4.5 Cultural Resources and Tribal Cultural Resources

This section describes the existing conditions related to cultural resources and tribal cultural resources of the project site and vicinity, identifies associated regulatory requirements, evaluates potential project and cumulative impacts, and identifies mitigation measures for any significant impacts related to implementation of the of the Laguna Creek Diversion Retrofit Project (Proposed Project). The analysis is based on a Cultural Resources Inventory, Evaluation, and Finding of Effect Report prepared for the Proposed Project, which is included in Appendix D.

A summary of the comments received during the scoping period for this EIR is provided in Table 2-1 in Chapter 2, Introduction, and a complete list of comments is provided in Appendix A. Comments related to cultural resources and tribal cultural resources were received from the Native American Heritage Commission (NAHC) and a representative from the Costanoan Ohlone Rumsen-Mutsen Tribe. Issues identified in the public comments related to potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or issues raised by responsible and trustee agencies are identified and addressed in this EIR.

4.5.1 Existing Conditions

Information in this section was obtained through cultural resource records searches, archival research, pedestrian surveys of the project site, historical significance evaluations, and correspondence with Native American tribes and other interested parties. The information is summarized below and described in detail in Appendix D.

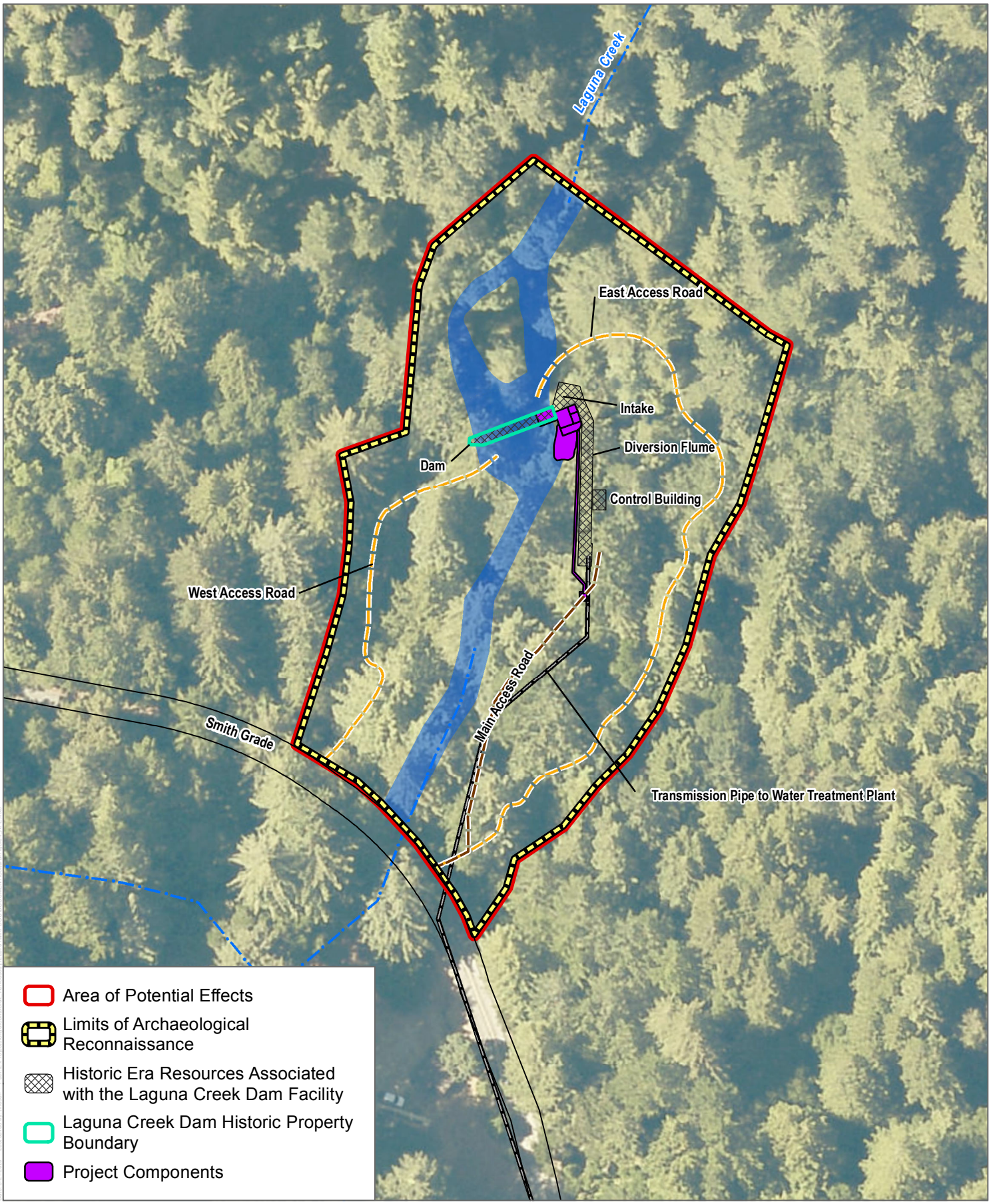
4.5.1.1 Study Area

For the purposes of the records search described below, the study area for cultural resources is the area of potential effect (APE) plus a 0.25-mile buffer. The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. The determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 Code of Federal Regulations [CFR] 800.16[d]). The APE for the Proposed Project is shown on Figure 4.5-1 and includes the maximum possible area that could be affected by the Proposed Project.

4.5.1.2 Prehistoric Context

The APE lies within the territory that was occupied by the Costanoan or Ohlone people prior to European contact. The term Costanoan refers to people who spoke eight separate Penutian-stock language groups and lived in autonomous tribelet communities between the vicinities of the city of Richmond in the north to Big Sur in the south. The Awaswas tribelet occupied the Santa Cruz area at the time of European contact (Levy 1978).

The temporal framework for the prehistoric era of greater Central California coast spans a period of approximately the last 10,000 to 12,000 years, (i.e., the Holocene), and divides that span into six different periods (Jones et al. 2007). Researchers distinguish these periods by perceived changes in prehistoric settlement patterns, subsistence practices, and technological advances.



SOURCE: ESRI 2020, City of Santa Cruz 2019, USGS 2019

DUDEK

0 40 80 Feet

FIGURE 4.5-1

Cultural Resources Area of Potential Effects

Laguna Creek Diversion Retrofit Project - EIR

Paleo-Indian Period (pre-8000 BC)

The Paleo-Indian Period represents people's initial occupation of the Monterey Bay region, which was quite sparse across the region. The traditional interpretation of Paleo-Indian lifeways is that people were highly mobile hunters who focused subsistence efforts on large mammals. In contrast, Erlandson et al. (2007) proposes a "kelp highway" hypothesis for the peopling of the Americas. Proponents of this model argue that the earliest inhabitants of the region focused their economic pursuits on coastal resources. Archaeological sites that support this hypothesis are mainly from the Santa Barbara Channel Islands. Some scholars hypothesize that Paleo-Indian sites in the Bay Area/northern Central Coast region may exist, but have been inundated as a result of rising ocean levels throughout the Holocene (Jones and Jones 1992).

Millingstone Period (8000 to 3500 BC)

Settlement in the Central Coast appeared with more frequency in the Millingstone Period. Sites are often associated with shellfish remains and small mammal bone, which suggest a collecting-focused economy. Newsome et al. (2004) report that stable isotope studies on human bone indicate a diet composed of 70% to 84% marine resources. Contrary to these findings, deer remains are abundant at some Millingstone sites (cf. Jones et al. 2008), which suggests a flexible subsistence focus. Similar to the Paleo-Indian Period, archaeologists generally view people living during the Millingstone Period as highly mobile.

Early Period (3500 to 600 BC)

The Early Period corresponds with the earliest era of what Rogers (1929) called the "Hunting Culture." Early Period sites are located in more varied environmental contexts than Millingstone sites, suggesting more intensive use of the landscape than practiced previously (Jones and Waugh 1997). Early Period sites are common and often found in estuary settings along the coast or along river terraces inland and are present in both Monterey and Santa Cruz counties. Archaeologists have long debated whether the shift in site locations and artifact assemblages during this time represent either population intrusion as a result of mid-Holocene warming trends, or an in-situ adaptive shift (cf. Mikkelsen et al. 2000). The initial use of mortars and pestles during this time appears to reflect a more labor intensive economy associated with the adoption of acorn processing (cf. Basgall 1987).

Middle Period (600 BC to AD 1000)

The trend toward greater labor investment is apparent in the Middle Period. During this time, there is increased use of plant resources, more long-term occupation at habitation sites, and a greater variety of smaller "use-specific" localities. Jones et al. (2007) discuss the Middle Period in the context of Rogers' "Hunting Culture" because it is seen as a continuation of the pattern that began in the Early Period. The pattern reflects a greater emphasis on labor-intensive technologies that include projectile and plant processing. Additionally, faunal evidence highlights a shift toward prey species that are more labor intensive to capture, either by search and processing time or technological needs. These labor-intensive species include small schooling fishes, sea otters, rabbits, and plants such as acorn.

Middle-Late Transition (AD 1000-1250)

The Middle-Late Transition corresponds with the end of Rogers' "Hunting Culture." The Middle-Late Transition is a time that appears to correspond with social reorganization across the region. This era is also a period of rapid climatic change known as the Medieval Climatic Anomaly (cf. Stine 1994). The Medieval Climatic Anomaly is

proposed as an impetus for the cultural change that was a response to fluctuations between cool-wet and warm-dry conditions that characterize the event (Jones et al. 1999). Archaeological sites are rarer during this period, which may reflect a decline in regional population (Jones and Ferneau 2002).

Late Period (AD 1250-1769)

Late Period sites are found in a variety of environmental conditions and include newly occupied task sites and encampments, as well as previously occupied localities. Coastal sites dating to the Late Period tend to be resource acquisition or processing sites, while evidence for residential occupation is more common inland (Jones et al. 2007).

4.5.1.3 Historic Context

Spanish Period (1769–1822)

The earliest known European exploration of the Monterey Bay was a Spanish envoy mission in 1602 led by Sebastián Vizcaíno, who was sent by the Spanish government to survey the California coastline. Vizcaíno named the Bay "Monterey" after the Conde de Monterey, the present Viceroy in Mexico (Chapman 1920: 293-4; Hoover et al. 2002: 225-6). In 1769, Don Gaspar de Portolá, the Governor of Baja, embarked on a voyage to establish military and religious control over the area. On their quest to locate the Monterey Bay from the 160-year-old accounts of Sebastián Vizcaíno, the Portolá expedition first reached the present-day territory of Santa Cruz on October 17, 1769. After mistakenly circumventing the Monterey Bay and reaching the San Francisco Bay, the expedition backtracked to San Diego. The following year on May 31, 1770, a second expedition was organized by Portolá resulting in a successful location of the Monterey Bay. In 1791, Mission Santa Cruz was established as the twelfth mission in the California Mission system. Converted Native Americans known as neophytes were forced to build the mission church and auxiliary structures from local timber, limestone, and adobe, as well as to cultivate wheat, barley, beans, corn, and lentils for the mission Padres and soldiers. From the start, Mission Santa Cruz was plagued by substantial issues. The forced conversion of the local native population resulted in repeated rebellions, violence, desertion, and pestilence at Mission Santa Cruz.

In 1795, Spain established three self-governing Pueblos in Alta California that, unlike the Missions, would remain free from military and religious oversight. Villa de Branciforte was established in 1797 on the opposite bank of the San Lorenzo River from Mission Santa Cruz. The 40 settlers of Villa de Branciforte were not provided with the resources promised to build housing or cultivate the land, and had to make due with crude dwellings of their own design. In 1803, there were 107 inhabitants, however, because the population was made up of former soldiers, artisans, and criminals, they lacked the pertinent skill to farm and sustain themselves. Despite population growth in the initial years, the settlement was quickly deemed a failure by Spain (Lehmann 2000: 4-5). By 1817, the population of Villa de Branciforte had dwindled to 52 people.

Mexican Period (1822–1848)

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1834, the Spanish Missions across the territory were secularized. The secularization of the Missions meant that all communal mission property was placed in a trust with the intention of being returned to the local Native American population. In Santa Cruz, the land purloined by the Spanish was returned to Native Americans between 1834 and 1839, but a small pox epidemic in 1838 and reoccurring bouts of syphilis caused a massive decline in the Native population from 284 in 1837 to 71 in 1839. This meant that very few eligible recipients remained to receive it, and records indicate that only 25 Native Americans held property in the Santa Cruz area between 1834 and 1849 (Lehman 2000: 4-5).

Extensive land grants were established in the interior during this period, which covered over 150,000 acres of present-day Santa Cruz County. Several land grants covered the lower regions of the densely forested Santa Cruz Mountains. Not all regions of the Santa Cruz Mountains, however, became part of a Mexican land grant during this vast undertaking; the region encompassing the present-day communities of Bonny Doon, Ben Lomond, and Boulder Creek was never formally granted to a recipient during this period (Hoover et al. 2005: 456-8; Koch 1973: 11).

American Period (1848–Present)

The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period. Santa Cruz was designated as one of the 27 original counties of California on February 18, 1850, shortly before California officially became a state with the Compromise of 1850. The new state of California recognized the ownership of lands in the state distributed under the Mexican land grants of the previous several decades (Lehman 2000: 5; Koch 1973: 35).

The California Gold Rush of 1848 led to a massive influx of people seeking gold in the rural counties of California. The gold fields quickly dried up causing many new arrivals to refocus on other economic opportunities. In Santa Cruz County, insightful entrepreneurs saw the arrival of opportunity-seeking laborers as a means to harvest the abundant natural resources found throughout the area. The lumber, mining, tanning, fishing, and leisure industries formed the economic foundation of Santa Cruz County. In the central and southern areas of the County, early settlers took advantage of the fertile soil and temperate climate to establish large farms and dairies. Interest in the beauty of the Monterey Bay drew visitors to the County as early as the 1860s, causing beach tourism to emerge as another major industry in the County.

The Role of Water in the Early Development of Santa Cruz County

The Gold Rush accelerated the desirability of land across the state, and before long, access to water in the drought-prone region took on the highest level of importance. Instead of adopting an equal water access structure in the fashion of the eastern United States, the wealth potential of waterways during the Gold Rush shaped California water law into a "first in time, first in right" system known as Prior Appropriation. Under this system, riparian rights were granted to the first person to use a river or tributary for beneficial consumption like mining, farming, milling, or as-needed domestic use. When land in the Santa Cruz Mountains was subdivided and sold, access to the rivers and streams was enormously important. Not only did it mean that the initial use set out for a waterway was the primary use, it also meant that any subsequent uses could not supersede or negatively affect the chief use. The order that claims were recognized during this period established the foundation of the complicated system of water allocation rights still in use today in Santa Cruz County (Pisani 1984: 246-7).

Many of these powerful mountain streams and tributaries were utilized by early landowners and tenant entrepreneurs to make a profit from the natural resources that formed the early economic basis of the County. Several of these mountain creeks still bear the names of the first men who established mills or permanently settled beside them. Majors Creek was named for Joseph L. Majors who established a grist mill on the creek prior to serving as the County Treasurer between 1850 and 1853. Liddell Creek was named for George Liddell who moved to the Santa Cruz Mountains and established a sawmill on the creek in 1851. Newell Creek was named for Addison Newell who established a farm in the steep, v-shaped valley on the banks of the creek in 1867 (Koch 1973: 33–34; Clark 2008: 174, 187, 215).

For others, the streams presented pure economic opportunity. The first power sawmill in California was built on Rancho Zayante by Isaac Graham in the 1842 and was driven by the waters of Zayante Creek. Isaac E. Davis and Albion P. Jordan of the Davis and Jordan Lime Company purchased a portion of Rancho Cañada del Rincon in 1853 as a promising quarry site. They also utilized the falling water on the property to process local lumber into fuel for their

many kilns. The California Powder Works was established in 1865 on the bank of the San Lorenzo River on a portion of Rancho Carbonera. The Powder Works used the river to grind raw materials used in the production of the first smokeless powder manufactured on the west coast of the United States. By 1868, there were a sizable number of business and industries that relied on water from County waterways to operate, including 12 water-powered lumber mills, 10 steam-powered lumber mills, and 9 shingle mills in operation within the County (Clark 2008: 130–131; Hoover et al. 2002: 456; Koch 1973: 36–37; Brown 2011: 4).

4.5.1.4 Development of Water Infrastructure in Santa Cruz

The San Lorenzo River and the many creeks that wind through the greater Santa Cruz County area have historically been subject to seasonal droughts and floods. Coupled with the many upstream diversions and industrial uses of these waterways by settlers and purveyors in the Santa Cruz Mountains, water shortages are present in the earliest records of the County. By the 1860s, acute cyclical shortages and pollution prompted the development of private for-profit water systems by entrepreneurs.

F.A. Hihn Water Works (1864)

In 1864, Elihu Anthony and Fredrick A. Hihn implored the Board of County Supervisors to allow them to dig trenches and lay redwood pipes to transport water throughout Santa Cruz. The "wooden tubes" were chosen as an inexpensive alternative to iron pipes (Santa Cruz Weekly Sentinel 1864a: 2). The source of the water was an 8,000-gallon reservoir on Anthony's property supplied by water from Scott's Creek, and eager recipients of the water could gain access for a fee (Brown 2011: 1-2; Santa Cruz Weekly Sentinel 1864b: 2). The system became known as the F.A. Hihn Water Works, and it was the largest provider of water in the newly chartered City, with Dodero and Carbonero Creeks constituting its primary sources. The company predated the incorporation of Santa Cruz by 2 years (Koch 1973: 35; Brown and Dunlap 1956: 14; City of Santa Cruz 2020b).

The Santa Cruz Water Company (1866)

In 1866, a new, fee-based, private water supply company was founded to share in the lucrative profits of the F.A. Hihn Water Works. A man named E. Morgan acquired rights to the waters of the San Lorenzo River in 1866, just prior to the town of Santa Cruz being officially incorporated later that year. He used these rights to install a section of pipework conveying water to the area known then as the "The Flats," which comprises the modern area of Pacific Avenue and Front Street (SCWD ND: 1).

In 1876, Morgan sold his system to a wealthy man from San Francisco named H.K. Lowe. Under Lowe's guidance, the Santa Cruz Water Company incorporated in July 1876 and began construction on a pumping station on the San Lorenzo River approximately 1 mile upstream from the City, as well as a new reservoir located on High Street. H. K. Moore, company President, and E. R. Morgan, the resident engineer and superintendent, operated the Santa Cruz Water Company. By the end of 1876, the Company had also installed a diversion off Branciforte Creek to deliver water to a new reservoir located at the base of School Street. As the City continued to grow and the steam-powered pumping plant installed on the San Lorenzo River became the source of repeated water-quality concerns, the Santa Cruz Water Company acquired partial water appropriation rights to Majors (then called "Cojo") Creek in 1881. After the acquisition, the Company scrapped the San Lorenzo pumping plant for a meager $800 (Santa Cruz Weekly Sentinel 1877a: 1; 1877b: 2; SCWD ND: 1).

For the next several years, the Santa Cruz Water Company focused its attention on the construction of a pipeline to divert water from the newly acquired Majors Creek appropriations. This effort was very costly and the company the slipped into dire financial standing, eventually prompting the sale of the company in 1886.

City of Santa Cruz Water Department

During the 1880s, the rising price of the private, fee-based water systems prompted the City of Santa Cruz to explore their own, City-owned public option that would grant the citizens of Santa Cruz unlimited free water. In August of 1886, the Santa Cruz Water Company along with all of its appurtenances was purchased by the City of Santa Cruz through the sale of bonds from the Bank of Santa Cruz and the Anglo-Californian Bank. Hihn bitterly opposed the issuance of the bonds and contested their legality in court. The matter reached the Supreme Court and the election in favor of the bonds was declared invalid in 1887. By this time however, the City had already operated the system for over a year when it was re-conveyed to private owners in 1887 (Santa Cruz Weekly Sentinel 1882: 3; SCWD ND: 1; Santa Cruz Surf 1890a: 1).

The City voted again in March 1888 to put up the bonds necessary to purchase the system from the private owners. While the City was in the process of securing the bonds for the purchase, the system was covertly sold to Hihn in a private, backroom deal before the City could obtain legal ownership. Hihn quickly consolidated the Santa Cruz Water Company system with his own works and effectively severed the opportunity the City had of acquiring an established water works system (Santa Cruz Daily Surf 1888a: 3, 1888b: 2; Santa Cruz Surf 1890a: 1).

The City revised its approach and by July 1888, the Common Council had secured nearly all of the water rights to the Laguna Creek. "The Laguna," the *Santa Cruz Sentinel* reported, "is a rushing, roaring mountain stream, entirely rock bound and tree shaded above the falls where it is proposed to take the water out" (Santa Cruz Sentinel 1888:2). The creek was capable of supplying 1.4 million gallons towards a City-owned water works, and in August, it was reported that open negotiations with the sole opposing claimant, a land owner concerned with loss of access to water for his own land as a result of the pipeline, were underway and was resolved amicably. Plans for the construction of the first City-owned water works, supplied through a new pipeline by the waters of Laguna Creek, with reserve storage in a new City reservoir were finally in motion. The *Santa Cruz Surf* reported with excitement that the new project would mean open, municipal water so that each citizen of Santa Cruz could finally "…quench his thirst with free water without 'dropping a nickel in the slot.' (Santa Cruz Surf 1890a: 1)" (Santa Cruz Sentinel 1888: 2; The Santa Cruz Daily Surf 1888b: 2).

4.5.1.5 Development of the Laguna Creek Diversion Facility

With the rights to the water of Laguna Creek secured, the City of Santa Cruz set in motion plans to construct the first municipal water distribution system, known then as the City Water Works, and later as the Laguna Creek Diversion Facility (Facility).

After some difficulty, the bonds required to fund the construction of the City Water Works were secured within the following year, and in July 1889, a civil engineer named G.S. Schussler conducted a survey and inspection of the proposed dam, reservoir, and pipeline site. He produced a report in favor of the project that valued the proposed undertaking at $260,000 (Santa Cruz Surf 1889a: 3; 1889b: 3; Santa Cruz Sentinel 1889: 3).

The City of Santa Cruz made an arrangement with the New York banking group, Coffin and Stanton, who agreed to accept the money and construct the City Water Works on the condition that they would hold the mortgage to the system until the time the bonds were fully repaid. One week prior to Thanksgiving on November 20, 1889, the

Common Council introduced and adopted an ordinance authorizing the conveyance of the Laguna Creek water rights to the City, and the mortgage to the future City Water Works system to Coffin and Stanton (Santa Cruz Surf 1890a: 1).

Coffin and Stanton received the papers authorizing the construction, and work on the City Water Works system began immediately. The work would entail the construction of a dam on Laguna Creek, the excavation of a reservoir site on Henry Cowell's property, the installation of a 12-mile-long pipeline from the Laguna Creek Dam to the reservoir, and pipes connecting the reservoir with Santa Cruz households. Coffin and Stanton sublet the construction contract to the prominent San Francisco firm, Risdon Iron Works, who were known for producing the great iron pipes for steam ships. Risdon had a representative in Santa Cruz by the following week to calculate the number of iron pipes required for the project. The *Santa Cruz Surf* reported that work on the dam on Laguna Creek and the dam at the reservoir site on Henry Cowell's ranch property would be completed by the San Francisco contracting firm, Kelso and Dare (Santa Cruz Surf 1889c: 3).

By early December 1889 when work was intended to begin, the representative of Risdon Iron Works, A. Schierholz, was reportedly on-site for the duration of the project, as well as John Kelso and William Baldwin, representatives of contractor, Kelso and Dare. Although work began on a labor camp near the reservoir site on Cowell's property, work on the Laguna Creek dam was delayed for some time by inclement weather. On December 28, the first shipment of pipes arrived in Santa Cruz, and construction on the pipeline, the Laguna Creek Dam, and the reservoir site commenced over the following months. Appendix D contains illustrations of the likely shape and size of the pipeline segments for the Laguna Pipeline.

On September 30, 1890, the Santa Cruz Surf reported that the reservoir and the pipeline of the City Water Works were nearly complete. The article published an in-depth description of the new Laguna Creek Dam stating that (Santa Cruz Surf 1890b: 3):

> The dam across Laguna Creek just above the Henneuse place is one of the finest pieces of rubble stone work in the county and not to be excelled anywhere. The granite rocks used in its construction were taken from the bed of the creek, some of them weighing as much as two tons. The water will first be diverted from the Laguna at this point into a flume 3x4 feet and one hundred feet in length, also built of solid masonry. This is nearly level and terminates in a basin two feet lower, and into which the sand and sediment which may be carried in the water in a time of storm will settle. Gates are provided by means of which this basin can be cleared as often as required. From here the water will enter the 14-inch main through which it will be carried to the storage reservoir. This pipe follows the canyon of the Laguna creek as nearly as possible to the county road a distance of about three miles.

At 5.35 p.m. on October 18, 1890, the last pipe connecting the waters of Laguna Creek to the homes and businesses of Santa Cruz was put into position (Santa Cruz Surf 1890c: 3).

In 1892, Harrison's *History of Santa Cruz County, California* touted the new Santa Cruz City Water Works (Harrison 1892: 216):

> Without doubt Santa Cruz is the best watered, as well as the best lighted, town on the Pacific Coast. She owns her own water supply and electric light works. The water system especially is a matter of great local pride, and, naturally enough, those connected with it take great pleasure in exhibiting it.

The same year as the Harrison publication, the City of Santa Cruz published an overview of the recent water-related projects in the City and also a review of the new municipal system after one year of operation. This review included a small photograph of the Laguna Creek Dam that had been completed 2 years prior in 1890 (see Appendix D) (Santa Cruz Surf 1892: 2).

When the last segment of the cast-iron Laguna Pipeline was laid in October 1890, the first municipally funded water works system in the history of Santa Cruz, the Facility began to supply free water to the citizens of the City. The Facility led the way for subsequent municipal water impoundment projects for the City, which continues to rely on multiple sources in the North Coast Watershed for drinking water supply into the present. The Facility is the first example of this type of project in the City, and continues to function as a component of a now-enlarged of water capture and distribution system presently suppling drinking water to the Santa Cruz Water Department service area.

Following the completion of the Facility, the City implemented a measure in 1891 to increase the water flow diverted through the pipeline. A 965-foot-long flume was completed connecting the west branch of Laguna Creek, now called Reggiardo Creek, to the main Laguna Creek by emptying out water to the north of the dam. The new flume was intended to help supplement the municipal supply from Laguna Creek, as the year-old Laguna Creek Dam was quickly inundated with sediment, and not enough water was being captured by the system overall (Santa Cruz Surf 1892: 2).

In 1912, R.S. Tait, the water superintendent, announced that a dam had been completed on Reggiardo Creek in order to aid in the supply of daily drinking water sourced from Laguna Creek. The level of Laguna Creek had been significantly reduced by a lack of rainfall in the watershed area, causing the supply of water in the impoundment to drop below sufficient levels to support the community. The concrete dam on Reggiardo Creek impounded water and conveyed it through a corresponding iron pipeline to the creek approximately 850 feet upstream from the Laguna Creek Dam. This measure was strictly intended to supplement the water flow distributed through the pipeline leading from the Facility. Although a portion of the Reggiardo Creek Pipeline, a 10-inch blow off pipe, is located along the west edge of the Laguna Creek Dam and feeds into the creek, it is not a component of the Facility as it is not physically connected and merely changes the volume and flow of water through Laguna Creek (Santa Cruz Evening News 1912: 2).

Today, the Laguna Creek Dam structure continues to convey the physical defining features and engineering methods of a diversion facility from the late 19th century, and offers a glance into the earliest efforts by the City to supply water to its residents.

Engineer: Risdon Iron Works

As described above, the Risdon Iron Works iron foundry was responsible for the design of the Facility system in 1889. John Nelson Risdon was born on July 10, 1822 in LeRoy, New York. John was the third of seven children born to Orange and Sally Risdon. Orange Risdon was a notable surveyor and a tenacious entrepreneur who was known for founding the City of Saline, Michigan in 1832 (Dikeman 2004).

J. N. Risdon departed for El Dorado during the early 1850s, joining the many tradespeople who flocked to the California during the Gold Rush to support the rapid economic and industrial growth there. He made his way via the Isthmus of Panama, and remained there with his young wife for over a year running a store. After leaving Panama, they changed their plans to go to El Dorado, and instead decided to settle in San Francisco (Dikeman 2004; Jensen 2006: 7; Oakland Tribune 1887: 2).

John received employment at a small foundry and boilermaker under the ownership of John Snow, and it was here that he began to see the economic prospects in iron works and boiler making. In 1853, he formed a partnership with the present foreman of the foundry, James Coffey, and together they purchased Snow's interests in the business. Together, Coffey and Risdon expanded the capacity of Snow's foundry, rebranding the business, Coffey & Risdon's Steam Boiler Works. Coffey and Risdon claimed to be "the only exclusively Boiler Making Establishment on the Pacific Coast" (Daily National Democrat 1858:4) and the company became reasonably well known during its time in operation until 1868 (Dikeman 2004; Jensen 2006: 7; Oakland Tribune 1887: 2).

Like his father, John Risdon was a determined entrepreneur. When Coffey and Risdon experienced considerable success, Risdon decided to also open his own foundry in 1864. Four years later in April 1868, the Risdon Iron and Locomotive Works filed for a certificate of incorporation. The company name was colloquially shortened to Risdon Iron Works (Oakland Tribune 1887: 2; San Francisco Examiner 1868: 3).

The Risdon Iron and Locomotive Works manufactured engines and machinery for mills, sugar refinement, mining, agriculture, locomotives, and steam ships. The company also produced cast iron pipes to specification, and cast iron architectural components. The company continued to function under the Risdon name following John Risdon's death in 1887. In fact, some of the most prestigious projects undertaken by Risdon Iron Works took place after the time Risdon was involved in the operation of the company (Oakland Tribune 1887: 2).

Contractor: Kelso and Dare

The contracting company Kelso and Dare was owned and operated by John Kelso and John Dare. The company specialized in grading activities for railroad lines and was active during the late 1880s and early 1890s in the San Francisco Bay Area (Poor's Railroad Manual 1893: 471).

4.5.1.6 Cultural Resources

Records Search

To identify previously recorded cultural resources and reports near the APE, a records search of the APE and 0.25-mile buffer was conducted at the Northwest Information Center of the California Historical Resources Information System (CHRIS) in December 2019. The CHRIS search included a review of the NRHP, CRHR, California Inventory of Historic Resources, historical maps, and local inventories. Based on the results of the CHRIS search, no previously recorded cultural resources are located within the study area.

Historical Resources

The Facility contains four historic-era built environment structures: the Laguna Creek Dam (1890), the diversion flume/intake structure (1890), the transmission pipeline (1890) and the chlorination station (1965). In order to assess the property's historical significance and integrity, the Facility was recorded and evaluated in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and County of Santa Cruz (County) Historic Resources Inventory (HRI) designation criteria and integrity requirements. These criteria are listed as follows and further described in Section 4.5.2, Regulatory Framework:

- NRHP Criteria:
    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.
    D. Have yielded, or may be likely to yield, information important in prehistory or history.
- CRHR Criteria:
    1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
    2. Is associated with the lives of persons important in our past.
    3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
    4. Has yielded, or may be likely to yield, information important in prehistory or history.
- County of Santa Cruz HRI Criteria:
    1. The resource is associated with a person of local, state, or national historical significance.
    2. The resource is associated with an historic event or thematic activity of local, state, or national importance.
    3. The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.
    4. The resource has yielded, or may likely yield, information important to history.

A detailed full evaluation for the Laguna Creek Dam under all applicable criteria and integrity considerations is presented in Appendix D. A summary of the eligibility findings presented in the technical report is summarized below.

The Laguna Creek Dam appears eligible for listing in the NRHP and CRHR under Criterion A/1 and County HRI Criterion 2. The Laguna Creek Dam is a well-preserved masonry water management structure dating to 1890. It is a physical example of pioneering water management infrastructure in California. As such the dam appears individually eligible for listing in the NRHP and the CRHR under Criterion A/1 for its association with early advances in water management in California specifically through creation of the City of Santa Cruz's first municipal water distribution system that resulted in supplying the community of Santa Cruz with municipal water services and led to subsequent expansion of water infrastructure in the region.

Other elements of the Facility have been replaced, added, or altered since the period of significance including the diversion flume/intake structure, transmission pipeline, and the chlorination station. As such, they are not considered contributing features of the Laguna Creek Dam historic property. The contemporary infrastructural elements on the site, including lighting, utilities, modern valves and housings, also do not date to the 1890 period of significance, and as such, they are considered non-contributing elements to the dam.

The other historic-era ancillary structures at the Facility were determined to have either been modified to the extent that they no longer retain historic integrity and cannot convey significance to their period of significance, 1890, or

were added later; therefore, the ancillary structures are not considered contributing elements of the Laguna Creek Dam. Thus, the historic property boundary for the Laguna Creek Dam is limited to the dam structure footprint.

Therefore, for the reasons discussed, the Laguna Creek Dam is considered a historic property under Section 106 of the National Historic Preservation Act (NHPA) and a historical resource under CEQA. The period of significance for the dam is 1890, the year it was initially constructed. The historic property boundary for the Laguna Creek Dam is limited to the dam structure footprint. The character defining features associated with this dam, are limited to its location, setting, alignment, native stone or limestone masonry construction materials, the Risdon Iron Works plaque on the face of the Laguna Creek Dam, and its continued use as a water management structure.

Archaeological Resources

A pedestrian survey of the APE consisting of an archaeological surface reconnaissance was conducted in January 2020. The site reconnaissance found no archaeological resources within the APE. Therefore, based on the records search described above and the site reconnaissance, no known archaeological resources are located within the APE.

Tribal Cultural Resources

A search of the NAHC Sacred Lands File, which is a list of properties important to Native American tribes, was conducted in February 2020 for the vicinity of the APE. No known sacred lands were identified from the Sacred Lands File search. The NAHC also provided a list of five Native American contacts who might have local knowledge of cultural and tribal cultural resources near the APE. The City sent outreach letters via mail and email to the Native American contacts provided by the NAHC in March 2020. The Costanoan Ohlone Rumsen-Mutsen Tribe responded and indicated that they are aware of five Native American sites in the area and asked that these sites not be disturbed. These five specific prehistoric resources are associated with lower Laguna Creek, and are located outside of the APE. No other Native American contacts have responded to the letters to date. See Appendix D for further details and a complete record of the Native American outreach effort. The U.S. Army Corps of Engineers (USACE), as the federal lead agency for compliance with NHPA Section 106 regulations (described below in Section 4.5.2, Regulatory Framework), also conducted a Sacred Lands File search and the required Section 106 Native American consultation through the NAHC directly from the USACE District office in San Francisco.

In addition, as described above, the CHRIS records search did not identify any known archaeological resources within the APE and the surface reconnaissance was negative for evidence of previously unknown archaeological resources. Therefore, no known tribal cultural resources are located within the APE.

4.5.2 Regulatory Framework

4.5.2.1 Federal

National Historic Preservation Act

The NHPA established the NRHP and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that:

> [t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

36 CFR Part 800 implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the ACHP and the California State Historic Preservation Officer to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (36 CFR 60.4):

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
B. Are associated with the lives of persons significant in our past; or
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.

The 1992 amendments to the NHPA enhance the recognition of tribal governments' roles in the national historic preservation program, including adding a member of an Indian tribe or Native Hawaiian organization to the ACHP.

The NHPA amendments:

- Clarify that properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion in the National Register
- Reinforce the provisions of the Council's regulations that require the federal agency to consult on properties of religious and cultural importance.

The 1992 amendments also specify that the ACHP can enter into agreement with tribes that permit undertakings on tribal land and that are reviewed under tribal regulations governing Section 106. Regulations implementing the NHPA state that a federal agency must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.

4.5.2.2 State

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code [PRC] Section 5020.1[j]). In 1992, the California legislature established the CRHR "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 listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

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

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 California Code of Regulations Section 4852[d][2]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5[b]). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[q]), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1[q]). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b], and [c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; CEQA Guidelines Section 15064.5[c][4]). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC Section 21074[c], 21083.2[h]), further consideration of significant impacts is required. CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

California Environmental Quality Act Assembly Bill 52 Consultation

The CEQA lead agency for consultation with local Native American tribes is the City of Santa Cruz. At the time of the report, the City has not received any Assembly Bill 52 requests from local tribes. The agency regulatory contact for the consultation is Ms. Jessica Martinez-McKinney, Santa Cruz Water Department, 212 Locust Street, Suite C, Santa Cruz, CA 95060, (831) 420-5327; jmartinezmckinney@cityofsantacruz.com.

4.5.2.3 Local

Santa Cruz County Code

Native American Cultural Sites

Chapter 16.40 (Native American Cultural Sites) of the Santa Cruz County Code (SCCC) outlines methods and regulations for the identification and treatment of cultural resources within the County.

Historic Resources Inventory

Cultural Landmarks in the County of Santa Cruz are termed Historic Resources and are under the aegis of the Planning Department, County of Santa Cruz. A list of Historic Resources is maintained in the County's Historic Resources Inventory, which identifies those Historic Resources located in the unincorporated areas of the County.

Historic Resource is defined in Chapter 16:42 Historic Preservation within Title 16: Environmental and Resource Protection as follows (County Code 16.42.030 (I) [Ord. 5061 § 28, 2009; Ord. 4922 § 1, 2008]):

> … means any structure, object, site, property, or district which has a special historical, archaeological, cultural or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the County, State, or nation, and which either has been referenced in the County General Plan, or has been listed in the historic resources inventory adopted pursuant to SCCC 16.42.050 and has a rating of significance of NR-1, NR-2, NR-3, NR-4, or NR-5.

In order to be placed on the County Historic Resources Inventory, a property must first be evaluated for its ability to meet one or more of the following criteria: (County Code 16.42.050 Historic Resource Designation [Ord. 4922 § 1, 2008]).

1. The resource is associated with a person of local, state or national historical significance.
2. The resource is associated with an historic event or thematic activity of local, State or national importance.
3. The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.
4. The resource has yielded, or may likely yield, information important to history.

Santa Cruz County Historic Districts

The County of Santa Cruz defines Historic District as (County Code 16.42.030 (E) [Ord. 5061 § 28, 2009; Ord. 4922 § 1, 2008]):

1. Have character of special historic or aesthetic interest or value; and
2. Represent one or more periods or styles of architecture typical of one or more eras in the history of the County; and
3. Cause such area, by reason of these factors, to constitute a geographically definable area possessing a significant concentration or continuity of sites, buildings, structures, or objects that are unified by past events, or aesthetically by plan or physical development.

4.5.3 Impacts and Mitigation Measures

This section contains the evaluation of potential environmental impacts associated with the Proposed Project related to cultural resources and tribal cultural resources. The section identifies the standards of significance used in evaluating the impacts, describes the methods used in conducting the analysis, and evaluates the Proposed Project's impacts and contribution to significant cumulative impacts, if any are identified.

4.5.3.1 Thresholds of Significance

The standards of significance used to evaluate the impacts of the Proposed Project related to cultural resources and tribal cultural resources are based on Appendix G of the CEQA Guidelines, as listed below. A significant impact would occur if the Proposed Project would:

A. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
B. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
C. Disturb any human remains, including those interred outside of formal cemeteries.
D. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    - Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k).
    - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.5.3.2 Analytical Methods

Records Search

As described above, a records search of the APE and 0.25-mile buffer was conducted at the Northwest Information Center of the California Historical Resources Information System (CHRIS) in December 2019. The CHRIS search included a review of the NRHP, CRHR, California Inventory of Historic Resources, historical maps, and local inventories.

Surveys

Pedestrian surveys of the project site and APE were conducted on January 14, 2020. An archaeological reconnaissance of the APE was conducted by a qualified archaeologist using standard archaeological procedures and techniques. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory. The land area was surveyed in pedestrian transects with approximately 5-meter spacing. A qualified architectural historian also conducted a pedestrian survey of the APE. The survey entailed walking all accessible portions of the Facility and surrounding portion of the APE and documenting the structure on site with notes and photographs, specifically noting character-defining features, spatial relationships, and observed alterations, and examining any historic landscape features on the property. (See Appendix D for further details on survey methods.)

Historical Resources

Significant impacts to historical resources may result from demolition or physical alteration of structures, or alteration of the setting of a historical resource by the introduction of incompatible elements, in cases where the property retains integrity of setting and the setting of the resource contributes to its significance.

As described above, the Laguna Creek Dam is a well-preserved masonry water management structure dating to 1890 located within the APE. It is a physical example of early water management infrastructure in California. As such, the dam appears individually eligible for listing in the NRHP Criterion A, CRHR Criterion 1, and Santa Cruz County HRI Criterion 2 for its association with pioneering advances in water management in California specifically through creation of the City of Santa Cruz's first municipal water distribution system that supplied the community of Santa

Cruz with municipal water services and led to subsequent expansion of water infrastructure in the region. The period of significance for the dam is 1890, the year it was initially constructed. The character-defining features associated with this dam are limited to its location, setting, alignment, native stone or limestone masonry construction materials, the Risdon Iron Works plaque on the face of the dam, and its continued use as a water management structure. The historic property boundary for the Laguna Creek Dam is limited to the dam structure footprint.

Archaeological Resources

Archaeological sites are usually adversely affected only by physical destruction or damage that can be caused by grading and excavation, trenching, weather-induced erosion, etc. Impacts to archaeological resources and human remains most often occur as the result of excavation or grading within the vertical or horizontal boundaries of a significant archaeological site. Archaeological resources may also suffer impacts as the result of project activity that increases erosion, or increases the accessibility of a surface resource, and thus increases the potential for vandalism or illicit collection. Because archaeological resources often are buried, or cannot be fully defined or assessed on the basis of surface manifestations, substantial ground-disturbing work may have the potential to uncover previously unidentified resources, including archaeological deposits, human remains, and tribal cultural resources. As described above, no known archaeological resources are located within the APE.

4.5.3.3 Project Impact Analysis

This section provides a detailed evaluation of cultural resources and tribal cultural resources impacts associated with the Proposed Project.

Impact CUL-1: Historical Resources (Significance Standard A). The Proposed Project could cause a substantial adverse change in the significance of the Laguna Creek Dam, which is a historical resource due to modifications of the Facility that would occur during construction. ***(Less than Significant with Mitigation)***

As described above, the Laguna Creek Dam appears eligible for listing in the NRHP and CRHR under Criterion A/1 and County HRI Criterion 2, and as such is considered a historical resource under CEQA. Project activities that could impact the dam would include the preparation of the dam for construction including excavation of sediment along the dam, cleaning of the surface of the dam, notching the dam; installation of the new Coanda screen intake structure; removal of the exiting non-contributing east and west sediment bypass valves located on the face of the dam; and the modified aesthetics of the dam due to installation of the new Coanda screen (i.e. appearance of the dam after construction is complete). These are discussed further below.

Construction

Installing the new Coanda screen intake structure would entail cutting a notch in the dam crest. This work would be done by saw cutting approximately 16 inches deep into the dam crest to score neat lines for stone masonry removal. Use of a wire saw would avoid excess material removal and would prevent unraveling of stone masonry beyond the limits of the new intake structure. Overall, these dam modifications would be done using hand tools. However, given the strength and hardness of the dam (as confirmed during the condition assessment [B&V 2018]), the cut may first be initiated using chisel hammers to remove materials as necessary.

As described in Chapter 3, Project Description, after removal of the notch is complete, portions of the dam would be pressure washed with water to remove loose material and organics such as dirt and moss. Pressure washing methods would depend on effectiveness of material removal without eroding mortar. Surface cleaning of the substrate would be performed to reasonably achieve good bonding of fresh concrete but would not be critical as the new structure would be designed to be self-stable. As described in Section 3.6.3, Standard Construction Practices, the contractor would be required to test the method of dam cleaning with the gentlest and least invasive method and, if necessary, more complicated methods (Standard Construction Practice #30). The contractor would also start with a low-pressure water wash, and if unsuccessful, water of slightly higher pressure. As possible, the test would be conducted in an inconspicuous location. Pressure washing would be limited to the area in which the new intake concrete would be cast against, within a 1-foot buffer. A bonding agent such as a high-solids, water-based emulsion admixture suitable for modifying Portland cement compositions would be spray applied to the dam face within the limits of the new concrete formwork for the new intake structure. These measures would avoid damage to the structure's masonry material. In addition, as part of the Proposed Project, the City would develop interpretative text and content to document the historical resource and publish it on the City's website and other locations (Standard Construction Practice #31).

Additional potential impacts to the dam during pre-construction include the temporary timber formwork and epoxy that would be used for forming new concrete surfaces. The formwork would be temporary and would not have a permanent visual impact. Rebar anchors secured with epoxy would be installed on the dam's exposed surfaces and within the bedrock for the Coanda screen intake structure foundation. The anchors would ultimately be covered by the new intake structure.

In preparing the dam for construction, impounded materials upstream of the dam would be temporarily excavated approximately 3 feet at its deepest point and along the portion of the dam and existing intake as needed to enable construction of the Coanda screen intake and to abandon the existing intake in place. A mini-excavator or similar equipment would be used to pull material away from the structures at safe temporary cut slopes. In addition, hauling equipment would be utilized. This work and equipment would be conducted a distance from the dam. The Proposed Project would not use equipment known to cause vibration damage to structures including pile driving equipment, vibratory drum compactors, or drilling and blasting.

The condition assessment report prepared in 2018 (B&V 2018) noted that the dam is constructed on bedrock and was found to be in satisfactory condition with no signs of distress or major deterioration that would jeopardize its function. In consideration of the dam's bedrock foundation, liquefaction would not be an issue regardless of potential vibration impacts. Testing indicates the materials for the dam structure are in good condition with no evidence of fatigue, delamination, or weakening and has adequate material strengths for continued service. While the analysis concluded that the overall condition of the dam was favorable for continued use and was in line with modern design parameters for masonry structures, it did not directly identify sensitivity of the dam to vibration (B&V 2018).

As described in Section 4.12, Noise, the dam may be susceptible to damage from vibration associated with construction of the Proposed Project. If construction vibration were to damage the dam, it could result in a substantial adverse change in the significance of the Laguna Creek Dam, resulting in significant impacts to the historic resource. MM NOI-2 in Section 4.12.3.5, Mitigation Measures, requires that an appropriate threshold be developed to prevent vibration impacts to the dam and monitoring of construction activities to ensure compliance. With implementation of MM NOI-2, the potential for construction-related vibration impacts to the historical dam structure would be reduced to a less-than-significant level.

Operation

Upon completion of construction, the Proposed Project would result in aesthetic changes to the dam. The Proposed Project would result in the permanent removal of a small portion of the dam's masonry materials and covering a portion of the face of the dam with the new intake structure. The new intake structure would be approximately 12 feet wide (along the face of the dam), 12 feet tall, and 10 feet long (as it projects downstream from the dam). Considering that the dam is approximately 60 feet in length, the area that would be obscured by the intake structure is a relatively small portion of the face of the dam. The new construction would be differentiated from the dam's historic materials, as modern concrete and metal materials would be used. Additionally, it is likely that during higher creek flows, where water would pass over the screen as well as cascade over the dam crest, the new intake structure would mostly be obscured and the dam would appear much as it does currently. Considering that the purpose of the new intake structure would be to aid in the functionality of the Facility, the dam would continue to function as a water management structure, and the historic property would retain the majority of its character-defining features that allow it to convey significance under NRHP Criterion A and CRHR Criterion 1, the impact related to these modifications would be less than significant.

Furthermore, abandoning and capping of the existing control valves located in and on the face of the dam would not result in damage or destruction of the dam and its character-defining features. At the dam's right/west sediment control bypass valve (from the vantage point of looking downstream), the existing gate, all metal/electrical, and cable components above the pipe and actuator and its hood would be removed. A blind flange would be installed on the end of the bypass pipe on the face of the dam. The dam's left/east sediment control bypass valve is at the location where the new intake structure would be installed. Prior to installation of the intake structure, the piece of the bypass pipe that protrudes from the dam, the actuator, protective hood, and electrical conduits would be removed and the pipe would be backfilled with concrete. This sediment control valve location would be ultimately obscured by the new intake structure. Removal of these 1980s non-contributing valves located on the dam would not damage or destroy the dam. The blind flange would cover the valve and would not obscure other features of the dam. As these valves are not character-defining features and no damage or destruction would be done to the dam by these changes, the impact related to these modifications would be less than significant.

Overall, the Proposed Project appears to be consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68), and applicable guidelines and the Proposed Project would not constitute a significant adverse change to the Laguna Creek Dam which is a historical resource. The operations-related impacts of the Proposed Project would be less than significant.

Impact CUL-2: Archaeological Resources (Significance Standard B). The Proposed Project could cause a substantial adverse change in the significance of an archaeological resource during construction. ***(Less than Significant with Mitigation)***

As described above, no known archaeological resources are located within the project site. The results of the records searches, field reconnaissance, and correspondence also suggest that there is low potential for encountering any unknown archaeological resources during project construction. Specifically, the records search did not identify any known archaeological resources within the APE and the surface reconnaissance was negative for evidence of previously unknown archaeological resources. The Costanoan Ohlone Rumsen-Mutsen Tribe noted concern for five specific prehistoric resources associated with lower Laguna Creek, all of which are located outside of the APE.

Nevertheless, it is possible that intact, buried archaeological deposits may be uncovered during ground-disturbing construction activities. The Proposed Project would include excavation and grading that would have the potential to uncover, displace, and destroy previously unknown archaeological resources, which would be a potentially significant impact.

Implementation of MM CUL-2, which includes protocols related to the inadvertent discovery of archaeological resources consistent with Standard Construction Practice #24, would reduce the potentially significant impact to a less-than-significant level by ensuring that the archaeological resources, if discovered during construction, would remain protected. See Section 4.5.3.5, Mitigation Measures, for details.

Impact CUL-3: Human Remains (Significance Standard C). The Proposed Project could inadvertently disturb human remains during construction. ***(Less than Significant with Mitigation)***

No known human remains are located on the project site. Nevertheless, the Proposed Project would include excavation and grading that would have the potential to uncover, displace, and destroy previously unknown human remains, which would be a potentially significant impact.

Implementation of MM CUL-3, which includes protocols related to the inadvertent discovery of human remains consistent with Standard Construction Practice #25, would reduce the potentially significant impact to a less-than-significant level by ensuring proper handling of human remains, if discovered during construction. See Section 4.5.3.5, Mitigation Measures, for details.

Impact CUL-4: Tribal Cultural Resources (Significance Standard D). The Proposed Project could cause a substantial adverse change in the significance of a tribal cultural resource during construction. ***(Less than Significant with Mitigation)***

As described above, no tribal cultural resources have been identified on the project site or within the APE. The NAHC Sacred Lands File search was negative. The Costanoan Ohlone Rumsen-Mutsen Tribe, noted concern for five specific prehistoric resources associated with lower Laguna Creek that are not within or near the APE. The Tribe did not discuss the presence of tribal cultural resources within or near the APE or address the need for Native American monitoring. Nevertheless, the Proposed Project would include excavation and grading that would have the potential to uncover, displace, and destroy previously unknown tribal cultural resources, which could include archaeological resources and human remains, which would be a potentially significant impact.

Implementation of MM CUL-2 and MM CUL-3, which include protocols related to the inadvertent discovery of archaeological resources and human remains that could include tribal cultural resources, would reduce the potentially significant impact to a less-than-significant level by ensuring the protection and proper treatment of any previously unknown tribal cultural resources, if discovered during construction. In addition, MM CUL-2 also requires cultural resources awareness training for all construction personnel working on the project site to facilitate the proper identification and treatment of any resources that are discovered during construction. See Section 4.5.3.5, Mitigation Measures, for details.

4.5.3.4 Cumulative Impacts Analysis

This section provides an evaluation of cumulative cultural resources and tribal cultural resources impacts associated with the Proposed Project and other reasonably foreseeable future projects, as identified in Table 4.1-1 in Section 4.1, Introduction to Analysis, and as relevant to this topic. The geographic area of analysis for cumulative impacts to cultural resources and tribal cultural resources is the Laguna Watershed.

Impact CUL-5: Cumulative Cultural Resources and Tribal Cultural Resources Impacts (Significance Standards A, B, C, and D). The Proposed Project, in combination with other reasonably foreseeable future development, would not result in a significant cumulative impact related to cultural resources and tribal cultural resources. ***(Less than Significant)***

The known cumulative projects planned within the Laguna Watershed include the Santa Cruz Water Rights Project (SCWRP), the Laguna Pipeline portion of the North Coast System Repair and Replacement Project, and the Reggiardo Diversion upgrade identified in the Anadromous Fisheries Habitat Conservation Plan. No construction or development within the Laguna Watershed is proposed as part of the SCWRP and therefore this project would not contribute to cumulative construction impacts in the watershed. The Laguna Pipeline and the Reggiardo Diversion upgrade, which would be constructed after completion of construction for the Proposed Project, are anticipated to result in construction impacts that can be reduced to a less-than-significant level with standard mitigation measures similar to those identified in this EIR.

As indicated in Section 4.1, there are not any known substantive proposed or pending development projects in the Laguna Watershed that would be under the jurisdiction of the County. However, if any such projects are proposed they would be subject to County approval; such projects that require discretionary approval are assumed to be designed or otherwise conditioned to avoid and minimize impacts to cultural resources and tribal cultural resources. As described above, implementation of the Proposed Project would result in impacts to areas immediately surrounding the Facility during project construction. Post construction, the project site would be operated and maintained similar to existing conditions. Mitigation measures listed in Section 4.5.3.5, Mitigation Measures, have been identified to reduce potentially significant impacts to cultural resources and tribal cultural resources to less-than-significant levels. Similar standard mitigation measures would be implemented for the other two construction projects in the Laguna Watershed. Therefore, the Proposed Project, in combination with the past, present, and reasonably foreseeable future projects in the Laguna Watershed would result in less-than-significant cumulative impacts to cultural resources and tribal cultural resources and no further mitigation measures are required.

4.5.3.5 Mitigation Measures

Implementation of the following mitigation measures as well as MM NOI-2 in Section 4.12.3.5, Mitigation Measures (Noise), would reduce potentially significant cultural resources and tribal cultural resources impacts of the Proposed Project related to unanticipated discovery of cultural resources during ground-disturbing activities, as described in the sections above, to a less-than-significant level.

MM CUL-2: Cultural Resources Awareness Training and Unanticipated Discovery of Archaeological Resources. Prior to site mobilization or construction activities on the project site, a qualified archaeologist with training and experience in California prehistory and historical period archaeology shall conduct a cultural resources awareness training for all project construction personnel. The training shall address the identification of buried cultural deposits, including Native American and historical

period archaeological deposits and potential tribal cultural resources, and cover identification of typical prehistoric archaeological site components including midden soil, lithic debris, and dietary remains as well as typical historical period remains such as glass and ceramics. The training must also explain procedures for stopping work if suspected resources are encountered. Any personnel joining the work crew subsequent to the training shall also receive the same training before beginning work.

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (CEQA) (14 California Code of Regulations Section 15064.5[f]; Public Resources Code Section 21082), the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA, additional treatment may be required.

MM CUL-3: **Unanticipated Discovery of Human Remains.** In accordance with California Health and Safety Code Section 7050.5, if potential human remains are found, the lead agency staff and the County Coroner must be immediately notified of the discovery. The coroner would provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, can occur until a determination has been made. If the County Coroner determines that the remains are, or are believed to be, Native American, the coroner would notify the Native American Heritage Commission within 24 hours. In accordance with Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) from the deceased Native American. Within 48 hours of this notification, the MLD would recommend to the lead agency her/his preferred treatment of the remains and associated grave goods. Further, federal regulations require that Native American human remains, funerary objects, and object of cultural patrimony are handled consistent with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) for all discovery situations in accordance with 43 Code of Federal Regulations Part 10.

4.5.4 References

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