into Mexican families and received land grants.

American Period

The 1848 Treaty of Guadalupe Hidalgo brought Alta California under the control of the United States. News of the Gold Rush that same year sparked a huge migration into California. With the rapid influx of settlers came legal disputes over the ownership of lands awarded by Spanish or Mexican authorities. The new American government passed the Land Act of 1851, which placed the burden of proof-of-ownership on the grantees; as a result, the few Native Americans who had received grants lost their titles, as did many of the Hispanic owners. By congressional action, grant claims were heard by a board of land commissioners and then appealed in federal courts. The outcome of the litigation was that federal officials ultimately recognized approximately 75 percent of the Mexican land grants; however, the majority of the petitioners had already sold off most of their holdings (Hoover et al., 2002:xvi).

Farming during the American period was characterized by three types of pursuits: cattle and sheep ranching, grain farming, and irrigated agriculture. Cattle and sheep ranching dominated until the 1880s. During this time, free-ranging, comparatively wild Spanish cattle were replaced by American breeds of livestock and dairy cows. Fencing with wooden posts and barbed wire became a prominent feature across the landscape. During the 1880s, Monterey County was California's third-ranking producer of livestock (Hoover et al., 2002). The development of railroads, including the Southern Pacific and regional lines such as the Monterey and Salinas Valley Railroad and the Pajaro Valley Consolidated Railroad, allowed for distribution and improved marketing for the central coast region. By 1901, the coast route was open and running between San Francisco and Los Angeles. Agriculture became more intensive as farming shifted to wheat and barley cultivation. Early crops included sugar beets and alfalfa. The present-day

Armstrong Ranch typifies commercial and agricultural development in Monterey County and along the central coast.

Regional History

Monterey. Captain Gaspar de Portolá was sent to Monterey with the objective of establishing Spain's first military base in Alta California (Hoover et al., 2002). After failing to find Monterey Bay on his first land expedition along the coast in 1769, he again set out with his party early the following year. He reached Monterey on May 24, 1770 and was followed by a support vessel carrying Father Junipero Serra and Captain Juan Pérez.

Father Junipero Serra founded a mission at the Presidio, which he moved to the Carmel Valley in 1771. Named Mission San Carlos Borroméo, the mission is located at the mouth of the Carmel River in present-day Carmel. Dedicated in 1797, it became the home of Father Serra in his later years. In Monterey, the Presidio and surrounding area became the focal point for military and commercial life in the Monterey Bay area. By 1796, a battery had been constructed consisting of fortifications known as "El Castillo" (Jackson et al., 1985). This site was equipped with several cannons and provided a defense for the bay, town of Monterey, and the Presidio. Both resources are listed in the National Register. El Castillo is individually listed in the National Register, and the Presidio is part of a National Register District.

Monterey was retained as the capital of Alta California following Mexican Independence in 1821, at which time the Port of Monterey was opened for trade. Settlement before Mexican Independence had been concentrated inside the walls of the Presidio. Following Independence and the opening of the port, settlement began to expand into what is now Old Monterey. Several Mexican-era adobes are still present and part of the Monterey Old Town Historic District, which is a designated National Historic Landmark District and listed in the California Inventory of Historical Resources and the National Register. The Monterey Old Town Historic District is a two-part, noncontiguous area in the City of Monterey that contains many of the historic buildings and adobes of Spanish and Mexican California. It was designated a Landmark District in 1970 due to its ability to convey the Spanish Colonial character of Monterey and California.

During the American Period, Monterey retained its regional importance. It was incorporated as a city in 1850 and remained a vital port. The first American Federal Courthouse in Monterey was located in the Gabriel de la Torre Adobe at 599 Polk Street. At the turn of the century, many Sicilian fishermen settled in Monterey and Cannery Row as the fishing industry, which focused primarily on sardines, became established in Monterey. The Italian character of Monterey endured until the 1950s when the sardine fisheries that supported Cannery Row collapsed. Cannery Row is currently maintained as a Monterey tourist attraction and community, and its family ties to Sicily remain strong.

Armstrong Ranch (previously Bardin Ranch). Armstrong Ranch in Monterey County is a 2,260-acre tract purchased by John G. Armstrong from James Bardin and the Bardin family in 1885. Armstrong Ranch is located north of Reservation Road. The original boundaries of the Armstrong Ranch included the proposed MPWSP Desalination Plant site, the subsurface slant

wells site, and a portion of the Source Water Pipeline; however, the current ranch boundaries are significantly reduced.

Armstrong came to San Francisco in 1868 and later settled in Monterey County. In 1885, Armstrong purchased 1,372.5 acres of land west of the Monterey and Salinas Railroad grade from James Bardin of the Bardin Ranch. Armstrong purchased three additional parcels from the Bardin family, totaling 2,800 acres. Armstrong sold approximately 400 acres of land to the San Francisco Sand Company in 1906. In 1973, the California Department of Transportation (Caltrans) condemned a linear tract of land passing through the Armstrong Ranch for use as a state highway. Construction of Highway 1 across the Armstrong Ranch began in 1974 (Clark, 1991:19).

Regional Railroads

Southern Pacific Railroad and the Del Monte Express. The existing TAMC railroad tracks are adjacent to the Castroville Pipeline and the new Transmission Main, and consist of the original Southern Pacific Railroad to Monterey. In 1865, a group of San Francisco businessmen formed Southern Pacific Railroad to construct a railroad from San Francisco to San Diego.

During the early 1870s, the Southern Pacific Railroad Company expanded its line down the Salinas Valley, stopping in Soledad. The line was used both as a freight line for farmers to ship produce north to the San Francisco region and as a passenger line for travelers heading to southern Monterey County destinations. From Soledad, southbound travelers could transfer to the Coast Line Stage Company stage routes (Ryan and Breschini, 2000). After buying up the narrow-gauge Monterey and Salinas Valley Railroad (see below) in 1879, Southern Pacific regraded the railroad route to Monterey as a standard-gauge line in 1880 and gained control of rail traffic in the Monterey area.

In coordination with the acquisition of the rail line to Monterey, the Pacific Improvement Company (PIC), the holding company for the owners of the Southern Pacific Railroad—Charles Crocker, Collis P. Huntington, Mark Hopkins, and Leland Stanford—built the Del Monte Hotel in Monterey. The palatial resort hotel was an attempt to attract a passenger trade for the railroad. When the Del Monte Hotel was opened in 1880, Southern Pacific began daily railroad service from San Francisco to the Monterey called the “Monterey Express.” After the reopening of the second Del Monte Hotel, the rail service was renamed the “Del Monte Express” in 1889 (Hoffmann, 2001a:4). Early Del Monte Express trains included a club car and a parlor-lounge-observation car, and catered to the tourist trade (Hoffmann, 2001a:5).

In 1888, Southern Pacific made plans to extend the rail service through Monterey to Pacific Grove and then on to the Carmel River (Oehlert, 1978:41). The railroad construction began in 1889, passed the Monterey Customs House and ended in Pacific Grove near Lake Mejela (Oehlert, 1978:42–43). The route to the Carmel River was never completed.

The Del Monte Express service was powered by steam engines until 1955, when diesel engines replaced them (Hoffmann, 2001b:4). Other changes occurred in the mid-twentieth century that had an effect on the railroad. From World War II on, after the Del Monte Hotel became a Naval

school, the number of tourist passengers using the Del Monte Express dropped (Hoffmann, 2001b:5). The advent of the automobile also had its effect on rail service. By 1957, rail service to Pacific Grove was cut back and the route ended at Monterey. In 1959, the U. S. Postal Service cancelled its San Francisco to Pacific Grove route, which used the train, and Southern Pacific started petitioning the California Public Utilities Commission to discontinue the Del Monte Express (Hoffmann, 2001b:6). In 1971, 82 years after it was started, the Del Monte Express service was terminated (Hoffmann, 2001b:6).

Monterey and Salinas Valley Railroad. The Monterey and Salinas Valley Railroad extended across the proposed MPWSP Desalination Plant site. In response to skyrocketing freight rates charged by the Southern Pacific Railroad, a group of Salinas Valley citizens began calling for an independently owned and operated railroad. Several prominent Monterey County businessmen formed the Monterey and Salinas Valley Railroad and filed articles of incorporation in February 1874 in the Monterey County Court House. Construction of the 18.5-mile narrow-gauge railroad began in April 1874 (Clark, 1991:322). The railroad began in Monterey near Adam Street and extended north beyond Marina, turning northeast across the valley to the Salinas River and finally heading southeast toward Salinas. The Monterey and Salinas Valley Railroad was the first narrow-gauge railroad in California and was designed to carry freight and passengers. As noted by Fabing and Hamman (1985), the Monterey and Salinas Valley Railroad completed its first round-trip in October 1874, bringing "...beans and barley from the J. Bardin Ranch."

As a result of financial losses, the Monterey and Salinas Valley Railroad was forced into bankruptcy not long after it began operation. The Southern Pacific Railroad purchased the Monterey and Salinas Valley Railroad in August 1879 at a foreclosure sale. The Southern Pacific Railroad replaced the narrow-gauge tracks from Castroville to Monterey with a new standard gauge line. The narrow-gauge line from Salinas to Marina (crossing the Bardin Ranch) was abandoned. Southern Pacific sold the Monterey and Salinas Valley Railroad locomotives, track, and equipment to the Nevada Central Railway.

Sand Mining

This discussion is relevant to the project facilities located in the CEMEX sand mining facility (subsurface slant wells and the segment of the Source Water Pipeline located east of Lapis Road). Beginning almost immediately after construction of the railroad and expanding following the 1906 earthquake in San Francisco, a sand mining industry developed along Monterey Peninsula's shore. Companies used sand from the coastal dunes that line Monterey Bay to produce both glass and building materials. Sand from Monterey's coastline was hauled by railroad and used in the rebuilding of San Francisco, as well as in the growing cities and towns across the state. The San Francisco Sand Company opened the CEMEX sand mining facility (also referred to herein as the Lapis Sand Mining Plant) north of Marina in 1906 and constructed a small spur from the main line that extended west to the dunes. At the industry's height, between 300,000 and 400,000 cubic yards of sand were removed annually from the region (Herbert et al., 2010:18). The CEMEX sand mining facility is the only remaining sand mining facility in operation in Monterey Bay and represents one of the earliest and largest sand mining operations in southern Monterey Bay. (SWCA, 2014).

4.15.2.2 Paleontological Setting

Existing conditions in the project area were evaluated based on a review of site-specific geotechnical reports. Paleontological literature from the University of California Museum of Paleontology database was also reviewed. No field surveys for paleontological resources were conducted for the proposed project.

Paleontological Assessment Standards

The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP, 1996, 2010). Most practicing paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists and reflect the currently accepted standard practices. Many federal, state, county, and city agencies have either formally or informally adopted the SVP's standard guidelines for the mitigation of adverse construction-related impacts on paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, indicates the following:

- Vertebrate fossils and fossiliferous (fossil-containing) deposits are considered significant nonrenewable paleontological resources and are afforded protection by federal, state, and local environmental laws and guidelines.
- A paleontological resource is considered to be older than recorded history, or 5,000 years before present, and is not to be confused with an archaeological resource.
- Invertebrate fossils are not significant paleontological resources unless they are present within an assemblage of vertebrate fossils or they provide undiscovered information on the origin and character of the plant species, past climatic conditions, or the age of the rock unit itself.
- A project paleontologist, special interest group, lead agency, or local government can designate certain plant or invertebrate fossils as significant.
- In accordance with these principles, the SVP outlined criteria for screening the paleontological potential of rock units and established assessment and mitigation procedures tailored to such potential. **Table 4.15-1** lists the criteria for high-potential, undetermined, and low-potential rock units.
- Although not discussed in the SVP standards, certain earth materials and rock units are highly unlikely to contain paleontological resources, such as artificial fills, surface soils, and high-grade metamorphic rocks. While such materials were originally derived from rocks, they have been altered, weathered, or reworked such that the discovery of intact fossils would be rare.

**TABLE 4.15-1
 CRITERIA FOR DETERMINING PALEONTOLOGICAL POTENTIAL**

Paleontological Potential	Description
High	Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Common examples are: <ul style="list-style-type: none"> • Most tertiary-age sedimentary rocks, especially fine-grained, low-energy deposits such as shale and mudstone • Pleistocene-age alluvial fans, lake/playa deposits, shallow marine deposits, and marine terraces
Undetermined	Geologic units for which little or no information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and which are poorly represented in institutional collections. Common examples are: <ul style="list-style-type: none"> • All intrusive igneous rocks (e.g., granites) • Most metamorphic rocks and volcanic rocks (e.g., marble, slate, schist, basalt, etc.) • Sediment deposited within the last 10,000 years (e.g., Holocene alluvium, bay muds/estuarine areas, slope wash, or recent landslide deposits)

SOURCE: SVP, 1996, 2010.

Geologic Setting and Paleontological Potential

Section 4.2, Geology, Soils, and Seismicity, describes the geologic units that the project components would be constructed on or within. Using the paleontological potential criteria described above in **Table 4.15-1**, the following geologic units may have the potential for paleontological resources:

- Older Dune Sands (Quaternary)
- Terrace Deposits (Pleistocene)
- Monterey Formation (Tertiary)

The marine Monterey Formation consists of siliceous and diatomaceous beds, with diatoms and some benthic foraminifera noted in the unit (Clark, 1997). Diatoms are a major group of algae and are among the most common types of phytoplankton. Most diatoms are unicellular, although they can exist as colonies in the shape of filaments or ribbons, fans, zigzags, or stars. Foraminifera are a phylum or class of amoeboid protozoa, characterized by a thin external net for catching food and usually an external shell. Most foraminifera are marine and typically live on or within the sea floor sediment (benthos), although a few species are floaters. The shells are commonly calcium carbonate or agglutinated sediment particles. They are usually less than 1 millimeter in size, but some are much larger, with the largest species reaching up to 20 centimeters. Diatoms and foraminifera are typically microfossils and are not readily apparent to the unaided eye. The Monterey Formation is an extensive unit and the noted microfossils are common. As shown on **Figure 4.15-1**, the Main System-Hidden Hills Interconnection Improvements is located in the Monterey Formation.

However, this alignment is also within existing road right-of ways where most shallow soils would have been reworked or replaced with imported fill.

The University of California Museum of Paleontology (UCMP) website notes that the Monterey Formation covers an extensive area of the state and in places consists of marine deposits rich in fossils (UCMP, 2013). Fossil finds in the unit include whales and dolphins, as well as the large numbers of finely preserved crabs, along with kelps and other large soft-bodied seaweeds, which are seldom found as fossils elsewhere. A database search of the UCMP website indicated a large number of fossils have been collected from the Monterey Formation in Monterey County, with the majority of the finds consisting of the microfossils discussed above. In addition, the UCMP collection includes near-coastal invertebrate and vertebrate species, primarily fan worms, bivalves (i.e., mollusks, clams, oysters, mussels, and scallops), and one whale specimen from an unidentified Monterey County location. None of the specimens with identified locations are in or near the locations of the project components.

The UCMP database search indicated a few microfossils from the younger geologic units (Older Dune Sands and Terrace Deposits) but none near the locations of the project components.

4.15.2.3 Existing Site Conditions

Background Research

Environmental Science Associates conducted a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on June 18, 2010 (File No. 09-1597) and updated on February 28, 2013 (File No. 12-0934) and May 31, 2016 (File No. 15-1766). The purpose of the records search was to: (1) determine whether known cultural resources have been recorded within the direct and indirect APE; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby resources; and (3) develop a context for the identification and preliminary evaluation of cultural resources. The records search consisted of an examination of the following documents:

- **NWIC base maps** (U.S. Geological Survey [USGS] Castroville, Monterey, Seaside, and Marina, California 7.5-minute topographic maps) to identify recorded archaeological sites and studies within a 1/2-mile radius of the proposed project and recorded architectural/structural resources and studies conducted within or adjacent to the proposed project.
- **Resource Inventories:** California Department of Parks and Recreation (1976), *California Inventory of Historical Resources*. California Department of Parks and Recreation, Sacramento; California Office of Historic Preservation (2012), *Historic Properties Directory Listing for Monterey County* (through April 2012); California Department of Transportation (Caltrans), *Historic Bridge Inventory, District 4, Monterey County*, Updated 2010; California State Lands Commission Shipwreck Database.
- **Prehistoric Archaeology:** Jones, Terry, L., Nathan E. Stevens, Deborah A. Jones, Richard T. Fitzgerald, and Mark G. Hylkema, (2007), *The Central Coast: A Midlatitude*

Milieu. In *California Prehistory: Colonization, Culture, and Complexity*. Jones, Terry L., Klar, Kathryn A., eds., Altamira Press, MD.

- **Ethnographic Sources:** Levy, Richard (1978), Costanoan. In *California, Handbook of North American Indians, Vol. 8*, edited by Robert F. Heizer, pp. 485–495; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.; L. Kroeber (1925) *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.
- **Historical Background Sources:** Gudde, Erwin G. (1988), *California Place Names: The Origin and Etymology of Current Geographical Names*. Berkeley: University of California Press; Hoover, M.B., H.E. Rensch, E.G. Rensch, W.N. Abeloe (2002), *Historic Spots in California*. Revised by Douglas E. Kyle. Palo Alto, CA: Stanford University Press.
- **Historical Maps:** An extensive online historical map collection with approximately 50 maps and views of the Monterey Bay area is available online at <http://davidrumsey.com>.

Native American Consultation

The Native American Heritage Commission was contacted on October 19, 2010 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the proposed project. An updated request was sent on June 13, 2016. A response was received on June 14, 2016. The sacred lands file did not contain any information on the presence of cultural resources in the vicinity of the proposed project. The Commission provided a list of Native American contacts that might have further knowledge of cultural resources in the vicinity of the proposed project. MBNMS conducted consultations according to the requirements of the National Historic Preservation Act (NHPA) of 1966, as amended. Native American consultation with the Ohlone tribes will be ongoing throughout the project.

Records Search Results

Records on file at the NWIC indicate that both architectural/structural and archaeological resources have been previously recorded within the records search radius, as defined in Study Methods above. The southwestern portion of the records search radius is located within an area rich in both prehistoric and historic-era resources, including the Monterey Old Town Historic District, the historic Presidio of Monterey, and the National Register-listed El Castillo (a large prehistoric habitation site). The recently evaluated Lapis Sand Mining Plant Historic District in the vicinity of the proposed Source Water Pipeline has been determined eligible for listing in the National Register and the California Register (SCWA, 2014) (see the discussion under the heading, MPWSP Test Slant Well, below, for additional discussion).

Previous Studies

Dozens of cultural resources investigations have been completed in the project vicinity, primarily in the city of Monterey. Numerous shell middens as well as the Spanish- and Mexican-period occupations have been the focus of several studies and investigations. Several studies completed for linear projects (including the installation of fiber-optic cable, water lines, and the railroad) have evaluated cultural resources in the northern part of the proposed project. The closure of Fort

Ord resulted in several studies that included cultural resources surface surveys, archaeological and architectural evaluations, and an archaeological sensitivity study.

Portions of the project area were surveyed within the past decade for other projects using current standards and reporting methods. These previous studies are described below. Those areas previously surveyed within the past 5 years were not resurveyed for the proposed project.

CalAm Coastal Water Project EIR Cultural Resources Investigation

In 2009, Jones and Holson from Pacific Legacy, Inc. completed a cultural resources investigation for the Coastal Water Project (CWP) Environmental Impact Report (SCH No. 2006101004) (CPUC, 2009). There is some overlap between the proposed project and the facilities that were evaluated in the CWP EIR (Jones and Holson, 2009). Busby (2005) also completed a cultural resources assessment to support the CWP EIR.

Busby (2005) and Jones and Holson (2009) reviewed the archival records and previous studies completed within the CWP area and summarized those inventory efforts. They also completed a surface survey in select locations of the CWP area that had not been recently surveyed by a qualified archaeologist.

Monterey Peninsula Light Rail Transit Project Studies

Far Western Anthropological Group, Inc. (Far Western) and JRP Historical Consulting LLC (JRP) surveyed the Monterey Branch Line of the Southern Pacific Railroad in 2010 for the TAMC's proposed Light Rail Transit Project (Herbert et al., 2010; Ruby, 2010). Their study included an in-depth geoarchaeological assessment of the Monterey coastal area from Moss Landing to Pacific Grove, discussed above in Section 4.15.2.2, as well as a surface survey of the TAMC corridor including the Castroville Pipeline and the new Transmission Main.

Far Western and JRP surveyed the TAMC's proposed Light Rail Transit Project corridor, which included the railroad right-of-way from Castroville to Monterey. The majority of the survey was completed using narrow (less than 7-meter) transects; however, in some locations the survey area was wider, and transects were spaced approximately 20 meters apart. Visibility varied along the railroad tracks as the ground surface was covered in railroad ballast. Dense ice plant and pavement also obscured portions of the survey area.

Far Western recorded one prehistoric site adjacent to the Castroville Pipeline (see Study Findings below). As described in Section 4.15.2.2, above, the geoarchaeological assessment for the TAMC's proposed Light Rail Transit Project concluded that the corridor traverses areas with stream or river crossings, estuaries, and lagoons that are highly sensitive for buried prehistoric archaeological sites (Meyer in Ruby, 2010).

JRP recorded and evaluated the Monterey Branch Line of the Southern Pacific Railroad. With the exception of the Monterey Southern Pacific Passenger Depot (which was determined eligible for listing in the National Register in 2005 but is located outside of the direct APE), JRP recommended that the railroad and associated features were ineligible for listing in the National

Register (or the California Register) due to a lack of integrity (Herbert et al., 2010). As of this writing, the State Historic Preservation Officer (SHPO) has not yet concurred with this recommendation.

Fort Ord Studies

Terminal Reservoir would be located in the former Fort Ord military base and the ASR-5 and ASR-6 Wells would be located in the Fitch Park military housing community. Several cultural resources studies have been conducted within the boundaries of former Fort Ord, including: *Historical and Architectural Documentation Reports for Fort Ord* (Office of Directorate of Environmental Programs, 1993); *Historic-period Archaeological Survey at Henneken's Ranch and the Windmill Site, Fort Ord, Monterey County, California* (Bowman et al., 1994); *Management Summary of the Historic Period Archaeological Survey at Fort Ord, Monterey County, California* (Bowman, 1994); *A Cultural Resources Survey of 783 Hectares, For Ord, Monterey County, California* (Waite, 1994); *An Inventory of Historic-period Archaeological Sites at Fort Ord, Monterey County, California* (Babson, 1993); and *Historical and Architectural Documental Reports for Fort Ord, California* (Lapp et al., 1993). While Stilwell Hall and 35 other buildings were determined eligible for listing in the National Register, none of these architectural or structural resources are located at the Terminal Reservoir or the ASR-5 and ASR-6 Well sites.

Archaeological sensitivity studies of the former Fort Ord military base were performed to determine the nature and extent of archaeological resources on the base (Swernoff, 1981; U.S. Army Corps, 1992; Waite, 1994). During the 1981 study a total 1,047.5 acres were surveyed. While not physically surveyed, the 1981 study determined the Terminal Reservoir direct APE has a low sensitivity for prehistoric archaeological resources (Swernoff, 1981). Alternatively the 1992 investigation determined that the Terminal Reservoir direct APE to have a moderate sensitivity for prehistoric archaeological resources (U.S. Army Corps, 1992). While only one prehistoric archaeological resource has been recorded within the former Fort Ord military base, the paucity of sites within the large (+20,000-acre) military base can be attributed to the long period of U.S. Army occupation at the base and the resulting major disturbances; the shifting nature of the western half of the base's soils in dune areas; the steep nature of the eastern portion of the base; the marginal nature of much of the soils and landforms within the base; and the small percentage of archaeologically surveyed areas or subsurface archaeological testing (Swernoff, 1981).

The Advisory Council of Historic Preservation (ACHP), the SHPO, and the U.S. Army entered into a Programmatic Agreement to address issues related to cultural resources during base closure. The Programmatic Agreement incorporated the results of the archaeological survey completed by the U.S. Army and includes provisions for handling any previously unidentified cultural resources or human remains discovered during environmental testing and cleanup.

URS conducted a thorough pedestrian survey of the Terminal Reservoir portion of the APE on September 11, 2014. Survey transects were spaced approximately 5 to 10 meters apart. Surface visibility was highly variable throughout the APE. Certain areas of prior ground disturbance

(roads, staging areas, maneuver training areas, etc.) did have less vegetation and increased ground visibility. The vegetation consisted of low-lying grasses, coastal scrub and brush. Ground visibility in these areas was increased by intermittently scraping away the vegetation. Rodent-burrow back dirt piles, cut banks, and exposed sand dune areas were closely inspected for indicators of archaeological deposits. URS did not identify any cultural resources in the Terminal Reservoir APE.

MPWSP Test Slant Well Studies

This discussion is relevant to the subsurface slant wells at the CEMEX active mining area. As discussed in Chapter 3, Description of the Proposed Project, CalAm has constructed a test slant well at the CEMEX active mining area in north Marina. Environmental review covering the construction of the test slant well and operation of the pilot program was completed by the Monterey Bay National Marine Sanctuary in accordance with NEPA requirements in October 2014 and by the California Coastal Commission (CCC) in accordance with CEQA requirements in November 2014. The test slant well was also evaluated by the city of Marina in the *California American Water Slant Test Well Project Draft Initial Study/Mitigated Negative Declaration* (State Clearinghouse No. 2014051060) (City of Marina, 2014).

Under contract to the city of Marina and as part of that earlier CEQA effort, SWCA Environmental Consultants (SWCA) prepared a cultural resources investigation and evaluation for the test slant well (SWCA, 2014). SWCA evaluated the CEMEX sand mining facility (referred to therein as the Lapis Sand Mining Plant and CEMEX Plant) and determined it to be a Historic District eligible for listing in the National Register and the California Register under Criteria A/1 (association with an important event) and Criteria C/3 (architectural merit). The Lapis Sand Mining Plant Historic District includes several contributing resources: the Sorting Plant, Washing Plant, Canal Flume, Lapis Siding, Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, Scale House and Office, and a number of small ancillary buildings spread throughout the property. The settling ponds and dredging pond located in the active mining area, just north of the Source Water Pipeline, were initially developed as part of the modernization of the facility in 1959–1960 (SWCA, 2014).

SWCA determined that development of the test slant well would result in direct damage or removal of the Lapis Siding, causing a significant impact on a Historic District contributor. SWCA recommended that the project be redesigned to avoid direct impacts on the Lapis Siding in adjacent areas that do not contain structures associated with the Lapis Sand Mining Plant. Several other contributing resources are located in close proximity of proposed trenching and earthmoving activities; however, given the industrial nature of the site, these activities would be consistent with the ongoing operations of the CEMEX sand mining facility. Construction and operation of the test slant well was not anticipated to have any visual effects on the Historic District because the test slant well and related components would be below ground (SWCA, 2014).

SWCA did not identify any archaeological resources at the CEMEX sand mining facility. However, SWCA recommended that all construction workers and supervisory personnel be required to attend a cultural resources awareness training session and that an archaeological

monitor be present during any ground-disturbing activities occurring within 100 feet of historic buildings (SWCA, 2014).

Survey Methods and Conditions

Environmental Science Associates surveyed portions of the direct APE that had not been recently surveyed according to current standards on October 26 and 27, 2010; November 29 and 30, 2010; September 20, 2012; March 8, 2013; June 7, 2013; April 24, 2014, and June 28, 2016 (Koenig and Brewster, 2014). Aerial photographs of the project vicinity and copies of USGS 7.5-minute topographic maps showing previously recorded cultural resources were used in the field to guide the survey effort. The survey corridor varied depending on location and project component. In narrow survey areas, transects were spaced approximately 5 to 10 meters apart. In wider survey areas, such as the desalination plant direct APE and the subsurface slant wells direct APE, survey transects were spaced approximately 10 to 20 meters apart.

Paved or built-up portions of the proposed project study area, such as streets in Monterey, Seaside Sand City, Marina, and unincorporated areas, were subject to a cursory survey that included driving the project route to identify historic-era buildings or other structures located within the indirect APE. Photographs were taken to document the typical styles of each neighborhood or block. Areas of exposed ground surface, including adjacent landscaping, were periodically checked, especially in the direct APE nearest to areas containing previously recorded cultural resources.

For the 2010 survey effort, permission was obtained to access the CEMEX active mining area (location of the proposed subsurface slant wells). URS surveyed the Terminal Reservoir APE on September 11, 2014 (Rehor, 2014).

Two previously developed Programmatic Agreements identified procedures for managing cultural resources in the project vicinity in accordance with the NHPA: a March 1993 Programmatic Agreement between the U.S. Army, the ACHP, and the SHPO addresses historic properties and accidental discovery procedures for the Presidio of Monterey Historic District. An April 1994 Programmatic Agreement between the U.S. Army, the ACHP, and the SHPO established that the Phase I Archaeological Survey for prehistoric sites identified no historic properties within the contiguous boundaries of the former Fort Ord military base. The Fort Ord Programmatic Agreement also summarized accidental discovery and monitoring requirements for continued environmental cleanup activities within the former Fort Ord military base property (Reese, 2004).

During the surface surveys, all exposed ground surface was checked for evidence of cultural materials or other evidence of past human use and occupation. Surface visibility was highly variable throughout the APE. Rodent burrow back dirt piles, cut banks, and exposed sand dune areas were closely inspected for indicators of archaeological deposits. Encountered cultural resources were formally recorded on the appropriate Department of Parks and Recreation 523 forms. All resources were photographed and plotted on a USGS 7.5-minute topographic quadrangle.

The proposed project is located in several diverse settings, including active and stable dune formations, paved city streets, and the Carmel Valley. Direct APE locations nearest to previously

recorded resources, including landscaped areas or other areas of exposed soils, were thoroughly inspected, as described below:

- The direct APE for the subsurface slant wells is located on the west side of active coastal dunes. Visibility was good (approximately 90 percent). This area has been highly disturbed from the activities at the CEMEX sand mining facility. The contributing resources to the Lapis Sand Mining Plant Historic District were noted during the survey.
- The MPWSP Desalination Plant direct APE was covered in low-lying grasses. The soil was a light brown sandy loam, and visibility was moderate (approximately 50 percent).
- City streets in Marina, Seaside, Sand City, Monterey, and unincorporated areas as well as along the Highway 68 satellite systems were paved, offering limited visibility. Unpaved areas adjacent to roadways were inspected, but natural vegetation and landscaping obscured the ground surface.
- Certain areas of the Terminal Reservoir APE had prior ground disturbance (roads, staging areas, maneuver training areas, etc.), less vegetation, and increased ground visibility. Survey transects were spaced approximately 5 to 10 meters apart. The vegetation consisted of low-lying grasses, coastal scrub and brush. Ground visibility in these areas was increased by intermittently scraping away the vegetation.

Study Findings

Architectural/Structural Resources

Subsurface Slant Wells, MPWSP Desalination Plant, and Improvements to ASR System

No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are located in the direct or indirect APE of the subsurface slant wells, the MPWSP Desalination Plant, or the two additional ASR injection/extraction wells (the ASR-5 and ASR-6 Wells), the ASR Pump-to-Waste Pipeline, the ASR Conveyance Pipeline, and the ASR Recirculation Pipeline.

Pipelines and Other Conveyance Facilities

No historical resources eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are located in the direct or indirect APE for the proposed Brine Discharge Pipeline, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements.

Previously identified cultural resources are in the vicinity of the direct and indirect APE of the Source Water Pipeline (Lapis Sand Mining Plant Historic District); the Castroville Pipeline, the new Desalinated Water Pipeline, and the new Transmission Main (Monterey Branch Line of the Southern Pacific Railroad).

The *Lapis Sand Mining Plant Historic District* is in the direct and indirect APE of the Source Water Pipeline. SWCA recorded and evaluated the historic district in 2014 as eligible for listing in the National Register and the California Register (**Figure 4.15-2**). The historic district comprises several contributing elements including the Sorting Plant, Washing Plant, Canal

Flume, Lapis Siding, Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, Scale House and Office, a number of small ancillary buildings spread throughout the property, several settling ponds, and a dredging pond. The section of the proposed Source Water Pipeline located within the CEMEX sand mining facility would be aligned approximately 65 feet from the north side of contributing buildings to the District. As the buildings and structures contributing to the District are outside of the direct and indirect APE, no further consideration of the architectural components of this resource is necessary for the proposed project.

- The ***Monterey Branch Line of the Southern Pacific Railroad (P-27-002923)*** is adjacent to the Castroville Pipeline, the new Desalinated Water Pipeline, and the new Transmission Main. Fourteen contributing resources, including the railroad line and associated buildings, have been evaluated for their eligibility to the National Register (Herbert et al., 2010). One building (located outside the direct and indirect APE)—the Monterey Southern Pacific Passenger Depot—was recommended eligible for individual listing in the National Register. Previous evaluations of the railroad found that the surveyed portions and related structures, including the trestle at Tembladero Slough and the steel Warren Truss Bridge at the Salinas River, are not eligible for listing in the National Register.

The most recent recording and evaluation effort included all portions of the Monterey Branch Line from Moss Landing to Monterey. The evaluation concluded that while the Monterey Branch Line appears to meet the significance criteria for listing in the National Register, it lacks integrity to convey its significance. Therefore, it was recommended to be ineligible for listing in the National Register (Herbert et al., 2010). As a result, no further consideration of this resource is necessary for the proposed project.

Archaeological Resources

Subsurface Slant Wells

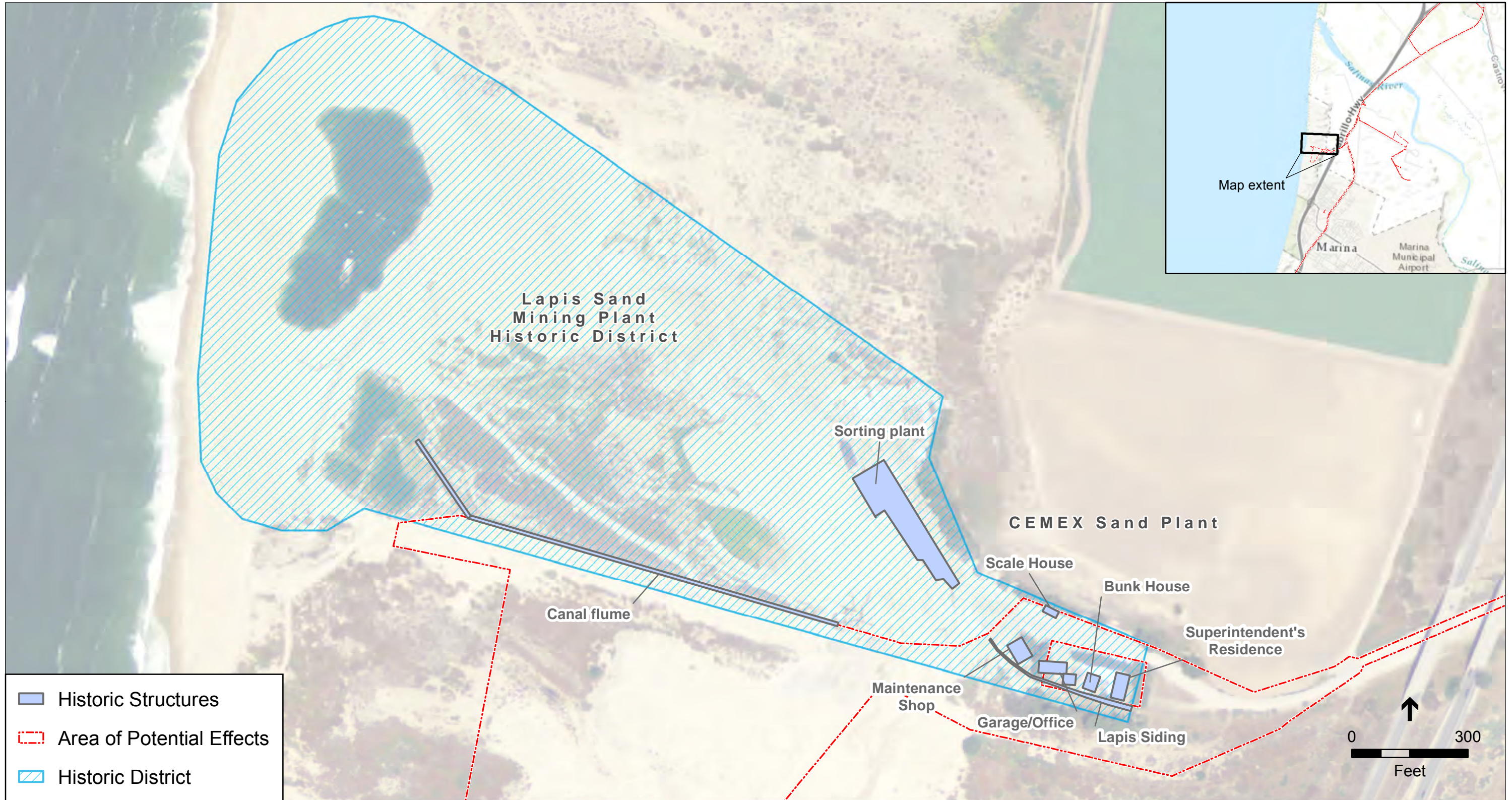
No prehistoric or historic-era archaeological resources have been previously identified in the direct APE for the subsurface slant wells. No archaeological resources were identified in this direct APE during the 2010–2016 survey effort. There are no known TCPs in the vicinity of the subsurface slant wells.

While not comprehensive, the California State Lands Commission Shipwreck Database does not list known maritime resources in the vicinity of the Subsurface Slant Wells.

MPWSP Desalination Plant

No prehistoric archaeological resources have been previously identified in the direct APE for the MPWSP Desalination Plant. No prehistoric archaeological resources were identified in this direct APE during the 2010–2016 survey effort. There are no known TCPs in the vicinity of the MPWSP Desalination Plant. One historic-era resource, a railroad grade, has been previously identified in the MPWSP Desalination Plant direct APE.

- ***P-27-002417 (CA-MNT-2080H)***, a historic-era, narrow-gauge railroad grade, was recorded by Morgan et al. in 1998. The railroad grade consisted of cuts through low hills and sand dunes with raised berms across low-lying areas. No ties, spikes, or other artifacts related to the railroad were observed. The railroad grade represents the remains of California's first narrow-gauge railroad—the Monterey and Salinas Valley Railroad. This railroad was



SOURCE: National Map, ESRI

205335.01 Monterey Peninsula Water Supply Project
Figure 4.15-2
 Historic Resources in the Source Water Pipeline APE

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constructed by local farmers to facilitate the shipping of produce to Salinas and was incorporated in 1874 (Morgan et al., 1998b). Jones and Holson revisited the grade in 2008 and recorded three discontinuous segments (Jones and Holson, 2009). The railroad grade is mapped within the proposed MPWSP Desalination Plant direct APE.

The railroad grade was not identified in the MPWSP Desalination Plant direct APE during the 2010 survey effort; this site is presumed to have been graded or otherwise leveled in the recent past. Because there are no remaining features associated with the railroad grade in the APE, no further consideration of this resource is necessary for the proposed project.

Pipelines and Other Conveyance Facilities North of Reservation Road

Proposed pipelines north of Reservation Road include the Pipeline to CSIP Pond, Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and Brine Discharge Pipeline. There are no known TCPs in the vicinity of these project components. One prehistoric resource has been previously recorded adjacent to the Castroville Pipeline direct APE. A historic-era fence line has been previously recorded adjacent to the direct APE of the Pipeline to CSIP Pond. Additionally, the Lapis Sand Mining Plant Historic District is within the direct APE of the Source Water Pipeline.

- Resource **P-27-001207 (CA-MNT-1154)** is recorded as an area of midden, shell fragments, chert flakes, and a few historic-era glass fragments on the north side of Tembladero Slough east of the Castroville Pipeline. According to an article from *The Monterey Peninsula Herald* in 1979, a human burial was reportedly uncovered along Tembladero Slough in 1879 during construction of the Southern Pacific Railroad tracks.

Prior documentation consists of a 1978 site record (Melander, 1978), a 1984 topographic plot (Basin, 1984), and a more recent site recording in 2010 (Ruby, 2010). According to the 1978 site record, the site is directly west of Salinas Road (Castroville Road / Highway 183) and is most visible on the south side of the knoll along Tembladero Slough, where flakes, shell, and glass were eroding. Melander did not have direct access to the main site area and was not able to fully delineate boundaries. He noted that Locus B of CA-MNT-727, a prehistoric habitation site, was directly across the road on the east side of Castroville Road / Highway 183 and that CA-MNT-1154 may represent a component of CA-MNT-727. The site boundaries plotted by Basin in 1984 place the site to the east of the direct APE of the Castroville Pipeline, downslope from the Southern Pacific Railroad tracks in the vicinity of the existing ranch complex.

In 2010, Far Western archaeologists revisited the area for the TAMC Light Rail Transit Project and recorded weathered clamshell, a couple of chert flakes, and some broken glass and ceramics adjacent to the railroad tracks from the slough bank for approximately 150 meters (45 feet) to the north. The site boundaries were expanded to include the railroad tracks and an unknown boundary to the west (Ruby, 2010).

Environmental Science Associates conducted a subsurface study in the vicinity of CA-MNT-1154 on June 28, 2016. Two archaeologists walked the direct APE of the Castroville Pipeline on the east side of the Southern Pacific Railroad tracks as well as adjacent to a cultivated field on the west side of the tracks. Within the cultivated field, clamshell fragments were noted however these appear to be associated with agricultural activities (i.e. soil augmentation) and not with a prehistoric use area as no midden soil or other evidence of human use or occupation such as lithic fragments were identified. On the east side of the tracks, in the direct APE, no shell was noted. A few fragments of modern window and

bottle glass were identified, but no historic-era glass or ceramics were observed. The soil adjacent to the tracks in the direct APE consisted of artificial fill; at a distance of approximately 10 feet from the tracks the native soil was a medium brown silty sand with gravel inclusions. The area adjacent to Tembladero Slough in both the direct APE and on the west side of the tracks had been highly disturbed from both construction of the existing trestle as well as from erosion. No cultural materials or midden soil was identified in the slough banks.

Based on the previous site documentation and the current survey effort, it does not appear that a significant prehistoric archaeological site (CA-MNT-1154) is within the direct APE of the Castroville Pipeline, however this is not conclusive. While no midden soil or artifacts were observed in the direct APE, there was reportedly a human burial uncovered in the vicinity. Section 4.15.6, Direct and Indirect Effects of the Proposed Project, below, provides recommendations regarding potential archaeological resources and/or human remains in the vicinity of Tembladero Slough.

- Resource **P-27-002416** (CA-MNT-2079H), a historic-era fence line, was first recorded by Morgan et al. in 1998. The resource consists of two segments of fence and is adjacent to the Pipeline to CSIP Pond direct APE. The fence was constructed from 4- by 6-inch vertical posts, 1- by 6-inch horizontal rails at the top and bottom, and vertical pickets of various sizes between the posts. Barbed wire was stapled to the fence. A chain-link fence had replaced a large section of the historic fence at the Monterey Regional Wastewater Treatment Plant. Pacific Legacy revisited the fence in 2008. At that time, the fence appeared to be in the same general condition as described by Morgan et al. (Jones and Holson, 2009).

The fence was originally recorded in association with the Armstrong Ranch (Morgan et al., 1998a). The Armstrong Ranch (P-27-002415) also consisted of a former historic-era building cluster, a windmill (Feature 1), and a 120-foot-long fence line (Feature 2). A row of Cypress trees (Linear Feature 1), access roads, and a sparse artifact concentration were also noted. At the time of the 1998 recording, the buildings (including a residence, barn, and outbuildings) had been demolished and the vicinity graded and leveled for use as an equipment yard and agricultural field. The site was described as lacking integrity with limited data potential (Morgan et al., 1998a).

In 2005, the area was resurveyed and functioned as an equipment storage yard and a staging area (Busby, 2005). The windmill had been removed by that time. Based on the surface components of the site, the Armstrong Ranch was recommended as ineligible for listing in the National Register and the California Register under any of the criteria (Busby, 2005).

The fenceline was revisited during the 2010 survey effort. Section A of the fenceline is located in the direct APE, south of a row of Cypress trees along the access road leading to the Monterey Regional Water Treatment Plant. Section A consists of 4- by 6-inch vertical posts with barbed wire. Most of the posts have collapsed, and the barbed wire has been removed. Cross boards are scattered in the Cypress trees. Much of the segment has been replaced with a modern chain-link fence beginning at the water treatment plant's entrance gate. Section B of the fenceline is outside of the direct APE.

Section A of the fence does not appear to meet any criteria for listing in the National Register, either individually or as a district contributor. The fenceline is associated with the Armstrong Ranch, which is an early American-period ranch in the Monterey Bay area; however, the fence itself does not represent an important event in the history of California (Criterion A) and is not specifically associated with a significant person (Criterion B). The

fence does not represent the craftsmanship of a master builder or style of construction (Criterion C) and does not have the potential to yield information important to history (Criterion D). Furthermore, the fence does not retain integrity of design, materials, workmanship, or feeling because a substantial portion of the original fence has been replaced by a chain-link fence. The fenceline has been previously recommended as ineligible for listing in the California Register (Busby, 2005:29), and the assessment of the fenceline performed for this study concurs with this recommendation. In addition, the fenceline does not appear eligible for the National Register, and no further consideration of this resource is necessary for the proposed project.

- ***Lapis Sand Mining Plant Historic District.*** Previous survey efforts did not identify any archaeological resources in the portion of the Source Water Pipeline direct APE located within the CEMEX sand mining facility (SWCA, 2014). However, the area surrounding this section of the pipeline alignment is generally considered to have a high potential for buried cultural resources associated with prehistoric populations and Native Americans. Additionally, the historic-era use of the CEMEX sand mining facility may have generated archaeological deposits, including refuse pits and buried foundations. As a result, the direct APE for this pipeline section should be treated as potentially sensitive for the presence of both prehistoric and historic-era archaeological resources. The area of greatest sensitivity is the eastern portion of the facility because this area contains buildings that are contributing elements of the Lapis Sand Mining Plant Historic District. This area has been subject to less ground disturbance from sand mining than the western portion of the Source Water Pipeline direct APE, and is more likely to contain intact prehistoric sites or buried historic-era archaeological features associated with the sand mining facility. Section 4.15.6, Direct and Indirect Effects of the Proposed Project, below, provides recommendations regarding potential archaeological resources in the Lapis Sand Mining Plant Historic District.

Improvements to ASR System

The proposed improvements to the Seaside Groundwater Basin ASR System include installation of two additional ASR injection/extraction wells (the ASR-5 and ASR-6 Wells), the ASR Pump-to-Waste Pipeline, the ASR Conveyance Pipeline, and the ASR Recirculation Pipeline. No prehistoric or historic-era archaeological resources have been previously identified in the direct APE for these improvements. No archaeological resources were identified in the direct APE for these improvements during the 2010–2016 survey efforts. There are no known TCPs in the vicinity of these project components.

Pipelines and Other Conveyance Facilities South of Reservation Road

Pipelines and other conveyance facilities south of Reservation Road include the new Transmission Main, Terminal Reservoir, Carmel Valley Pump Station, and interconnection improvements for Highway 68 satellite systems (i.e., Ryan Ranch-Bishop and Main System-Hidden Hills). There are no known prehistoric or historic-era archaeological resources or TCPs in the vicinity of these project components.

Summary of Cultural Resources Identified

This section summarizes significant cultural resources within the direct and indirect APE of the project components.

- **Subsurface Prehistoric Archaeological Resources.** Based on the geoarchaeological assessment described under Geological Context and the Study Results, there is the potential for buried prehistoric archaeological resources to exist at the locations shown on **Figure 4.15-1** as well as in the vicinity of the Castroville Pipeline at Tembladero Slough. Impact 4.15-2, below, analyzes the potential for project implementation to adversely affect previously unidentified prehistoric archaeological resources.
- **Subsurface Historic-era Archaeological Resources.** There is potential for unknown historic-era subsurface archaeological resources to be uncovered during installation of the Source Water Pipeline through the Lapis Sand Mining Plant Historic District. Artifacts or features related to the early establishment of the mining facility could be identified. Impact 4.15-2, below, analyzes the potential for project implementation to adversely affect previously unidentified historic-era archaeological resources.

4.15.3 Regulatory Framework

This section provides an overview of applicable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as “regulatory requirements”) relevant to cultural and paleontological resources. A brief summary of each is provided, along with a finding regarding the project’s conformity with those regulatory requirements. The conformity findings concern the project as proposed, without mitigation. Where the project, as proposed, would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the project, as proposed, would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact in Section 4.15.6, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

4.15.3.1 Federal Regulations

National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300301 et seq.), as amended, requires that a federal agency with direct or indirect jurisdiction over a proposed federal or federally assisted undertaking, or issuing licenses or permits, consider the effect of the proposed undertaking on historic properties. A historic property may include a prehistoric or historic-era building, structure, object, site or district included in, or eligible for inclusion in, the National Register maintained by the U.S. Secretary of the Interior. Federal agencies must also allow the ACHP to comment on the proposed undertaking and its potential effects on historic properties.

The implementing regulations for Section 106 of the NHPA (36 CFR 800) require consultation with the SHPO, the ACHP, federally recognized Indian tribes and other Native Americans, and interested members of the public throughout the compliance process. The four principal steps are:

- Initiate the Section 106 process, including consultation with interested parties (36 CFR 800.3);

- Identify historic properties, i.e., resources included in or eligible for inclusion in the National Register (36 CFR 800.4);
- Assess the effects of the undertaking on historic properties within the area of potential effect (36 CFR 800.5); and
- Resolve adverse effects (36 CFR 800.6).

Adverse effects on historic properties are often resolved through preparation of a Memorandum of Agreement or Programmatic Agreement developed in consultation between the federal agency, the SHPO, Indian tribes, and interested members of the public. The ACHP is also invited to participate. The agreement describes stipulations to mitigate adverse effects on historic properties listed in or eligible for the National Register (36 CFR 60).

National Register of Historic Places

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

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Buildings, structures, objects, sites or districts of potential significance must meet one or more of the following four established criteria (NPS, 1990):

- A. Are associated with events that have made a significant contribution to the broad patterns of our history;
- B. Are associated with the lives of persons significant in our past;
- C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (NPS, 1990).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (NPS, 1990). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

Although the National Register standards for historic integrity are high, the National Register accepts that a property “must also be judged with reference to the particular criteria under which a resource is proposed for eligibility.” Most archaeological properties are evaluated under Criterion D; the most applicable qualities of integrity under this criterion are those of location, materials, and association.

Integrity also defines the research potential of a resource. To possess research potential, archaeological data must have integrity in the form of what has been called “focus” (Deetz, 1977). Focus in this context means the accuracy with which the archaeological remains represent a situation or condition. When focus is absent or inadequate because of disturbance, a resource does not retain integrity. Remains that represent several activities or have materials that cannot be separated from one another into discrete contexts may also lack focus and therefore integrity.

The MPWSP would be consistent with the NHPA requirements because MBNMS will initiate the Section 106 process, including consultation with interested parties; identify historic properties; assess the effects of the undertaking on historic properties within the Area of Potential Effect; and resolve adverse effects to historic properties.

Coastal Zone Management Act

Several sections of the Coastal Zone Management Act (CZMA) address the protection of cultural resources. This includes 16 U.S.C. Section 1452, which states that it is a national policy to encourage the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and esthetic values.

4.15.3.2 State Regulations

Office of Historic Preservation

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

California Register of Historical Resources

The California Register is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]). The criteria for California Register eligibility are based on National Register criteria (PRC Section 5024.1[b]; California Code of Regulations [CCR], Title 14, Section 4850 et seq.). Certain resources are determined by the statute to be automatically

included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-era property must be significant at the local, state, and/or federal level under one or more of the following four criteria, which are similar to federal criteria. The resource:

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 [PRC 5024.1(c)].

An eligible resource for the California Register must meet one of the criteria of significance described above and retain enough of its historical character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance.

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

- California properties listed in the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and
- California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Resources Commission for inclusion on the California Register in accordance with adopted criteria.

Resources that may be nominated to the California Register include:

- Individual historical resources;
- Historical resources contributing to the significance of an historic district under criteria adopted by the State Historical Resources Commission;
- Historical resources identified as significant in historical resources surveys, provided the survey meets the criteria listed in subdivision (g);
- Historical resources and historic districts designated or listed as city or county landmarks;
- Historic properties or districts that were designated or listed under a city or county ordinance, provided the criteria for designation or listing are consistent with the California Register; and

- Local landmarks or historic properties designated under any municipal or county ordinance.

California Environmental Quality Act

Historical Resources

CEQA requires lead agencies to determine, prior to approval, if a project would have a significant adverse effect on historical or unique archaeological resources.

The CEQA Guidelines generally recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register (PRC Section 5024.1); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record (14 CCR Section 15064.5[a]).

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 of CEQA and CEQA Guidelines Section 15064.5 apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated as a "unique" archaeological resource in accordance with the provisions of PRC Section 21083. As defined in Section 21083.2, a unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

A non-unique archaeological resource is an archaeological artifact, object, or site that does not meet the criteria in PRC Section 21083.2(g) and need not be given further consideration, other than the simple recording of its existence by the lead agency if it so elects (PRC Section 21083.2[h]). The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064.5[c][4]).

PRC Section 15064.5(f) requires a lead agency to make provisions for handling the accidental discovery of historical or unique archaeological resources during construction. Provisions include

an immediate evaluation of the find by a qualified archaeologist. Work may continue on other parts of the project site while historical or unique archaeological resource mitigation takes place.

In the event that human remains are discovered in any location other than a dedicated cemetery, PRC Section 15064.5(e) requires all work to stop until the county coroner in which the remains are discovered is contacted. If the coroner determines the remains to be Native American, the coroner must contact the Native American Heritage Commission within 24 hours. The Commission would then identify any person or persons it believes to be the most likely descended from the deceased individual.

Paleontological Resources

Paleontological resources also are afforded protection by environmental legislation set forth under CEQA. Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "...disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study."

The SVP has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

California Public Resources and Administrative Codes

Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 specifies that any person who willfully injures, disfigures, defaces, or destroys any object or thing of archaeological or historical interest or value, whether situated on private lands or within any public park or place, is guilty of a misdemeanor. PRC Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

The MPWSP would be consistent with the State requirements because CalAm has determined whether the project would have a significant adverse effect on historical resources, unique archaeological resources, paleontological resources, and human remains.

The California Coastal Act, as outlined in PRC Section 30344, provides for an inventory of manmade resources of cultural, historic, economic, and educational importance to the public.

4.15.3.3 Applicable Land Use Plans, Policies, and Regulations

Table 4.15-2 describes the regional and local land use plans, policies, and regulations pertaining to cultural resources that are relevant to the proposed project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in Table 4.15-2 is an analysis of project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project may conflict with the applicable plan, policy, or regulation, the reader is referred to Section 4.15.6, Direct and Indirect Effects of the Project, for additional discussion. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

**TABLE 4.15-2
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES**

Project Planning Region	Applicable Plan	Plan Element/Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Design and Development	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	Policy 4.126: The following scenic and cultural resources are deemed to be particularly valuable, and the following policies should be pursued. 1. All archaeological resources which may be present in the Marina Planning Area shall be protected and preserved. To this end, development proposed in areas of high archaeological sensitivity, i.e., the terraces and benches along the Salinas River, the peripheries of vernal ponds, and coastal beaches, shall be required to undertake a reconnaissance by a qualified archaeologist, and, where artifacts are identified, to protect and preserve such resources.	This policy is intended to protect and preserve archaeological resources.	<u>Potentially Inconsistent:</u> No known archaeological resources are present in the areas of Marina where MPWSP components are proposed. However, areas of high archaeological sensitivity exist in the Source Water Pipeline vicinity. Additionally, ground-disturbing activities associated with construction of the Subsurface Slant Wells, Source Water Pipeline, Desalinated Water Pipeline, and Transmission Main could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conservation/Open Space	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, Terminal Reservoir	Policy COS-5.1: Identify and conserve archaeological, architectural, and historic resources within Seaside.	This policy is intended to conserve archaeological, architectural, and historic resources.	<u>Potentially Inconsistent:</u> No known archaeological, architectural, and historical resources are present in the areas of Seaside where MPWSP components are proposed. Construction of project components within Seaside's coastal zone and inland areas would not impact any architectural or historical resources. However, construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conservation/Open Space	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR Settling Basin, Terminal Reservoir	Implementation Plan COS-5.1.1: Assess and Mitigate Impacts on Cultural Resources. Continue to assess development proposals for potential impacts on sensitive historic, archaeological, and paleontological resources pursuant to the California Environmental Quality Act (CEQA). a) For structures that potentially have historic significance, require that a study be conducted by a professional archaeologist or historian to determine the actual significance of the structure and potential impacts of the proposed development in accordance with CEQA Guidelines Section 15064.5. The City may require modification of the project and/or mitigation measures to avoid any impact on a historic structure, when feasible. Assess development proposals for potential impacts on significant paleontological resources pursuant to of the California Environmental Quality Act Guidelines. If the project involves earthworks, the City may require a study conducted by a professional paleontologist to determine if paleontological assets are present, and if the project will significantly impact the resources. If significant impacts are identified, the City may require the project to be modified to avoid impacting the paleontological materials, or require mitigation measures to mitigate the impacts.	This policy is intended to assess and mitigate impacts on cultural resources, including historic, archaeological, and paleontological resources.	<u>Potentially Inconsistent:</u> No known cultural resources are present in the areas of Marina where MPWSP components are proposed. Construction of project components within Seaside's coastal zone and inland areas would not impact any architectural or historical resources. However, construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond Castroville Pipeline, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	Policy PS-12.5: The Monterey County Historic Resources Review Board shall: a. Review and make recommendations on restoration, rehabilitation, alteration, and demolition proposals affecting identified historical and cultural resources. b. Work for the continuing education of county residents concerning historic resources; c. Seek financial support from local, state, and federal governments as well as the private sector to protect, preserve, and enhance the County's historic resources; d. Coordinate its activities with all groups concerned with the preservation of historic resources; and Review projects that involve historic resources on the National Register of Historic Places, California Register of Historical Resources, or the County's Local Register of Historic Resources to assure projects are consistent with good preservation practices.	This policy is intended to ensure the continued protection of Monterey County's historical and cultural resources on the National Register of Historic Places, California Register of Historical Resources, or the County's Local Register of Historic Resources.	<u>Consistent:</u> The proposed project would not involve development that would affect previously identified historical and cultural resources within unincorporated areas of Monterey County.

**TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES**

Project Planning Region	Applicable Plan	Plan Element/Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	Policy PS-12.10: Historic landscape, consisting of resource features important to the setting of a designated historic site, such as mature trees and vegetation, walls and fences, within historic neighborhoods, districts, and heritage corridors for which there is an adopted plan shall be protected.	This policy is intended to protect historic landscapes contributing to the designation of those sites as historic.	<u>Consistent:</u> None of the project components are proposed for locations that would affect a historic landscape contributing to the designation of any historic site within unincorporated Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	Policy PS-12.11: An active involvement in historic and cultural resource management programs and support for the efforts of the Monterey County's historical organizations to preserve the County's historical resources shall be continued.	This policy is intended to ensure continued preservation of the County's historical resources.	<u>Consistent:</u> The proposed project would not involve development that would affect previously identified historical resources within unincorporated areas of Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	Policy PS-12.12: Historical and cultural resources and sites shall be protected through zoning and other regulatory means. New development shall be compatible with existing historical resources to maintain the special values and unique character of the historic properties.	This policy is intended to protect historical and cultural resources (including historical character) from impacts of new development.	<u>Consistent:</u> The proposed project would not involve development that would affect previously identified historical resources within unincorporated areas of Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	Policy PS-12.15: The special character of designated historic districts and neighborhoods shall be retained.	This policy is intended to ensure continued protection of designated historic districts and neighborhoods.	<u>Consistent:</u> None of the project components are proposed for locations that would affect a designated historic district within unincorporated Monterey County.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	Specific Policies 2.9.3 <ol style="list-style-type: none"> No development proposals in archaeologically sensitive areas or in areas described in policy 2.9.2(2) above shall be categorically exempt from environmental review. When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate preservation measures shall be required. Mitigation shall be designed in accordance with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission. Any adverse impacts of development on archaeological or paleontological resources will be mitigated to the maximum extent feasible. Off-road vehicle use, unauthorized collecting of artifacts, and other activities which could destroy or damage archaeological or cultural sites shall be prohibited. Public access to or over known archaeological or paleontological sites should be limited, and concentrated in areas where supervision and interpretive facilities are available. 	This policy is intended to minimize disturbance to archaeologically sensitive areas and limit public access to known archaeological and paleontological sites.	<u>Potentially Inconsistent:</u> No known archaeological or paleontological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, project components would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	General Policy 2.9.1: North County's archaeological resources, including those areas considered to be archaeologically sensitive but not yet surveyed and mapped, shall be maintained and protected for their scientific and cultural heritage values. New land uses, both public and private, should be considered compatible with this objective only where they incorporate all site planning and design features necessary to minimize or avoid impacts on archaeological resources.	This policy is intended to minimize and avoid impacts of development on archaeological resources.	<u>Potentially Inconsistent:</u> No known archaeological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, project components would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2.

TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	<p>General Policies 2.9.2</p> <ol style="list-style-type: none"> Monterey County shall encourage the timely identification and evaluation of archaeological, historical, and paleontological resources, in order that these resources be given consideration during the conceptual design phase of land use planning or project development. Whenever development is to occur in the coastal zone, including any proposed grading or excavation activity or removal of vegetation for agricultural use, the Archaeological Site Survey Office or other appropriate authority shall be contacted to determine whether the property has received an archaeological survey. If not, the parcel(s) on which the proposed development will take place shall be required to have an archaeological survey made if located: <ol style="list-style-type: none"> within 100 yards of the floodways of the Pajaro or Salinas Rivers, McCluskey, Bennett, Elkhorn, Moro Cojo, or Tembladero Sloughs, the Old Salinas River Channel or Moss Landing Harbor; within 100 yards of any known archaeological site (unless the area has been previously surveyed and recorded). The archaeological survey should describe the sensitivity of the site and appropriate levels of development, and development mitigation consistent with the site's need for protection. All available measures, including purchase of archaeological easements, dedication to the County, tax relief, purchase of development rights, etc., shall be explored to avoid development on sensitive prehistoric or archaeological sites. When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids or substantially minimizes impacts on such cultural sites. To this end, emphasis should be placed on preserving the entire site rather than on excavation of the resource, particularly where the site has potential religious significance. 	This policy is intended to avoid and minimize impacts of new development on archaeological, historical, and paleontological resources.	<u>Potentially Inconsistent:</u> No known archaeological, historical, or paleontological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, areas of high archaeological sensitivity exist in the vicinity of proposed project components. Project construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources. None of the project components are proposed for locations that would affect a designated historic district within unincorporated Monterey County.
County of Monterey (inland areas)	North County Area Plan	Conservation/Open Space	Castroville Pipelines	<p>Policy NC-3.6: North County Historic Sites and other sites recommended by the Monterey County Historic Resources Review Board (HRRB) shall be considered for inclusion in a historical resources (HR) zoning district.</p>	This program is intended to protect historic sites.	<u>Consistent:</u> The proposed project would not involve development that would affect previously identified North County Historic Sites and other sites recommended by the Monterey County Historic Resources Review Board (HRRB).
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Conservation	ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	<p>Cultural Resources Policy A-1: The City of Seaside shall ensure the protection and preservation of archaeological resources at the former Fort Ord.</p> <p>Program A-1.1: The City of Seaside shall conduct a records search and a preliminary archaeological surface reconnaissance as a part of environmental review for any development project(s) proposed in a high archaeological resource sensitivity zone.</p> <p>Program A-1.2: The City of Seaside shall require that all known and discovered sites on the former Fort Ord with resources likely to be disturbed by a proposed project be analyzed by a qualified archaeologist with local expertise; recommendations made to protect and preserve resources and, as necessary, restrictive covenants imposed as a condition of project action or land sale.</p> <p>Program A-1.3: As a contractor work specification for all new construction projects, the City of Seaside shall include that during construction, upon the first discovery of any archaeological resource or potential find, development activity shall be halted within 50 meters of the find until the potential resources can be evaluated by a qualified professional archaeologist and recommendations made.</p>	This program is intended to protect and preserve archaeological resources.	<u>Potentially Inconsistent:</u> No known archaeological resources are present within the areas of the former Fort Ord military base where the ASR Pipelines, ASR Settling Basin, ASR Pump Station, Terminal Reservoir, and Transfer Pipeline are proposed. However, ground-disturbing activities associated with the construction of these project components could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
U.S. Army Garrison, Presidio of Monterey	Integrated Cultural Resources Management Plan	Monterey County Installations and Facilities	ASR-5 and ASR-6 Wells and portions of the following pipelines occurring on Army land: ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline	Department of Defense Instruction 4715.16 and Army Regulation 200-1 require installations to develop an Integrated Cultural Resources Management Plan as an internal compliance document that integrates management and stewardship of cultural resources with ongoing mission activities and identifies compliance actions necessary to meet cultural resources regulatory requirements. General management actions that help prevent future impacts include consideration of cultural resources as early as possible in the project planning process, identification and avoidance of archaeologically and culturally sensitive areas, and ensuring that personnel responsible for the management of cultural resources receive adequate training.	This plan is intended to identify compliance actions necessary to meet federally mandated historic and cultural resources regulatory requirements.	<u>Consistent:</u> The proposed project would not involve development that would affect previously identified historical and cultural resources within Monterey County.

**TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES**

Project Planning Region	Applicable Plan	Plan Element/Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Conservation	Ryan Ranch–Bishop Interconnection Improvements	<p>Cultural Resources Policy A-1: The County of Monterey shall ensure the protection and preservation of archaeological resources at the former Fort Ord.</p> <p>Program A-1.1: The County of Monterey shall conduct a records search and a preliminary archaeological surface reconnaissance as a part of environmental review for any development project(s) proposed in a high archaeological resource sensitivity zone.</p> <p>Program A-1.2: The County of Monterey shall require that all known and discovered sites on the former Fort Ord with resources likely to be disturbed by a proposed project be analyzed by a qualified archaeologist with local expertise, recommendations made to protect and preserve resources and, as necessary, restrictive covenants imposed as a condition of project action or land sale.</p> <p>Program A-1.3: As a contractor work specification for all new construction projects, the County of Monterey shall include that during construction, upon the first discovery of any archaeological resource or potential find, development activity shall be halted within 50 meters of the find until the potential resources can be evaluated by a qualified professional archaeologist and recommendations made.</p>	This policy is intended to minimize and avoid impacts of development on archaeological resources.	<p><u>Potentially Inconsistent:</u> No known archaeological resources are present within the areas of the former Fort Ord military base where the ASR Pipelines, ASR Settling Basin, ASR Pump Station, Terminal Reservoir, and Transfer Pipeline are proposed. However, ground-disturbing activities associated with the construction of these project components could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.</p>

SOURCE: City of Marina, 2000; City of Seaside, 2004, 2013; City of Monterey, 2015; FORA, 1997; Monterey County 1982, 1985, 2010.

4.15.4 Evaluation Criteria

In accordance with Appendix G of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to cultural and paleontological resources if it would:

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

In accordance with Section 106 of the NHPA, this analysis also considers the potential for the proposed project to result in adverse effects on historic properties. In accordance with the specific Criteria of Effect and Adverse Effect defined in 36 CFR 800.5 for the evaluation of an undertaking's effects on historic properties, implementation of the proposed project would have a significant impact related to cultural resources if it would:

Cause an adverse effect on a historic property when it may alter the characteristics of the property that qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

Cause an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- (1) Physical destruction, damage, or alteration of all or part of the property;
- (2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- (4) Neglect of a property resulting in its deterioration or destruction; and
- (5) Transfer, lease, or sale of the property.

For the impact analysis, the State and federal evaluation criteria have been mutually considered.

4.15.5 Approach to Analysis

Ground disturbance and excavation during project construction could disturb or destroy known and previously unrecorded cultural resources, including historical, archaeological, and paleontological resources and human remains. Proposed project operations would have no impact on cultural and paleontological resources because operations would not cause additional ground disturbance or generate strong vibrations. Thus, the analysis below focuses only on construction-related impacts on cultural and paleontological resources.

4.15.5.1 Architectural/Structural Historical Resources

Potential impacts on architectural resources are assessed by identifying whether implementation of the proposed project could affect resources that have been identified as historic properties for the purposes of the NHPA or as historical resources for the purposes of CEQA. Individual properties and districts include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (National Register and California Register Criteria A/1, B/2, C/3, and D/4) and that retain sufficient historic integrity to convey their significance. Criterion D/4 is typically applied to the evaluation of archaeological resources and not to architectural resources, as described below. Once a resource has been identified as significant, it must be determined whether the impacts of the project would “cause a substantial adverse change in the significance” of the resource (CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of a historical resource means “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of [the] historical resource would be materially impaired” (CEQA Guidelines Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource’s physical characteristics that convey its historical significance and that justify its inclusion in (or eligibility for inclusion in) the California Register or a qualified local register (CEQA Guidelines Section 15064.5[b][2]).

Construction activities that involve impact tools can produce significant groundborne vibration. Substantive sources of vibration during project construction would be: (1) the drill rigs used for drilling and development of the subsurface slant wells in the CEMEX active mining area; (2) the drill rigs used for drilling and development of the ASR-5 and ASR-6 Wells at the Fitch Park military housing area; (3) bulldozers used during general construction of facilities such as the MPWSP Desalination Plant; (4) jackhammers used to break up concrete during open-trench construction of pipelines; and (5) vibratory rollers used to repave streets and other previously paved areas after open-trench construction and for newly paved areas at the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and pump stations. Additionally, where it is not feasible to install the proposed pipelines via open-cut trenching (i.e., creek and river crossings, highway crossings, and railroad crossings), trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling would be employed. Trenchless construction methods typically require the use of impact or vibratory sheet pile drivers, which are a source of vibration.

Construction-related vibration—such as that generated by jackhammers, drill rigs, and vibratory rollers—can cause structural damage to historic-era buildings and structures (Wilson, Ihrig & Associates, 2009:40). Historic buildings in the project vicinity include primarily older masonry structures in the city of Monterey as well as wood frame buildings and corrugated metal industrial buildings at the CEMEX sand mining facility. This EIR/EIS uses a vibration threshold for historic buildings of 0.12 inches per second (in/sec) peak particle velocity (PPV) at a distance of 25 feet (Wilson, Ihrig, & Associates et al., 2012:12). **Table 4.15-3** presents the distances at which vibratory construction equipment that would be used during project construction would generate vibration levels at the 0.12-in/sec PPV damage threshold. The vibratory roller is the construction equipment that would have the greatest PPV, typically a PPV of 0.210 in/sec at 25 feet (New Hampshire, 2012). The Federal Transit Administration (FTA) provides an equation for estimating vibration at different distances based on a reference PPV of 25 feet for varying construction equipment. Using the FTA equation, at distances greater than 45 feet the vibration generated by a vibratory roller is lower than the 0.12 in/sec PPV damage threshold. At distances greater than 25 feet, the vibration level generated by a typical drill rig is lower than the 0.12 in/sec PPV damage threshold. At distances greater than 80 feet, the vibration level generated by vibratory pile driving of sheet piles is lower than the 0.12 in/sec PPV damage threshold. Beyond the distance of the damage threshold, no damage to historic buildings or structures is expected.

**TABLE 4.15-3
 DAMAGE THRESHOLD TO HISTORIC BUILDINGS FROM CONSTRUCTION EQUIPMENT**

Equipment Type	Typical PPV at 25 feet	Approx. Distance of Damage Threshold (0.12 PPV in/sec)
Vibratory roller	0.210 in/sec	45 feet
Drill rig	0.12 in/sec	25 feet
Bulldozer	0.089 in/sec	20 feet
Jackhammer	0.035 in/sec	15 feet
Vibratory pile driver	0.73 in/sec	80 feet

SOURCE: Wilson, Ihrig, & Associates et al., 2012

4.15.5.2 Archaeological Resources

The significance of most prehistoric and historic-era archaeological sites is usually assessed under National Register and California Register Criterion D/4. This criterion stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may qualify as historical resources under the definition provided in CEQA Guidelines Section 15064.5(a), or they may also be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions (PRC Section 21083.2). A substantial adverse change in the significance of an archaeological resource is assessed similarly to other historical resources, i.e., it means the destruction or material alteration in an adverse manner of those physical characteristics of the resource that convey its significance under the relevant criteria (CEQA Guidelines Section 15064.5[b][2]).

4.15.5.3 Paleontological Resources

The paleontological analysis evaluates the potential to encounter paleontological resources (i.e., plant, animal, or invertebrate fossils or microfossils) during excavations associated with the proposed project. The paleontological potential of the geologic units that would be disturbed is used to evaluate the potential to encounter paleontological resources at the location of each project component. A potentially significant impact on paleontological resources would occur if: (1) construction of the project components would move or excavate previously undisturbed bedrock (native rock) and/or (2) the bedrock to be disturbed has a high paleontological potential. The potential impacts related to paleontological resources were analyzed qualitatively, based on review of published geologic and paleontological data for the project area and professional judgment. No paleontological field surveys were conducted for the proposed project.

4.15.5.4 Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in Section 4.15.4.2, State Regulations. This analysis considers impacts including intentional disturbance, mutilation, or removal of interred human remains.

4.15.6 Direct and Indirect Effects of the Proposed Project

Table 4.15-4 summarizes the proposed project’s impacts and significance determinations for cultural and paleontological resources.

**TABLE 4.15-4
 SUMMARY OF IMPACTS – CULTURAL AND PALEONTOLOGICAL RESOURCES**

Impacts	Significance Determinations
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	NI
Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	LSM
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction.	LS
Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction.	LSM
Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources.	LS

NOTES:

LS = Less than Significant
 LSM = Less than Significant impact with Mitigation

4.15.6.1 Construction Impacts

Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction. (*No Impact*)

All Project Components

No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are within the direct or indirect APE of all project components. Therefore, no impact on historical resources or historic properties would result from construction of any project facilities.

Mitigation Measures

None proposed.

Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5. (*Less than Significant with Mitigation*)

Castroville Pipeline

There is potential for buried prehistoric archaeological resources to exist in the vicinity of Tembladero Slough. Based on the previous site documentation and survey effort, it does not appear that a significant prehistoric archaeological site is within the direct APE of the Castroville Pipeline, however this is not conclusive. While no midden soil or artifacts were observed in the direct APE, there was reportedly a human burial uncovered in the vicinity. If previously unidentified archaeological resources are discovered and inadvertently damaged and/or destroyed during installation of the Castroville Pipeline, this would be a significant impact or an adverse effect. Impacts on previously unidentified archaeological resources could be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**. This measure requires cultural resources monitoring during project construction in an Archaeologically Sensitive Area (ASA) so that if archaeological resources are encountered, a qualified archaeological consultant can order cessation of work in the vicinity of the discovery and immediately assess the find to provide additional recommendations as necessary. Implementation of this mitigation measure would reduce potentially significant impacts on unknown prehistoric archaeological resources in the ASA to a less-than-significant level.

Based on the geoarchaeological assessment, there is potential for deeply buried well-developed soil horizons to be located in the direct APE at Tembladero Slough near Castroville and the Salinas River. Therefore, there is the potential for archaeological resources associated with those buried soils to be encountered during project work at the above locations. Project construction activities could result in damage or disturbance to such resources if they exist, a potentially

significant impact or adverse effect. As discussed in the Geological Context, given the relatively narrow (maximum width of 7 feet) and linear nature of the ground disturbance for the pipelines, the active coastal dune environment (which may have destroyed, disturbed, and/or removed archaeological materials), as well as the paucity of previously discovered deeply buried sites in the Monterey Bay vicinity, no additional subsurface investigations are recommended. To mitigate potential impacts or adverse effects on previously unidentified buried archaeological resources in these ASAs, this EIR/EIS recommends **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

In addition there is the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components. This measure would ensure that work would halt in the vicinity of an archaeological find and that the resources were treated appropriately.

Source Water Pipeline

There is potential for previously undocumented historic-era subsurface archaeological resources to be uncovered and inadvertently damaged and/or destroyed during installation of the Source Water Pipeline through the Lapis Sand Mining Plant Historic District. This would be a significant impact. However, impacts on previously unidentified subsurface historic-era resources in the Lapis Sand Mining Plant Historic District could be reduced to a less-than-significant impact with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

In addition there is the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

All Other Project Components

No archaeological resources eligible for listing in the California Register or the National Register are located within the direct APE for all other project components. Therefore, no impact on known archaeological resources would result from construction of these facilities. There is however the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

There are no known TCPs in the vicinity of all project components. In the event that an archaeological resource that qualifies as a TCP is identified during project construction, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)**

There are no known maritime resources, such as shipwrecks or other submerged resources, in the vicinity of all project components. Additionally, there will be no ground disturbing work in submerged areas that would have the potential to impact previously undocumented or unknown

shipwrecks. The proposed project would not cause an impact on maritime resources within MBNMS. To mitigate potential impacts on previously undiscovered maritime resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

Land Use Plan & Policy Consistency

In addition to the physical impacts described above, as noted in **Table 4.15-2**, the proposed project could conflict with applicable land use plans, policies, or ordinances related to cultural resources that were adopted for the purpose of avoiding or mitigating an environmental effect. As described above, construction would involve ground-disturbing activities that could inadvertently disrupt or damage unknown archaeological sites. As a result, construction of project components could conflict with one or more of the following: California Coastal Act Section 30244, the City of Marina General Plan Policy 4.126, the City of Seaside Local Coastal Program Land Use Plan Policy LUD-CZ 2.11, Seaside General Plan Policy COS-5.1, the North County Land Use Plan Specific Policy 2.9.3 and General Policies 2.9.1 and 2.9.2, and the Fort Ord Reuse Plan Policy A-1 for Inland Areas and Monterey County. Each of these policies was adopted for the purpose of avoiding or minimizing impacts on archaeological resources. As discussed in the preceding paragraphs, **Mitigation Measures 4.15-2a (Establish Archaeologically Sensitive Area)** and **4.15-2b (Inadvertent Discovery of Cultural Resources)** would require archaeological monitoring and established protocols for accidental discovery of archaeological resources. With these measures implemented, the proposed project would be consistent with the above-noted policies.

Impact Conclusion

A significant impact on archaeological resources could occur during construction of the proposed Castroville Pipeline at Tembladero Slough and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District; as well as those areas designated as archaeologically sensitive in the geoarchaeological analysis (Tembladero Slough near Castroville and the Salinas River). The impact or adverse effects would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

While no additional impacts or adverse effects on archaeological resources are expected, the possibility of uncovering unknown archaeological resources in the remaining direct APE cannot be entirely discounted. The potential inadvertent discovery of archaeological resources could be a significant impact or adverse effect. Implementation of **Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** would ensure that potential impacts are less than significant.

Mitigation Measures

Mitigation Measure 4.15-2a applies to the Castroville Pipeline at Tembladero Slough and the Salinas River; and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District.

Mitigation Measure 4.15-2a: Establish Archaeologically Sensitive Areas.

CalAm shall contract with a qualified archaeologist meeting the Secretary of the Interior's Qualification Standard (Lead Archaeologist) to prepare and implement an Archaeological

Monitoring Plan, and oversee and direct all archaeological monitoring activities during project construction. Archaeological monitoring shall be conducted for all subsurface excavation work within 100 feet of the Castroville Pipeline at Tembladero Slough and the Salinas River; and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District. At a minimum, the Archaeological Monitoring Plan shall:

- Detail the cultural resources training program that shall be completed by all construction and field workers involved in ground disturbance;
- Designate the person(s) responsible for conducting monitoring activities, including Native American monitor(s), if deemed necessary;
- Establish monitoring protocols to ensure monitoring is conducted in accordance with current professional standards provided by the California Office of Historic Preservation;
- Establish the template and content requirements for monitoring reports;
- Establish a schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Establish protocols for notifications in case of encountering cultural resources, as well as methods for evaluating significance, developing and implementing plan to avoid or mitigate significant resource impacts, Native American participation and consultation, collection and curation plan, and consistency with applicable laws including Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code;
- Establish methods to ensure security of cultural resources sites;
- Describe the appropriate protocols for notifying the County, Native Americans, and local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction with reference to Public Resources Code 5097.99.

During the course of the monitoring, the Lead Archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to encounter resources.

If archaeological materials are encountered, all soil disturbing activities within 100 feet of the find shall cease until the resource is evaluated. The Lead Archaeologist shall immediately notify the CPUC and MBNMS of the encountered archaeological resource. The Lead Archaeologist shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological resource, present the findings of this assessment to the Lead Agencies. In the event archaeological resources qualifying as either historical resources pursuant to CEQA Section 15064.5 or as unique archaeological resources as defined by Public Resources Code 21083.2 are encountered, preservation in place shall be the preferred manner of mitigation.

If preservation in place is not feasible, the applicant shall implement an Archaeological Research Design and Treatment Plan (ARDTP). The Lead Archaeologist, Native American representatives, MBNMS and the CPUC shall meet to determine the scope of the ARDTP. The ARDTP will identify a program for the treatment and recovery of important scientific data contained within the portions of the archaeological resources located within the project

Area of Potential Effects (APE); would preserve any significant historical information obtained and will identify the scientific/historic research questions applicable to the resources, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The results of the investigation shall be documented in a technical report that provides a full artifact catalog, analysis of items collected, results of any special studies conducted, and interpretations of the resource within a regional and local context. All technical documents shall be placed on file at the Northwest Information Center of the California Historical Resources Information System.

Mitigation Measure 4.15-2b applies to all project components.

Mitigation Measure 4.15-2b: Inadvertent Discovery of Cultural Resources.

Following implementation of Mitigation Measure 4.15-2a, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet shall halt and the Lead Agencies shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

A Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, in consultation with MBNMS, the CPUC and the appropriate Native American representative shall determine whether preservation in place is feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist, in consultation with the lead agency and the appropriate Native American representative, shall prepare and implement a detailed Archaeological Research Design and Treatment Plan (ARDTP). Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The ARDTP shall include provisions for analysis of data in a regional context, reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative before being finalized, curation of artifacts and data at a local facility acceptable to the appropriate Native American representative, and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System, the CPUC, MBNMS and interested professionals.

Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature during construction. (*Less than Significant*)

All Project Components

The construction of the project components would require the excavation through several geologic units that have the potential to contain paleontological resources, particularly vertebrate fossils. These geologic units include the Older Dune Sands, Marine Terrace Deposits, and the Monterey Formation. Vertebrate fossils have been collected from the Monterey Formation, but not from the other listed geologic units. Encountering fossils, particularly, vertebrate fossils, would be considered a significant impact.

As discussed above in Section 4.15.2.1, Paleontological Setting, and Section 4.15.4, Regulatory Framework, the SVP has established professional standards for evaluating the potential for paleontological resources based on the type of geologic unit, the previous discovery of fossils within the geologic unit and within or in close proximity to the proposed project, and whether the fossils are uncommon. Of the geologic units through which the project components would require excavation, only the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource. However, the project components would be constructed within a limited extent of the Monterey Formation within the previously-disturbed rights-of way. In addition, the diatoms and benthic foraminifera that comprise much of the formation are not considered a significant paleontological resource. Therefore, the potential impact on paleontological resources would be considered less than significant and no mitigation is necessary.

Mitigation Measures

None proposed.

Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction. (*Less than Significant with Mitigation*)

All Project Components

While no known human remains have been documented within the proposed project direct APE, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains is considered a significant impact. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**. Mitigation Measure 4.15-4 would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner.

Mitigation Measures

Mitigation Measure 4.15-4 applies to all project components.

Mitigation Measure 4.15-4: Inadvertent Discovery of Human Remains.

In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease. The Monterey County Coroner shall be contacted immediately. The Coroner then has two working days to determine if the remains are Native American. If the remains are determined to be Native American, and no investigation of the cause of death is required, the Native American Heritage Commission (NAHC) will be contacted within 24 hours. The NAHC will then identify and contact the person or persons it believes to be the Most Likely Descendant (MLD)” of the deceased Native American(s), who in turn would make recommendations to the project applicant, MBNMS and the CPUC for the appropriate means of treating the human remains and any grave goods.

4.15.7 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources (Less than Significant)

The geographic scope of analysis for cumulative impacts on cultural resources includes the direct and indirect APE for the proposed project. The geographic scope of analysis for paleontological resources includes the portion of the aforementioned underlain by the Monterey Formation geologic unit.

The timeframe during which the proposed project could contribute to cumulative cultural resources effects is limited to the construction phase because operation of the proposed project would have no impact on cultural and paleontological resources.

A cumulatively significant cultural resources impact could result during construction if the incremental effects of the proposed project combined with those of one or more of the cumulative projects listed in **Table 4.1-2** to damage the same type of cultural resource within the APE.

Architectural Resources. No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are within the direct or indirect APE of all project components. Therefore, the project could not contribute to cumulative impacts on historical resources or properties (no impact).

Archaeological Resources and Human Remains. As analyzed in the context of Impacts 4.15-2 and 4.15-4, excavation associated with the proposed project could result in a less-than-significant impact on known and previously unidentified archaeological resources and/or human remains

following the implementation of recommended mitigation measures. This analysis conservatively assumes that all of the cumulative projects have a similar potential impact on known and previously unrecorded archaeological resources and/or human remains. Because each project's potential impacts would be site-specific, they could not overlap to combine with those of the proposed project and no significant cumulative effect would result (*less than significant*).

Paleontological Resources. The geographic scope of analysis for cumulative impacts on paleontological resources includes the Monterey Formation, which is known to contain significant paleontological resources including vertebrate fossils. While discovery within other geologic units affected by the project (i.e., Quaternary or Pleistocene) is possible, the likelihood is considered low because vertebrate fossils have only been collected from the Monterey Formation. The proposed project could result in a direct or indirect effect to paleontological resources located within these geologic units during excavation or other ground disturbing activities. The incremental impacts of the project could combine with those of one or more of the projects listed in **Table 4.1-2** to cause or contribute to a significant cumulative impact on paleontological resources if they directly or indirectly destroyed a unique paleontological resource or site or unique geologic feature.

As analyzed in the context of Impact 4.15-3, project components proposed within the Monterey Formation include two segments of the Monterey Pipeline and the Main System-Hidden Hills Interconnection Improvements. The proposed project's incremental contribution to potential cumulative effects was determined not to be cumulatively considerable (*less than significant*). Cumulative projects that also could affect the Monterey Formation include Laguna Seca Villas (No. 3), 459 Alvarado Street (No. 20), and Rancho Canada Village and Golf Club (Nos. 27 and 28). Ground disturbance associated with the cumulative projects could result in a cumulatively significant impact due to damage or destruction of a unique paleontological resource. The proposed project would not be expected to contribute considerably to such an effect because the components proposed for the Monterey Formation would occur within previously disturbed rights-of-way. Therefore, the proposed project's incremental contribution to potentially significant cumulative paleontological resources impacts would not be cumulatively considerable (*less than significant*).

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