LOS CERRITOS WETLANDS RESTORATION PLAN

Draft Program Environmental Impact Report
State Clearinghouse Number: 2019039050

Prepared for
Los Cerritos Wetlands Authority

May 2020

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COVER PHOTO CREDIT: Tidal Influence, Looking east at Steamshovel Slough

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EXECUTIVE SUMMARY

Los Cerritos Wetlands Restoration Plan Draft Program Environmental Impact Report

ES.1 Introduction

In accordance with California Environmental Quality Act Guidelines (*CEQA Guidelines*) Section 15123, this section of this Program Environmental Impact Report (PEIR) contains a summary of the Los Cerritos Wetlands Restoration Plan (proposed program) and its environmental effects. More detailed information regarding the proposed program and its potential environmental effects is provided in Chapter 2, *Project Description*, Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, Chapter 4, *Other CEQA Considerations*, and Chapter 5, *Alternatives*, of this PEIR. This PEIR has been prepared by the Los Cerritos Wetlands Authority (LCWA) as the Lead Agency in conformance with the provisions of the *CEQA Guidelines*. Included in this summary is an overview of the purpose and organization of the EIR, a summary of the proposed program and its location, a description of the program objectives and characteristics, an overview of alternatives, a general description of the terminology used in the PEIR, a summary of the proposed program's impacts and proposed mitigation measures.

ES.1.1 Purpose of the Draft PEIR and Environmental Review Process

In accordance with Public Resources Code (PRC) Section 21002.1, the purpose of this PEIR is to identify the significant environmental impacts of the proposed program, to identify alternatives to the proposed program, and to indicate the manner in which those significant effects could be mitigated or avoided. The Draft PEIR is being provided to the public for review and comment. After public review and comment, a Final PEIR will be prepared that would include responses to comments on the Draft PEIR received from agencies, organizations, and individuals. The Final PEIR would then provide the basis for decision-making by the Lead Agency and other agencies. Other agencies (state, regional, and local), as described in Chapter 1, *Introduction*, that have jurisdiction over an element of the proposed program or a resource area affected by the proposed program are expected to use this Draft PEIR as part of their approval or permitting process. This Draft PEIR would support permit applications, construction contracts, and other actions required to implement the proposed program and to adopt mitigation measures that are intended to reduce or eliminate significant environmental impacts.

This PEIR serves as a first-tier environmental document that focuses on the overall effects of implementing the activities that make up the proposed program. As a first-tier environmental

document, this PEIR will serve as the foundation for subsequent CEQA analysis (e.g., Project-level EIRs, addendums) which may be conducted for project-specific restoration designs.

ES.2 Draft PEIR Organization

The PEIR is organized into chapters as identified and briefly described below. The chapters are further divided into sections (e.g., Section 3.2, *Air Quality*):

- **Executive Summary:** This chapter presents a summary of the proposed program and the identified environmental impacts. It describes mitigation measures that would be implemented and the level of significance both before and after mitigation (as fully analyzed in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*). It also provides a summary of alternatives to the proposed program.
- **Chapter 1, *Introduction*:** This chapter presents a program overview; a discussion of the purpose and use of this PEIR; a discussion of the environmental process; and the organization of this PEIR. It also provides a summary of known controversial issues and a summary of issues to be resolved.
- **Chapter 2, *Project Description*:** This chapter provides a detailed description of the proposed program and its location. It also identifies the existing land management and site conditions, background, goals and objectives of the proposed program, land use and zoning designations, program characteristics for each program area, the proposed construction schedule for the proposed program, and the intended uses of the PEIR, including permits and approvals that would be required to implement the proposed program.
- **Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*:** For each environmental issue, this chapter describes the existing environmental and regulatory settings, evaluates and reaches significance conclusions for program-level and cumulative impacts associated with the proposed program, identifies mitigation for impacts determined to be significant, and discusses the level of significance after implementation of those mitigation measures.
- **Chapter 4, *Other CEQA Considerations*:** This chapter identifies impacts considered to be significant and unavoidable. In addition, the growth-inducing effects and significant irreversible environmental changes associated with construction or operations of the proposed program are also identified.
- **Chapter 5, *Alternatives*:** This chapter provides information regarding alternatives to be considered by decision makers in compliance with *CEQA Guidelines* Section 15126.6. The alternatives analysis evaluates a range of reasonable alternatives to the proposed program or to the location of the proposed program that would feasibly attain most of the basic objectives of the proposed program but would avoid or substantially lessen any of the significant effects of the proposed program. In addition, this chapter summarizes the alternatives that were considered and withdrawn from consideration because they did not meet program objectives, were determined to be infeasible, or did not avoid or substantially lessen any of the significant effects of the proposed program.
- **Chapter 6, *Report Preparers*:** This chapter lists the individuals, firms, and lead agency that were involved in preparing this PEIR.
- **Appendices:** This PEIR includes appendices that provide either background information or additional technical support for the analysis.

ES.3 Project Summary

The Los Cerritos Wetlands Authority (LCWA), as the Lead Agency pursuant to CEQA, is proposing to implement a restoration program for the Los Cerritos Wetlands Complex. The proposed program identifies conceptual restoration designs for approximately 503 acres of land located on the border of Orange County and Los Angeles County in the cities of Seal Beach and Long Beach. The program area consists of the South, Isthmus, Central and North areas. The proposed program would restore wetland, transition, and upland habitats throughout the program area. This would involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor center, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities.

ES.4 Project Location

The proposed program is located within the cities of Seal Beach and Long Beach. The City of Seal Beach is within the northwestern portion of Orange County, California. The City of Long Beach is within the southeastern portion of Los Angeles County, California.

The City of Seal Beach is bounded by the City of Long Beach to the west; the City of Los Alamitos and the neighborhood of Rossmoor to the north; and the cities of Huntington Beach, Westminster, and Garden Grove to the east. The Pacific Ocean borders the City of Seal Beach to the south. The U.S. Navy Naval Weapons Station Seal Beach is located within Seal Beach city boundaries to the southeast of the program area.

The City of Long Beach is bounded by the cities of Carson and Los Angeles, the neighborhood of Wilmington, and the Port of Los Angeles to the west; the cities of Compton, Paramount, and Lakewood to the north; and the cities of Hawaiian Gardens, Cypress, Los Alamitos, and Seal Beach to the east. The Pacific Ocean borders the City of Long Beach to the south.

Figure ES-1, *Regional Location*, shows the regional location of the proposed program.

The program area is located in the West Seal Beach and East Long Beach, straddling the border of Orange County and Los Angeles County in southern California. **Figure ES-2**, *Project Site and Local Vicinity*, illustrates the program area relative to its immediate surroundings. Three major channels are present in the program area: Los Cerritos Channel, San Gabriel River, and the Haynes Cooling Channel. A remnant historic tidal channel, called Steamshovel Slough, is also present, and drains to the Los Cerritos Channel. For purposes of organizing the environmental analysis and discussion, the proposed program has been separated into 4 areas (South, Isthmus, Central, and North) and 17 individual sites.

Path: U:\GIS\GIS\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\EIR\Fig2-1_Regional.mxd, janderson, 3/12/2019

SOURCE: ESRI

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure ES-1
Regional Location

ESA

SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure ES-2
Project Site and Local Vicinity

ESA

ES.5 Background

ES.5.1 History of the Los Cerritos Wetlands Complex

Until the late 1800s, the wetlands within and beyond the program area, collectively known as the Los Cerritos Wetlands Complex, spanned approximately 2,400 acres and consisted of a network of tidal channels, vegetated wetlands, and upland areas. The Los Cerritos Wetlands Complex was almost entirely tidal wetland, with a few natural streams and intertidal flat channels.

Beginning in the late 1800s, the Los Cerritos Wetlands Complex began to undergo significant alterations due to cattle and beet farming, the demands of a growing population, and oil extraction. Oil was first discovered at the Seal Beach Oil Field in 1926. The development of oil production operations, paired with channelization of the San Gabriel River, resulted in substantial dredge and fill of the Los Cerritos Wetlands Complex. Today, nearly all of the program area has been converted from its historic wetland habitat, though a few remnant and degraded historic habitats remain. The most notable example of remaining historic habitat within the program area is the Steamshovel Slough, a fully tidal marsh connected to the Los Cerritos Channel that maintains high plant diversity and estuarine ecological communities.

ES.5.2 Cultural History of the Los Cerritos Wetlands Complex

Archaeological evidence from the Channel Islands indicates that the first people migrated down the California Coast as early as 12,000 years ago (Cassidy et al. 2004; Erlandson et al. 2007), with permanent settlements established between 8,000 and 3,000 years ago (Douglass et al. 2015; Glassow et al. 1988; Grenda and Altschul 2002; Koerper et al. 2002; Macko 1998). From 1,000 years before present to approximately 1542 C.E., Los Angeles County and Northern Orange County were occupied by the Gabrielino people (named after the Spanish Mission where many of them were baptized). Approximately 50 major villages were located along the coast and inland prairies. The Gabrielino used the local wetlands, rivers, and streams to hunt and fish, to gather reeds and willows to build homes, and as a reliable water source (McCawley, 1996). Nearby Native American sites are known to be located at California State University Long Beach, Rancho Los Alamitos Historic Ranch, and Heron Point (California Coastal Commission, 2018).

The Los Cerritos Wetlands Complex has been identified by California Native American tribal members as a Tribal Cultural Landscape as part of government-to-government consultation with LCWA regarding the proposed program and as part of consultations related to the Los Cerritos Wetland Oil Consolidation and Restoration Project. Tribal members consulted believe the Tribal Cultural Landscape is eligible for listing in the National Register of Historic Places as a Tribal (or Traditional) Cultural Property (or TCP) – a type of significance that is often related to religious or ceremonial values because of unique landscape features, such as a mountain or bluff top, places with significant or special natural views, rivers and estuaries, or vegetation and wildlife, or areas with burials or religious artifacts/monuments. The wetlands are within walking distance to both *Puvungna* and *Motuucheyngna* village sites and served as an important resource to native peoples and was used both historically and in current times by native peoples. The California Coastal Commission has acknowledged the significance of this area as part of the Los Cerritos Wetland

Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) (California Coastal Commission, 2018).

ES.5.3 Los Cerritos Wetlands Stewardship Program

The Los Cerritos Wetlands Stewardship Program[1] was created in 2009 by the LCWA to engage the public and allow volunteers to help the LCWA with managing and enhancing habitat that exists on LCWA property. The Los Cerritos Wetlands Stewardship Program Vision Plan prepared by the LCWA in 2018 identifies future restoration projects, including opportunities for improved public access.

ES.5.4 Los Cerritos Wetlands Oil Consolidation and Restoration Project

A project-level EIR was prepared for the City of Long Beach to evaluate the environmental effects associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083). The project applicant, Beach Oil Minerals Partners (BOMP), proposes to consolidate existing oil operations and implement a wetlands habitat restoration project in portions of the North and Central Areas within the program area and on property that fall completely outside the program area. The EIR was certified by the City of Long Beach City Council on January 16, 2018. The Local Coastal Program Amendment associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project was approved by the California Coastal Commission (CCC) on August 8, 2018, with modifications to the amendment approved on October 2, 2018. The Coastal Development Permit was conditionally approved by the CCC on December 13, 2018. This PEIR relies on the technical analysis, impact discussion, and mitigation measures documented in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) for a portion of the program area. No new information of substantial importance or change in circumstance with the Los Cerritos Wetlands Oil Consolidation and Restoration Project requires re-evaluation of the analysis in that EIR.

The Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) contains more detailed and quantitative analysis than this program-level EIR because this EIR is evaluating the impacts associated with implementing the Los Cerritos Wetlands Restoration Plan, not a specifically designed project as is the case for the Los Cerritos Wetlands Oil Consolidation and Restoration Project. The Los Cerritos Wetlands Oil Consolidation and Restoration Project was designed to be consistent with the goals and objectives of the Los Cerritos Wetlands Final Conceptual Restoration Plan.

ES.5.4.1 Project Characteristics Not Evaluated in this PEIR

The environmental effects associated with the following project characteristics of the Los Cerritos Wetlands Oil Consolidation and Restoration Project are evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) and will not be further evaluated in this PEIR.

[1] http://intoloscerritoswetlands.org/wp-content/uploads/2015/12/LCWA-Stewardship-Program-Vision-Plan.pdf

North Area

The Los Cerritos Wetlands Oil Consolidation and Restoration Project would involve removing the existing oil operations and associated facilities and implementing a wetlands habitat restoration project on the Northern and Southern Synergy Oil Field sites.

The first phase of the project would be focused on the 76.52-acre Northern Synergy Oil Field site, and provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions, including:

- Remediating any contaminated areas identified through sampling, and as required by permit, and restoring a natural wetland area that would be operated as a wetlands mitigation bank.[2]
- Constructing a new barrier consisting of sheet piles and earthen berms along the southern limits of the Northern Synergy Oil Field site;
- Establishing tidal channels, by means of grading, to convey tidal water from the Los Cerritos Channel/Steamshovel Slough to areas that currently lack tidal flows; and
- Removing segments of the existing berm and roads that currently separate Steamshovel Slough from non-tidal portions of the Northern Synergy Oil Field site.

The first phase of the project would also include work on the Southern Synergy Oil Field site, including relocating the existing office building on site to house the Long Beach Visitor Center, and construction of a parking lot, trail, overlook, sidewalk enhancements, and bikeway improvements.

The first phase of the project is expected to be implemented within 4 years of obtaining construction permits.

Within 20 years after obtaining Certificate of Occupancy for the new office on the Pumpkin Patch site, in the second phase of the project, all remaining oil operations would be removed and the 73.07-acre Southern Synergy Oil Field site may be restored to tidal salt marsh by breaching or lowering the earthen berm and removing the sheet pile wall.

Central Area

An aboveground pipeline system and underground utility corridor would be constructed in the first phase of the project, along 2nd Street from Studebaker Road down to, and along, Shopkeeper Road on the Long Beach City Property site to the Pumpkin Patch site. On the Long Beach City Property, the tanks and 95 percent of all pipelines would be removed. Up to 95 percent of oil production infrastructure within the program area would be removed from the Pumpkin Patch site in the near-term to allow for restoration. Sidewalks could be constructed along all parcel frontages. Construction on the Pumpkin Patch site is expected to take 3 to 4 years, while construction of the pipeline system on the Long Beach City Property is expected to take 2 to 3 years.

[2] Mitigation banking is the sale of credits for the preservation, enhancement, restoration or creation of a wetland, stream, or habitat conservation area which offsets, or compensates for, expected adverse impacts to similar nearby ecosystems. The approval and establishment of the mitigation bank, including the wetlands restoration plan that may be implemented, is subject to a separate regulatory process overseen by the interagency review team (IRT) consisting of State and federal resources agencies, and led by the U.S. Army Corps of Engineers.

Within 20 years from the New Occupancy Date, in the second phase of the project, oil operations would be removed from the Long Beach City Property site and contaminated areas would be remediated.

Outside the Program Boundary

Outside the program boundary, on LCWA-owned property on the northeast corner of Studebaker Road and 2nd Street, oil processing facilities would be constructed after the site is remediated and graded. The facilities would include an elevated pipe rack, tank storage, well cellars, and an emergency flaring system. The Pumpkin Patch site outside the program area would be graded and new oil facilities would be constructed at the site. Oil facilities would include a tank storage area, well cellars, a water treatment system, and oil separation system. Additionally, a new office building and warehouse would be constructed on the Pumpkin Patch site. A bike station would be constructed adjacent to the Pumpkin Patch site. The first phase of the project is expected to be implemented within 2 years of obtaining construction permits. Potential environmental impacts to this activity are not analyzed under this PEIR, except to the extent these activities are reasonably anticipated future activities that may have a cumulative effect on activities within the program area (see Table 3-1 in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, which includes the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083), which is included as Cumulative Project No. 24).

ES.6 Los Cerritos Wetlands Restoration Plan Goals and Objectives

The goals and objectives of the proposed program are presented below and are identical to the goals and objectives identified in the CRP (Moffatt & Nichol, 2015):

1. Restore tidal wetland processes and functions to the maximum extent possible.
    a. Increase estuarine habitat with a mix of tidal channels, mudflat, salt marsh, and brackish/ freshwater marsh and ponds.
    b. Provide adequate area for wetland-upland ecotone and upland habitat to support wetlands.
    c. Restore and maintain habitat that supports important life history phases for species of special concern (e.g., federal and state listed species), essential fish habitat, and migratory birds as appropriate.
2. Maximize contiguous habitat areas and maximize the buffer between habitat and sources of human disturbance.
    a. Maximize wildlife corridors within the Los Cerritos Wetlands Complex and between the Los Cerritos Wetlands Complex and adjacent natural areas within the region.
    b. Incorporate native upland vegetation buffers between habitat areas and human development to mitigate urban impacts (e.g., noise, light, unauthorized human encroachment, domestic animals, wastewater runoff) and reduce invasion by non-native organisms.
    c. Design the edges of the Los Cerritos Wetlands Complex to be respectful and compatible with current neighboring land uses.

3. Create a public access and interpretive program that is practical, protective of sensitive habitat and ongoing oil operations, economically feasible, and will ensure a memorable visitor experience.
    a. Build upon existing beneficial uses.
    b. Minimize public impacts on habitat/wildlife use of the Los Cerritos Wetlands Complex.
    c. Design interpretive concepts that promote environmental stewardship and the connection between the wetlands and the surrounding community.
    d. Solicit and address feedback from members of the surrounding community and other interested parties.
4. Incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available.
    a. Include projects that can be implemented as industrial operations are phased out and other properties are acquired over the near-, mid- and long-term (next 10 years, 10-20 years, and 20+ years).
    b. Investigate opportunities to restore levels of tidal influence that are compatible with current oil leases and neighboring private land holdings.
    c. Remove/realign/consolidate existing infrastructure (roads, pipelines, etc.) and accommodate future potential changes in infrastructure, to the maximum extent feasible.
5. Strive for long-term restoration success.
    a. Implement an adaptive management framework that is sustainable.
    b. Restore habitats in appropriate areas to minimize the need for long-term maintenance activities that are extensive and disruptive to wildlife.
    c. Design habitats that will accommodate climate changes, e.g., incorporate topographic and habitat diversity and natural buffers and transition zones to accommodate migration of wetlands with rising sea levels.
    d. Provide economic benefit to the region.
6. Integrate experimental actions and research into the project, where appropriate, to inform restoration and management actions for this project.
    a. Include opportunities for potential experiments and pilot projects to address gaps in information (e.g., effect of warm river water on salt marsh ecosystem) that are protective of sensitive habitat and wildlife and that can be used to adaptively manage the restoration project.
    b. Include areas on the site, where appropriate, that prioritize research opportunities (such as those for adaptive management) over habitat sensitivities.

ES.7 Program Characteristics

As described above, the program area consists of the South, Isthmus, Central and North areas. The proposed program would restore wetland, transition, and upland habitats throughout the program area. This would involve remediation or containment of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor center, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities.

ES.7.1 Overview of Common Program Features

The description of each of the program areas is broken down into the following elements: phasing, ecosystem restoration, flood risk and stormwater management, public access and visitor facilities, and infrastructure and utility modification. An overview of each of these elements is provided below.

Phasing

One of the Los Cerritos Wetlands Restoration Plan objectives (Section ES.4, Objective #4) is to incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available. The restoration activities would be phased over time as properties become available for acquisition by LCWA. The timing of construction at each site is dependent on multiple variables, including property transfers, removal of oil infrastructure, and related facilities, availability of funding, and permit approvals. Each phase of the proposed program will take multiple years to complete construction activities and with multiple years anticipated between each phase.

Construction on properties currently under the ownership of LCWA or in the process of being transferred to the LCWA is expected to occur in the **near term** (within approximately 10 years). Construction on properties that would be connected to or are associated with the decommissioning of the Haynes Cooling Channel or that may require more time than the near-term time frame is expected to occur in the **mid-term** (between approximately 10-20 years). The timing of the **long-term** phase depends on decommissioning of existing oil operations and could vary from around 20 years (where agreements are already in place) to much longer time frames. For oil operations that do not have agreements in place with LCWA, it is expected that overall level of oil and natural gas production would continue until oil operators decide to stop production.

What is described in this PEIR is an approximation of the sequence of restoration that could occur; however, it is possible that a property identified as available for restoration in the mid-term may not be restored until the long-term, or a property identified as available for restoration in the mid-term is available to be restored in the near-term, etc. Restoration will not begin until a variety of actions are taken, including: preparation of project level restoration designs, completion of studies and analysis in support of design and permit approvals, acquiring project-level funding, acquiring permit approvals and associated CEQA clearance documents, amendments made with easement holders, and property transfers.

Ecosystem Restoration

Ecosystem restoration includes actions that will restore more natural ecosystem processes (physical and biological) from disturbed habitats within the program area. Restoration of more natural ecosystem processes through actions like grading, altering tidal connections, and revegetation, will lead to more extensive and higher functioning wetland, transition, and upland habitats. Habitat types that would be restored or enhanced within the program area include subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub. Restored habitat distribution and acreages vary by program area and are described in more detail below.

Excavation of tidal channels to enhance tidal connection would require a balancing of temporary impacts to existing resources, which in most instances are moderately to substantially degraded wetlands, with maximizing the long-term functions of the areas receiving tidal exchange. To the extent feasible, tidal channels would avoid existing areas of pickleweed mats, Parish's glasswort patches and saltgrass flats and instead would be located in unvegetated flats and low elevation areas. In some areas it would not be possible to fully avoid existing vegetation while establishing the necessary elevations for the tidal channels.

The restored salt marsh areas would be re-vegetated through a combination of seeding and installation of nursery container stock. Restoration would include soil amendments (to enhance soil texture and nutrients), irrigation, and weed control. The salt marsh would support a mix of species including Parish's glasswort, shoregrass, saltgrass, Pacific pickleweed, alkali heath, and Pacific cordgrass.

Revegetation activities in non-tidal areas would include removing or controlling invasive plant species and seeding/planting native plant species. Appropriate conditions will need to be restored in order to support target plant communities. A few important factors to consider will be hydrology, salinity, soil texture, and slope aspect.

Intertidal areas with unrestricted connections to fully tidal waters will, over time with sea-level rise, experience an upward elevation shift in vegetation communities. In the shorter term, subtidal and low salt marsh areas would expand, and mid and high salt marsh areas would shrink. In the longer term, elevations that support intertidal communities at current sea level will be converted entirely to subtidal habitats. Gently sloped transition zone and low-lying upland habitats adjacent to today's salt marsh could support intertidal communities in the longer term.

Potential disturbances to sensitive habitats and species during operation of the proposed program would be minimized through effective design of public access areas to keep people on trails and out of habitat areas. The success of restoration efforts would be measured based on established performance criteria focusing on the abundance and diversity of native vegetation and the wildlife that use the Los Cerritos Wetlands Complex.

Flood Risk and Stormwater Management

Improving connection of wetlands to tidal flows to allow for habitat restoration would require changes to existing flood risk and stormwater management elements, and construction of new flood risk and stormwater management elements.

The proposed program would include modifications to Los Angeles County Drainage Area project structures within the program area by modifying the existing levee along the San Gabriel River, constructing new flood risk management structures (e.g., earthen levees and berms, or flood walls), restoring the wetland floodplain, constructing new water-control structures that allow for increased tidal connections, and constructing new stormwater management features (e.g., bioswales). The proposed program would also include modifications to existing operations and maintenance practices for flood risk and stormwater management structures.

The existing Los Angeles County Drainage Area project structures and facilities are maintained in such a manner and operated at such times and for such periods as necessary to obtain the maximum flood protection benefits (33 C.F.R. §208.10). The implementation of the proposed program would require revisions to the U.S. Army Corps of Engineers' OMRR&R Manual to reflect changes made to the existing Los Angeles County Drainage Area project structures and facilities within the program area.

Public Access and Visitor Facilities

Potential public access improvements and visitor amenities would include construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. These improvements would develop and enhance public access, recreation, and educational opportunities within the program area, while balancing the need for protection of sensitive habitats.

Infrastructure and Utility Modification

Infrastructure and utility modifications include oil well and associated pipeline abandonment and relocation, and electric and water line relocation. These modifications would allow for increased connectivity of habitat restoration within the program area and protection of existing utilities that are not otherwise abandoned or relocated.

ES.7.2 South Area

Ecosystem restoration in the South Area would occur in three phases based on land and oil lease ownership. The near- and mid-term phases of the program in the South Area would be mostly focused on the South LCWA and State Lands Parcel sites and would provide the conditions necessary for the expansion of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. Long-term phases of the program would be focused on the Hellman Retained site. The operations on the Los Alamitos Retarding Basin are proposed to be modified in the mid-term and no changes are proposed for the Los Alamitos Pump Station site, which was formerly restored as part of a mitigation project.

Near-term activities would include:

- Remediating soils (e.g., on-site treatment, excavation and removal, or cap in place) that have been impacted by oil operations;
- Grading the South LCWA site, including excavation to create channels and revegetation of native plants to support a diversity of marsh, transitional, and upland habitats;
- Constructing a new earthen berm or flood wall along the Hellman property boundary on the South LCWA site to protect the Hellman site from flooding;
- Raising 1st Street on the South LCWA site out of the floodplain by placing it on fill;
- Building a Seal Beach Visitor Center and associated parking on an existing raised building pad on the State Lands Parcel site;

- Removing the gate on the existing culvert connecting the South LCWA site to the San Gabriel River and removing the culverts under the former access roads. The existing culvert under 1st Street would either be improved or replaced with a bridge; and
- Restoring native grassland for raptor foraging habitat on South LCWA site.

Mid-term activities would include:

- Excavating a channel connecting the Hellman Channel directly to the Haynes Cooling Channel and lowering the berm along the Haynes Cooling Channel to increase the tidal range in the South LCWA site; and
- Modifying the Los Alamitos Retarding Basin operations to enhance the habitat value in the basin (e.g., change pumping operations to maintain ponding for shorter or longer time).

Long-term activities would include:

- Phasing out or consolidating oil operations on the Hellman Retained site to allow for restoration;
- Lowering, breaching, or removing the earthen berm or flood wall separating the South LCWA site and the Hellman Retained site;
- Removing 1st Street (through the South LCWA site) and removing, lowering, or breaching the berm under the road.

Table ES-1, *South Area Phasing*, summarizes the activities associated with each phase.

TABLE ES-1
SOUTH AREA PHASING

	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Los Alamitos Pump Station Site	• Previously restored	n/a	n/a
South LCWA Site	• Remediation of soils • Grading of site to support habitat restoration • Constructing an earthen berm or flood wall to protect Hellman Retained site • Raising 1st Street • Removing the gate on the Hellman Channel culvert to the San Gabriel River	• Excavating a channel to connect the Haynes Cooling Channel to the site • Lower berm separating the Haynes Cooling Channel from the site	• Lower or breach earthen berm or remove flood wall to connect to Hellman Retained site • Remove 1st Street and lower or breach berm
State Lands Parcel Site	• Building a Seal Beach Visitor Center and associated parking facilities	n/a	n/a
Haynes Cooling Channel	n/a	• Channel is decommissioned	n/a
Los Alamitos Retarding Basin Site	n/a	• Operations of retarding basin are modified to enhance habitat	n/a
Hellman Retained Site	n/a	n/a	• Oil operations removed or consolidated to allow for restoration • Remediation of soils • Grading of site to support habitat restoration • New tidal channel excavated to connect the Haynes Cooling Channel to the site

ES.7.3 Isthmus Area

In the near-term, the proposed program would extend the restoration currently present on the Zedler Marsh site north into the Isthmus Bryant site and the portion of the DWP site west of the gas access road. The Callaway Marsh site and the rest of the DWP site would be enhanced in the mid-term, once the Haynes Cooling Channel is decommissioned by LADWP and no longer in use for the Haynes Generating Station. In the long-term, the oil operations on the Isthmus LCWA site would be phased out or consolidated off site to allow for restoration once the operations are no longer active. **Table ES-2**, *Isthmus Area Phasing*, summarizes the activities associated with each phase.

TABLE ES-2
ISTHMUS AREA PHASING

	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Zedler Marsh Site	• Previously restored with ongoing restoration activities per the Stewardship Vision Plan	n/a	n/a
Isthmus Bryant Site	• Limited grading of site to support habitat restoration and provide tidal connection to Zedler Marsh • Removal of invasive species and planting of native vegetation	n/a	• Removal of access road and culverts to allow better tidal flow to the north
DWP Site	• Removal of invasive species and planting of native vegetation west of the gas access road	• Removal of invasive species and planting of native vegetation east of the gas access road	• Removal of access road to reduce habitat fragmentation
Callaway Marsh Site	n/a	• Limited grading of site to support habitat restoration • Removal of flap gate on culvert connecting site to San Gabriel River • Removal of invasive species and planting of native vegetation	n/a
Isthmus LCWA Site	n/a	n/a	• Oil operations removed or consolidated to allow for restoration • Remediation of soils • Limited grading of site to support habitat restoration • Removal of invasive species and planting of native vegetation

ES.7.4 Central Area

Ecosystem restoration in the Central Area would occur in two phases based on land and oil lease ownership. The Central LCWA site is available for restoration immediately, and discussions between Bryant Dakin, LLC and the LCWA on acquisition of the Central Bryant site for restoration are on-going. The program assumes that both of these properties would be available for restoration in the near-term and the existing oil operations on the Central LCWA site operated by Signal Hill Petroleum, Inc. would be protected in place by proposing to raise the wells out of the floodplain. The Long Beach City Property site and the Pumpkin Patch site are part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) and would be available for restoration in the long-term.

The near-term phase of the program would be focused on the Central LCWA and Central Bryant sites and would provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. Near-term activities would include:

- Relocating or modifying oil infrastructure and remediation of soils on the Central LCWA site;

- Grading of the sites, including channels, and revegetation of native plants to support a diversity of salt marsh species;
- Removing segments of the existing levee (e.g., breaching the levee and/or lowering a segment) that currently separates the San Gabriel River from non-tidal portions of the Central LCWA and Central Bryant sites;
- Constructing a new earthen levee (Perimeter Levee) along 2nd Street from the San Gabriel River to the intersection with Studebaker Road to protect areas to the north from flooding;
- Constructing a new interim earthen levee (Interim Levee) along the western boundary of the Central LCWA site to protect the areas to the west from flooding and to provide continued access to the wells on the Central LCWA site;
- Providing flood protection for the existing wells on the Central LCWA site by raising the well pads out of the floodplain; and
- Constructing public trails on levees, including accessible ramps, and viewpoints.

In the long-term, the Long Beach City Property site and the Pumpkin Patch site would be restored to tidal salt marsh, including:

- Grading the Long Beach City Property site, including channels, to support a diversity of salt marsh species;
- Removing the northern segment of the Interim Levee on the Central LCWA site to connect the restored habitats on the Central LCWA site to the non-tidal portions of the Long Beach City Property site;
- Constructing a new earthen levee (Perimeter Levee) along 2nd Street between the intersection with Studebaker Road to Shopkeeper Road on the Long Beach City Property site and then along Shopkeeper Road to the existing San Gabriel River levee on the Long Beach City Property and Pumpkin Patch sites to protect areas to the north and west from flooding; and
- Constructing public trails on levees, accessible ramps, stairs, and viewpoints.

Table ES-3, *Central Area Phasing*, summarizes the activities associated with each phase.

Impacts associated with habitat restoration on the Long Beach City Property and Pumpkin Patch sites will be evaluated under this PEIR. See the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) and CCC Staff Report conditions for impacts associated with soil remediation, oil consolidation, and construction of the new pipeline system and utility corridor.

TABLE ES-3
CENTRAL AREA PHASING

	Near Term (0–10 ears)	Mid Term (10–20 years)	Long Term (20+ years)
Central LCWA Site and Central Bryant Site	• Remediation of soils and relocation or modifying oil infrastructure • Grading of site to support habitat restoration • Construction of earthen levee to protect Long Beach City Property site (Interim Levee) and 2nd Street (Perimeter Levee) • Raising existing wells to protect them • Breaching the San Gabriel River Levee and reconnecting the river to the restored marsh • Construction of public trails on levees and accessible ramps • Construction of viewpoints	n/a	• Removal of the Interim Levee and excavation of a tidal channel from the Central LCWA/Central Bryant site to the Long Beach City Property site
Long Beach City Property Site	• Construction of an aboveground pipeline system and underground utility corridor along 2nd Street from Studebaker Road down to and along Shopkeeper Road • Removal of tank farm and 95% of pipelines	n/a	• Removal of oil operations and remediation of soils to allow for restoration • Grading of site to support habitat restoration • Construction of earthen levee to protect 2nd Street and Shopkeeper Road (Perimeter Levee) • Excavation of a tidal channel from the Central LCWA/Central Bryant site to the Long Beach City Property site • Construction of public trails on levees, accessible ramps, and stairs • Construction of viewpoints
Pumpkin Patch Site	n/a	n/a	• Removal of oil operations, including 95% of pipelines and remediation of soils to allow for restoration of the site • Construction of earthen levee to protect the western portion of the Pumpkin Patch site (Perimeter Levee)

Grey text represents project features that interact with this program, but that are evaluated as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR

ES.7.5 North Area

Ecosystem restoration on the Alamitos Bay Partners site and South Synergy Oil Field site would occur in the long-term phase based on land and oil lease ownership. The North Synergy Oil Field site is part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) and would be restored in the near-term phase.

Long-term activities would include:

- Remediating soils (e.g., on-site treatment, excavation and removal, or cap in place) that have been impacted by oil operations on the Alamitos Bay Partners site;
- Grading the Alamitos Bay Partners site and the South Synergy Oil Field site, including excavation to create channels, and revegetation to support a diversity of marsh, transitional, and upland habitats;
- Constructing a new earthen levee or flood wall along the South Synergy Oil Field and Alamitos Bay Partners sites to protect 2nd Street and Pacific Coast Highway from flooding;
- Excavating a tidal channel from the North Synergy Oil Field site to the South Synergy Oil Field site to increase tidal connection in the South Synergy Oil Field site; and
- Removing the sheet pile wall along the Alamitos Bay Partners site.

Table ES-4, *North Area Phasing*, summarizes the activities associated with each phase.

TABLE ES-4
NORTH AREA PHASING

	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Northern Synergy Oil Field Site	• Remediation of soils and relocation of oil infrastructure • Construction of a new berm and sheet pile wall barrier along the southern limits of the site • Grading tidal channels to support habitat restoration • Removal of segments of the existing berm separating Steamshovel Slough from the site	n/a	n/a
Southern Synergy Oil Field Site	• Development of the Long Beach Visitor Center and parking lot from existing office building • Construction of trail, sidewalk enhancements, and bikeway improvements	n/a	• Remediation of soils and relocation oil infrastructure • Removal of the sheet pile wall barrier constructed in the near term • Grading of site to support habitat restoration • Construction of earthen levee or flood wall to protect 2nd Street and Pacific Coast Highway • Excavation of a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site
Alamitos Bay Partners Site	n/a	n/a	• Remediation of soils and relocation oil infrastructure • Grading of site to support habitat restoration

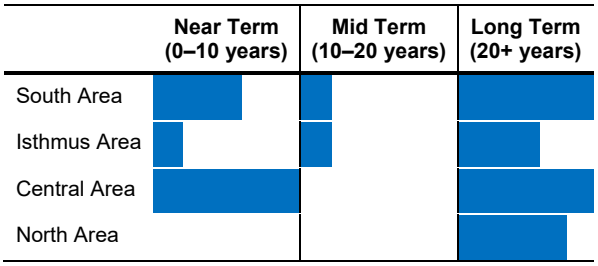
Grey text represents project features that interact with this project, but that were evaluated as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR

ES.7.6 Construction Information

ES.7.6.1 Schedule

Table ES-5, *Restoration Schedule*, shows the proposed construction schedule for the program. Each phase of the Restoration Program will take multiple years to complete construction activities and with multiple years anticipated between each phase.

TABLE ES-5
RESTORATION SCHEDULE



ES.7.6.2 Earthwork Quantity Estimates

Table ES-6, *Approximate Earthwork Soil Volume for Near Term*, summarizes the earthwork quantity estimates for the program in the near-term. **Table ES-7**, *Approximate Earthwork Soil Volume for Long Term*, summarizes the earthwork quantity estimates for the program in the long-term, by area. Levee dimensions would be refined during final design as needed to meet Corps requirements, including Section 14 of the Rivers and Harbors Act and Section 408 requirements for modifications to Corps-approved flood risk management systems. The final volume of fill placement for levee construction would depend on the final design and the actual conditions during restoration (e.g., the compatibility of excavated soils). High estimates of potential fill volumes are analyzed in this document; actual fill volumes.

TABLE ES-6
APPROXIMATE EARTHWORK SOIL VOLUME FOR NEAR TERM

Feature/Action	Cut Quantity (cy)	Fill Quantity (cy)
Central Area		
Central Area Perimeter Levee, near term	0	78,000–86,000
Interim Levee	0	74,000–82,000
Raising Wells and Access Roads	0	108,000
Central LCWA and Central Bryant Marsh Grading	44,000–82,000	0
Total	**44,000–82,000**	**260,000–276,000**
South LCWA Perimeter Berm	0	18,000
South LCWA Marsh Grading (avoiding high-functioning marsh habitat)	315,000–412,000	assume no fill needed
Total	**358,000–494,000**	**278,000–294,000**
Total cut/fill balance	**64,000–216,000 cy excess material**	

TABLE ES-7
APPROXIMATE EARTHWORK SOIL VOLUME FOR LONG TERM

Feature/Action	Cut Quantity (cy)	Fill Quantity (cy)
North Area		
North Area Berm	0	155,000
Southern Synergy Oil Field and Alamitos Bay Partners Sites Marsh Grading		100–135,000
Total	**0**	**155,000–290,000**
Total cut/fill balance	**155,000–290,000 cy material needed**	
Central Area		
Central Area Perimeter Levee, long term		190,000–216,000
Interim Levee Removal (northern portion)	17,000–19,000	
Long Beach City Property Site Marsh Grading		1,000–47,000
Total	**17,000–19,000**	**191,000–263,000**
Total cut/fill balance	**172,000–246,000 cy material needed**	
South Area		
Hellman Retained Site Marsh Grading	0–88,000	0–2,000
Total cut/fill balance	**2,000 cy material needed–88,000 cy material cut**	

This table does not include the excess fill from Table ES-6, which could be used to offset the needed material in the long term.

Excavation in the South LCWA site to lower the area to marshplain is expected to generate between 315,000 to 412,000 cubic yards of soil, depending on final marshplain grading. In the near-term, approximately 178,000 to 232,000 cubic yards of soil would be needed in the Central LCWA site, depending on final levee design, levee compaction, and final marshplain grading. The extra material generated from the South LCWA site could be stockpiled for the long-term, when the Central Area would need 172,000 to 246,000 cubic yards of material. Based on these estimate ranges, there could be 62,000 cubic yards of excess material to export or a need to import 163,000 cubic yards of material. The future design should seek to balance cut and fill as much as possible on site.

In the long-term, approximately 155,000 to 290,000 cubic yards of material would be needed to raise the Southern Synergy Oil Field and Alamitos Bay Partners sites and to construct the North Area berm. Based on the final marshplain grading design, the Hellman Retained site could generate 88,000 cubic yards of material or require 2,000 cubic yards of fill. The future designs of these sites should seek to balance cut and fill as much as possible on site.

Although quantities for cut and fill have been estimated for the conceptual design, exact calculations of how much excess fill would be generated by the excavation of wetlands areas will be determined in the final levee design process in cooperation with LACFCD and the Corps.

ES.7.7 Monitoring and Adaptive Management

The complexity of a large-scale restoration, with ecological and funding objectives, constraints, and the presence of sensitive habitats and species, necessitates careful implementation of restoration within a monitoring and adaptive management program.

Adaptive management is an iterative process of decision making in the face of uncertainty, with the aim of reducing uncertainty over time through monitoring. Since ecological restoration involves many variables, especially in systems as large and complex as the Los Cerritos Wetlands, there is uncertainty in how the project would perform. Designing and implementing this project using an adaptive management approach would lead to better outcomes and help the project meet its goals.

The adaptive management approach relies on monitoring data to regularly assess progress of the site towards achieving the project goals. If the data shows the project is off-track, certain actions are taken (e.g., tweaking techniques and/or later designs) to achieve the project goals.

Small-scale experiments and pilot projects will be implemented that seek to address gaps in scientific knowledge regarding habitat, wildlife, and restoration and enhancement activities. Results of these experiments will be used to inform adaptive management for the restoration program and potentially for other restoration sites in the region and beyond.

ES.7.7.1 Monitoring Program

The goal of monitoring is to inform the adaptive management process and assess progress toward meeting performance criteria. Careful restoration planning, including identification of important data gaps and collection of pre-project data, would help in setting appropriate performance criteria. Performance criteria for the project may be set in a variety of ways, but typically include input from regulatory and permitting agencies. Suitable reference sites, such as Seal Beach National Wildlife Refuge, may also be appropriate for informing performance criteria.

Restoration sites evolve and mature over timelines that are longer than typical monitoring periods. Monitoring of the site into the future would inform adaptive management, provide important data for informing future phases of restoration at the site, and contribute to a better understanding of restoration trajectories for practitioners throughout southern California. Furthermore, opportunities to partner with local universities and other research institutions will be identified to implement research activities in suitable areas of the program.

Monitoring would focus on the major biotic and abiotic factors that drive habitat development and ecosystem function—in particular, those factors that can be manipulated and managed or those parameters that can be used to gauge habitat development and ecosystem function (Thom et al. 2010). Protocols for collection and analyses of monitoring data would be developed for the level of accuracy necessary to assess achievement of performance criteria and inform adaptive management.

ES.7.7.2 Adaptive Management

Successful adaptive management would first require baseline monitoring in order to fill data gaps and refine the restoration design. Consistent with the U.S. Department of Interior Technical Guide for Adaptive Management (2009), an adaptive management plan would be prepared prior to program implementation to track restoration success relative to performance criteria and determine when criteria have been met, and then restoration would proceed to its next phase. Performance criteria would be set for both biotic (e.g., native and non-native plant cover, wildlife use, etc.) and abiotic (e.g., hydrology, soil conditions, etc.) factors, and monitoring data related to these factors would inform adaptive management.

Triggers for any remedial adaptive management actions would be based on significant deviation from, or a lack of progress toward, achieving the performance criteria outlined for each monitoring parameter, coupled with an evaluation of the trajectories of habitat development or directions of change. For many aspects of biotic community development, it may take several years for trends to become apparent, and changes in management should allow for sufficient time for trends to become apparent. If it is determined that progress toward performance criteria is not measurable, or that the habitat appears to be progressing toward an alternative state, the project team would evaluate the cause of the problem and the trajectory of habitat development, and determine whether intervention would be desirable.

In some cases, habitat development would be on track to meet long-term performance criteria and no remedial actions would be warranted. In other cases, it may be determined that additional monitoring parameters are necessary to determine the cause of poor performance. Once the causes of poor performance are identified, appropriate changes in management would be investigated and implemented. Any modifications implemented as a result of this process would be subject to quantitative monitoring and analysis specifically designed to evaluate the effectiveness of such modifications or changes in management.

ES.7.8 Operation and Maintenance Activities

ES.7.8.1 Habitats and Vegetation

The restored areas would be planted or seeded after earthmoving is completed. Vegetation maintenance, irrigation, and weeding would be required for all habitats after restoration. Removal of invasive species would occur on site in perpetuity through the combination of a volunteer program and long-term management of the site using methods similar to those used during implementation.

ES.7.8.2 Trash Removal Efforts

Trash removal would occur as needed within the restored wetlands by hand. LACFCD operates and maintains trash booms and nets in other flood control channels and a similar boom/net could be installed upstream of the Central Area across the San Gabriel River. If a trash boom/net was installed, it is anticipated that LACFCD or LCWA would inspect the trash net weekly and remove trash from the boom/net as necessary. Alternatively, a trash net could be installed across the breach into the Central Area.

ES.7.8.3 Perimeter Levees and Berms

The Perimeter Levee and berms would require limited maintenance, such as inspections annually and after significant storm events (i.e., 10-year event or greater). The levees would also require periodic repaving of the access road and trail, replacement or repair of installed fencing, replacement or repair of any overlook or educational equipment placed along the walking trail, trash collection and graffiti removal, and any other vandalism repair. Minor erosion prevention measures may be needed for both the levees and berms, periodically. It is anticipated that responsibility for operation and maintenance activities would be allocated between LACFCD and LCWA.

ES.7.8.4 Flood Walls

Operations and maintenance of flood walls would be determined along with the structure design and approval process. As part of this process, the entity responsible for the flood control facility and its function would be identified. Monitoring of the flood wall for deterioration would consist of regular and post-flood condition assessments. The condition assessments would also consider the ground in the vicinity of the flood wall, and identify any signs of instability, cracking, seepage, erosion, etc. Regular surveys could be desired to confirm that the structure settlement is within expectations and rotations and deflections are within tolerances. Exposed steel would require painting, and concrete cracks and spalls would be repaired.

Monitoring and maintenance of levees and flood walls is required, and hence access for construction equipment is an important design consideration. Also, dryside (e.g., the side of the wall closest to the roads) groundwater and drainage control are required.

Access from the dryside to the wetside (e.g., the side of the wall closest to the marsh) by vehicles including construction equipment would require gates or an embankment or bridge.

ES.7.8.5 Water-Control Structures

The existing culverts from the San Gabriel River are operated and maintained by LACFCD (USACE 1999). Operation and maintenance of the existing culverts would continue after restoration.

The existing siphon from Alamitos Bay to the Haynes Cooling Channel is owned and operated by LADWP. Once the Haynes Cooling Channel is decommissioned, it could be transferred to the LCWA, in which case, the LCWA would be responsible for operation and maintenance, which would likely include regular inspections and general maintenance. Long-term management of sediment and fouling organisms may also be required to maintain tidal flow.

For new water-control structures, annual maintenance would be needed to ensure proper operation, similar to current operation and maintenance of the existing structures. Gates and weirs may be adjusted seasonally for habitat management. Obstructions would be removed when necessary. If sedimentation in the channel limits the functionality of the water-control structures, a low ground pressure excavator would be used to remove the sediment. A temporary access route, 35-feet wide, would be created using mats to provide equipment access.

ES.7.8.6 Stormwater Management Features

Maintenance of bio-swales is expected to be limited to non-native vegetation removal. Non-native plant removal would include work with hand tools such as shovels, rakes, hatchets, wheel barrows, and small trucks for hauling of equipment and spoils. It is expected that these efforts would occur once a year for the lifespan of the program.

ES.7.8.7 Parking Lots

Hours of operation for public use of the new parking lots, trails, and visitor center would be from sunrise to sunset and may be limited in duration. Parking areas would be locked after hours.

ES.8 Alternatives Considered in the Draft EIR

The intent of the alternatives analysis in an EIR is to identify a range of reasonable alternatives to the proposed program that would feasibly attain most of the basic project objectives and would avoid or substantially lessen the significant impacts of a project. Based on the significant environmental impacts of the proposed program, the aforementioned objectives established for the proposed program, and the feasibility of the alternatives considered, the following alternatives to the proposed program are evaluated in this section. As some impacts associated with the alternatives analyzed below would be the same or similar to the proposed program (depending upon the resource area), this chapter should be read in conjunction with the impact analyses contained in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, which provides more detailed information on the individual resource areas and impacts of the proposed program. The significance thresholds and the methodology utilized in this chapter are the same as those utilized in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*. Therefore, for additional information regarding methodology, reviewers should reference the individual resource chapters for further details.

ES.8.1 Alternative 1: No Project (No Build) Alternative

CEQA Guidelines Section 15126.6(e) requires that an EIR evaluate and analyze the impacts of the "No-Project" Alternative. Under Alternative 1, none of the proposed program components would be constructed and implemented and existing conditions would remain unchanged. This alternative assumes the restoration activities and development covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project would occur. The following would occur under Alternative 1:

- The South Area, which includes the Haynes Cooling Channel site, State Lands Parcel site, South LCWA site, Hellman Retained site, Los Alamitos Pump Station site, and Los Alamitos Retarding Basin site, would continue to exist as under the existing conditions. In particular, the Haynes Cooling Channel would continue to pull water from the Alamitos Bay Marina and discharge water into the San Gabriel River until it is decommissioned as part of the Haynes Generating Station modernization project in 2029. The State Lands Parcel and South LCWA sites would remain as they currently exist. The Hellman Retained site would continue to operate as an active oil field. In addition, the Los Alamitos Retarding Basin would continue to operate as a retention basin as operated by the County of Orange Flood Control District. Furthermore, the Los Alamitos Pump station would continue to operate as a pump station to

move the stormwater runoff from the Los Alamitos Retarding Basin into the San Gabriel River. Restricted public access within the South Area would continue to be provided as under existing conditions and the gate on 1st Street would remain as well.

- The Isthmus Area, which includes the Callaway Marsh site, DWP site, Zedler Marsh site, Isthmus LCWA site, and Isthmus Bryant site, would continue to exist as under existing conditions. In particular, the Callaway Marsh site, the Isthmus Bryant site, and DWP site would remain vacant. In addition, the Zedler Marsh site would continue to be enhanced as part of the LCWA Stewardship Program. Furthermore, the Isthmus LCWA site would continue as an active oil field, which would be maintained and operated by Signal Hill Petroleum, Inc., as under existing condition. Existing public access to trails and other public amenities would be maintained as under existing conditions. In addition, the San Gabriel River Trail would be maintained on the south bank of the San Gabriel River.
- The Central Area, which includes a portion of the Pumpkin Patch site, Long Beach City Property site, Central LCWA site, Central Bryant site, and San Gabriel River, would continue to exist as under existing conditions. The Pumpkin Patch site and Long Beach City Property site, in particular, would continue as approved under the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). This would include construction of an aboveground pipeline system from the corner of 2nd Street and Studebaker Road to the Pumpkin Patch site. The Pumpkin Patch site would be remediated and graded, and new oil facilities would be constructed at the site. After 20 years, in the second phase of the project, oil operations would be removed from the Long Beach City Property site and contaminated areas would be remediated. The Long Beach City Property site would remain vacant. The Central LCWA site would continue to operate as an active oil field and the Central Bryant site would continue to operate as a vacant site. The San Gabriel River levees along the south and north banks of the river would remain intact. Restricted access to the Central LCWA site would be maintained.
- The North Area includes the Northern Synergy Oil Field site, Southern Synergy Oil Field site, and Alamitos Bay Partners site. As part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project, existing oil operations and associated facilities would be consolidated and removed, and a wetlands habitat restoration project would be implemented on the Northern and Southern Synergy Oil Field sites. The first phase of the project would be focused on the 76.52-acres Northern Synergy Oil Field site, and will provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. The first phase of the project would also include work on the Southern Synergy Oil Field site, including relocating the existing office building on-site to house the Long Beach Visitor Center, and construction of a parking lot, trails, overlook, sidewalk enhancements, and bikeway improvements. After 20 years, in the second phase of the project, all remaining wells would be removed, and the 73.07-acres Southern Synergy Oil Field site would be restored to tidal salt marsh by breaching or lowering the earthen berm and removing the sheet pile wall. The Alamitos Bay Partners site would be maintained as an active oil field as with existing conditions.

ES.8.2 Alternative 2: Culvert Connection San Gabriel River to the Central Area Alternative

Under Alternative 2, a culvert or set of culverts would be installed within the northern San Gabriel River levee to connect the river to the Central Area rather than breaching the levee as in the proposed program. The following would occur under Alternative 2:

- The South Area, which includes the Haynes Cooling Channel site, State Lands Parcel site, South LCWA site, Hellman Retained site, Los Alamitos Pump Station site, and Los Alamitos Retarding Basin site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.
- The Isthmus Area, which includes the Callaway Marsh site, DWP site, Zedler Marsh site, Isthmus LCWA site, and Isthmus Bryant site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.
- The Central Area, which includes the Pumpkin Patch site, Long Beach City Property site, Central LCWA site, Central Bryant site, and San Gabriel River, would be restored similar to the proposed program, except instead of breaching the San Gabriel River to restore tidal connection to the site, a culvert or set of culverts would be installed in the levee to provide tidal connection to the site. The following sections describe the changes from the proposed program that would be included in this alternative.
- The North Area, which includes the Northern Synergy Oil Field site, Southern Synergy Oil Field site, and Alamitos Bay Partners site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.

ES.8.2.1 Phasing

Ecosystem restoration in the Central Area under Alternative 2 would occur in two phases based on land and oil lease ownership, similar to the proposed program.

The near-term phase of Alternative 2 would be focused on the Central LCWA and Central Bryant sites and would provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. Near-term activities that mirror those in the proposed program would include:

- Relocating or modifying some oil infrastructure and remediation of soils on the Central LCWA site;
- Grading of the sites, including channels, and revegetation of native plants to support a diversity of salt marsh species; and
- Constructing public trails on levees, accessible ramps, and viewpoints as described in the proposed program.

Near-term activities that would vary from those in the proposed program would include:

- Installing a culvert or set of culverts in the existing levee that currently separates the San Gabriel River from non-tidal portions of the Central LCWA and Central Bryant sites;

- Constructing a new earthen levee (Perimeter Levee) along 2nd Street from the San Gabriel River to the intersection with Studebaker Road to protect areas to the north from flooding, similar to the proposed program, but set to a lower elevation;
- Constructing a new interim earthen levee (Interim Levee) along the western boundary of the Central LCWA site to protect the areas to the west from flooding and to provide continued access to the wells on the Central LCWA site, similar to the proposed program, but set to a lower elevation; and
- Providing protection for the existing wells on the Central LCWA site by either raising the well pads out of the floodplain, similar to the proposed program, but set to a lower elevation, or constructing a berm or flood wall around the wells.

In the long-term, the Long Beach City Property site and the Pumpkin Patch site would be restored to tidal salt marsh as described for the proposed program, including:

- Grading the Long Beach City Property site, including channels, to support a diversity of salt marsh species;
- Removing the northern segment of the Interim Levee on the Central LCWA site to connect the restored habitats on the Central LCWA site to the non-tidal portions of the Long Beach City Property site; and
- Constructing public trails on levees, accessible ramps, stairs, and viewpoints, as described in the proposed program.

Long-term activities that would vary from those in the proposed program would include constructing a new earthen levee (Perimeter Levee) along 2nd Street between the intersection with Studebaker Road to Shopkeeper Road on the Long Beach City Property site and then along Shopkeeper Road to the existing San Gabriel River levee on the Long Beach City Property and Pumpkin Patch sites. The Perimeter Levee would be used to protect areas to the north and west from flooding, similar to the proposed program, but set to a lower elevation.

ES.8.2.2 Ecosystem Restoration

Restored Habitats

Alternative 2 would restore connectivity of the San Gabriel River with the Central LCWA, Central Bryant, and Long Beach City Property sites by installing a culvert or set of culverts in the existing levees on the north bank of the river, rather than breaching and lowering the levee as in the proposed program. Alternative 2 would include a shorter and smaller footprint Perimeter Levee when compared to the one in the proposed program, allowing for less impact on existing wetlands.

Hydrology and Grading

In Alternative 2, the new tidal channels would be excavated between the San Gabriel River culvert(s) and the Interim Levee to create a sinuous and branching network of tidal channels through the wetlands. The culvert(s) would be set at an elevation around 0 to 2 feet NAVD.

The hydrodynamic modeling (refer to Appendix H) showed that one 4-foot-diameter culvert would allow an annual tide range of 2.4 feet into the site. This is 1.6 feet less than the modeled proposed program tide range (4.0 feet). The modeling results also showed that six 4-foot-diameter

culverts would result in an annual tide range of 3.1 feet, which would only be 0.9 feet less than the proposed program.

As described under the proposed program, Alternative 2 would raise the upland perimeter around the restored wetlands to function as a flood risk management levee, but it would be set to a lower elevation, since the culverts would limit the water elevations in the site. Less fill would be needed to construct the Perimeter and Interim Levees, compared to the proposed program. This would increase the volume of excess material in the near-term (Table ES-6), which could increase the amount of fill that would need to be stockpiled until the long-term.

Alternative 2 would maintain flood protection for well pads and access roads to existing levels, as discussed in the proposed program, but set to a lower elevation.

ES.8.3 Flood Risk and Stormwater Management

In Alternative 2, the culvert(s) connecting the San Gabriel River to the Central LCWA site would restrict water levels in the Central Area during large riverine events. During the 100-year event, the hydrodynamic modeling showed water levels would reach 7.7 feet NAVD with one 4-foot-diameter culvert, compared to 14.4 feet NAVD under the proposed program (refer to Appendix H). Six 4-foot-diameter culverts would result in a 100-year water level of 11.0 feet NAVD in the site, according to the model results (refer to Appendix H). Gates could be added to the culvert(s) for maintenance purposes.

The new Perimeter Levee could be set approximately 6.7 feet lower than the proposed program under Alternative 2 with one 4-foot-diameter culvert, or 3.4 feet lower than the proposed program with six 4-foot-diameter culverts. The Perimeter Levee would have a slope of approximately 3:1 horizontal: vertical (H:V) down to restored salt marsh at approximately 6 feet MLLW and the same slope down to the road on the back, which would give it a footprint of 2.6 acres less than under the proposed program with one 4-foot-diameter culvert, or 1.3 acres less than under the proposed program with six 4-foot-diameter culverts. The culvert(s) would reduce the potential for erosion along the Perimeter and Interim Levees, so buried soil cement or rock protection of the levee core would not be included.

Well pads and access roads would be protected to match the existing level of flood risk protection provided by the San Gabriel River Levees.

ES.8.4 Public Access and Visitor Facilities

Under Alternative 2, the installation of a culvert or set of culverts rather than breaching the levee would allow for a loop trail to be constructed along the existing San Gabriel River levee and the Perimeter Levee. The trail would be open to the public from dawn to dusk. The road on top of the Interim Levee (north-south between 2nd Street and the San Gabriel River Levee) would not be open to the public due to the oil operations, but could be restricted to docent-led use only with gates on either end, as described in the proposed program.

ES.8.5 Implementation and Restoration Process

Implementation of the restoration under Alternative 2 would be similar to implementation under the proposed program. However, instead of breaching the northern San Gabriel River levee, a culvert or set of culverts would be installed through the levee. This would likely be done by, first, using steel sheet pile cofferdams in the vicinity of the culvert locations to limit tidal inundation of the construction work. Then concrete box culverts would be installed with precast reinforced concrete (or steel) foundation piles. The construction work would likely involve track-mounted excavators utilizing pile drivers. Alternatively, trenchless technology could be used to push the culvert(s) through the levee. Construction of the culvert(s) would likely take longer than construction of the levee breach in the proposed program.

ES.8.6 Operation and Maintenance Activities

The new culvert(s) from the San Gabriel River to the Central Area would require annual maintenance to ensure proper operation, similar to current operation and maintenance of the existing structures. Gates and weirs may be adjusted seasonally for habitat management. Obstructions would be removed when necessary. If sedimentation in the channel limits the functionality of the culvert(s), a low ground pressure excavator would be used to remove the sediment. A temporary access route, 35-feet wide, would be created using mats to provide equipment access.

ES.9 Terminology Used in this Environmental Analysis

In evaluating the potential impacts of the proposed program and the alternatives, the level of significance is determined by applying the threshold of significance (significance criteria/thresholds) presented for each resource evaluation area. The following terms are used to describe each impact and, where significant impacts are determined, how mitigation measures are addressed:

- **No Impact:** A designation of no impact is given when the proposed program would not cause a physical environmental impact.
- **Less-than-Significant Impact:** A less-than-significant impact is identified when construction or operation of the proposed program would not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing federal, state, and local laws and regulations or the implementation of identified mitigation measure(s).
- **Significant Impact**—Public Resources Code Section 21068 defines a significant impact as "a substantial, or potentially substantial, adverse change in the environment." The thresholds identified in each section of this PEIR and the CEQA definition of "significant impact" are applied to reach this conclusion. Feasible mitigation measures or alternatives to the proposed program must be identified and adopted if they would avoid or substantially reduce the significant impact.
- **Significant Unavoidable Impact:** A significant unavoidable impact is identified when the impact exceeds the defined significance criteria and cannot be eliminated or reduced to a less-

than-significant level through compliance with existing federal, state, and local laws and regulations and/or implementation of all feasible mitigation measures.

- **Mitigation Measures:** Mitigation refers to measures that have been proposed to avoid or lessen potentially significant impacts. Mitigation measures include:
  - Avoiding the impact completely by not taking a certain action or parts of an action;
  - Minimizing the impact by limiting the degree or magnitude of the action and its implementation;
  - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
  - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
  - Compensating for the impact by replacing or providing substitute resources or environments.

ES.10 Scope of Analysis and Mitigation Measures

To determine the appropriate scope of analysis for this PEIR, the Lead Agency prepared and circulated a Notice of Preparation (NOP) and Initial Study (IS) from March 8, 2019, through April 8, 2019, as required by *CEQA Guidelines* Sections 15082 and 15063. The NOP was circulated to solicit input from interested public agencies (e.g., responsible and trustee agencies) and interested individuals on the scope and content of this PEIR. A copy of the letters and comments received during the NOP comment period are provided in Appendix A to this PEIR. The LCWA held a scoping meeting during the 30-day scoping period on March 21, 2019, to solicit comments and inform the public of this PEIR.

This PEIR addresses the environmental issues determined to be potentially significant as identified and disclosed in the NOP/IS and based on input from agencies and interested individuals provided during the Scoping Meetings and comment letters on the NOP.

ES.10.1 Scope of Analysis

Based on the NOP/IS, the following 17 resources areas were carried forward for further evaluation in the Draft PEIR:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality

- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utility and Service Systems

The NOP/IS determined that the proposed program would not have potentially significant impacts associated with agriculture and forestry resources because the program area is located within a highly urbanized area primarily used as privately owned or leased oil fields, wetland habitat areas, or a stormwater basin; no farmland, forest land or timberland, agricultural uses, or related operations are present within the program area or surrounding areas; and the program area is not zoned for forest land or timberland or agricultural use, nor is it subject to a Williamson Act Contract. Thus, no impacts related to agricultural resources would occur, and this topic is not evaluated in the PEIR.

The NOP/IS also determined that the proposed program would not have potentially significant impacts associated with population and housing as jobs generated by construction of the proposed program are anticipated to be filled by residents in the local area or by commuters within the larger Los Angeles Metropolitan Area and employment opportunities during operation of the proposed program would be mainly maintenance workers and operation of the visitor center and volunteers; these employment opportunities generated during construction and operation are not anticipated to directly increase the population or housing in the area, as positions are anticipated to be filled by local residents or regional commuters.

Additionally, the NOP/IS determined that the proposed program would not have potentially significant impacts associated with wildfire. The program area is not located in a very high fire hazard severity zone. The proposed program would not expect to stage or store construction materials or construction equipment on public roadways. The proposed program would not propose any public road closures or rerouting of the existing public roadway network. Although the proposed program may generate traffic trips during construction and operation, the traffic trips would be minimal and would not interfere with an adopted emergency response plan. Therefore, the program would not substantially impair an adopted emergency response plan or emergency evacuation plan, and no impact would occur.

The full discussions for these determinations are provided in the NOP/IS in Appendix A of this PEIR.

ES.10.2 Summary of Environmental Impacts of the Proposed Program and Alternatives

Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, analyzes 17 environmental resource areas. Note that the Energy and Greenhouse Gas Emissions topics, while separate topics under the CEQA Appendix G Checklist, are analyzed together in Section 3.8, *Greenhouse Gas Emissions and Energy*. The potential for environmental impacts of the proposed program on the environment were analyzed for each of the resource areas for both construction (e.g., short-term impacts throughout the construction period) and operation (e.g., long-term impacts) of the proposed program. Sections ES.10.3 through ES.10.5 summarize the no impacts, less-than-significant impacts, significant impacts that can be mitigated, and significant and unavoidable impacts associated with implementation of the proposed program.

ES.10.3 Summary of Less-Than-Significant Impacts

As shown below in **Table ES-8**, *Summary of Environmental Effects and Mitigation Measures/Program Requirements*, on page ES-51, the PEIR has determined that implementation of the proposed program (construction and/or operation) would result in no impact or a less-than-significant impact on the following resources:

- Aesthetics (Impact AES-1, Impact AES-2, and Impact AES-3)
- Air Quality (Impacts AQ-1b (operation), Impact AQ-2b (operation), Impact AQ-3b (operation), and Impact AQ-4)
- Biological Resources (Impact BIO-5, Impact BIO-6, and Cumulative)
- Geology and Soils (Impact GEO-1a, Impact GEO-1b, Impact GEO-1c, Impact GEO-2, Impact GEO-3, Impact GEO-4, and Impact GEO-5)
- Greenhouse Gas Emissions and Energy (Impact GHG-1, Impact GHG-2, Impact EN-1, Impact EN-2, and Cumulative)
- Hazards and Hazardous Materials (Impact HAZ-1, Impact HAZ-2, Impact HAZ-4, Impact HAZ-5, Impact HAZ-6, and Cumulative)
- Hydrology and Water Quality (Impact HYD-2, Impact HYD-3b, Impact HYD-3c, Impact HYD-3d, Impact HYD-4, Impact HYD-5, and Cumulative)
- Land Use and Planning (Impact LU-1, Impact LU-2, and Cumulative)
- Mineral Resources (Impact MIN-1 and Cumulative)
- Noise (Impact NOI-1, Impact NOI-2, Impact NOI-3, and Cumulative)
- Public Services (Impact PS-1b, Impact PS-1c, and Cumulative)
- Recreation (Impact REC-1, Impact REC-2, and Cumulative)
- Transportation (Impact TRA-2)
- Tribal Cultural Resources (Impact TRI-1)
- Utilities and Service Systems (Impact UTL-4, Impact UTL-5, and Cumulative).

ES.10.4 Summary of Significant Impacts That Can Be Mitigated

As shown in Table ES-8, the PEIR has determined that implementation of the proposed program (construction and/or operation) would result in a less-than-significant impact for the following nine resources areas with the implementation of mitigation measures:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Public Services
- Transportation
- Utilities and Service Systems

The following is a list of impacts that have been determined to be less than significant with mitigation under the proposed program.

- **Impact AES-4:** The proposed program would not create a new source of substantial light or glare that would adversely affect day or night views in the area or that would adversely affect daytime or nighttime views in the area.
- **Cumulative Aesthetic Impacts:** The proposed program would not result in cumulative impacts to aesthetics.
- **Impact AQ-2a (construction):** The proposed program would not violate the air quality standard and contribute substantially to an existing or projected air quality violation for construction-related NO_X emissions.
- **Impact BIO-1:** The proposed program would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- **Impact BIO-2:** The proposed program would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- **Impact BIO-3:** The proposed program would not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.

- **Impact BIO-4:** The proposed program would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- **Impact CUL-3:** The proposed program would not disturb any human remains, including those interred outside of formal cemeteries.
- **Impact GEO-6:** The proposed program would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- **Cumulative Geology and Soils Impacts:** The proposed program would not result in cumulative impacts to geology, soils, and paleontological resources.
- **Impact HAZ-3:** The proposed program would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.
- **Impact HYD-1:** The proposed program would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- **Impact HYD-3a:** The proposed program would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on site or off site.
- **Impact PS-1a:** The proposed program would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.
- **Impact TRA-1:** The proposed program would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- **Impact TRA-3:** The proposed program would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- **Cumulative Transportation Impacts:** The proposed program would not result in cumulative impacts to transportation.
- **Cumulative Tribal Cultural Resources Impacts:** The proposed program would not result in cumulative impacts to tribal cultural resources.
- **Impact UTL-1:** The proposed program would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- **Impact UTL-2:** The proposed program would have sufficient water supplies available to serve the proposed program and reasonably foreseeable future development during normal, dry and multiple dry years.
- **Impact UTL-3:** The proposed program would have adequate capacity to serve the proposed program's projected demand in addition to the provider's existing commitments.

ES.10.5 Significant and Unavoidable Impacts

The proposed program would result in program-level and cumulative significant impacts that cannot be reduced to a less-than-significant level, even with implementation of feasible mitigation measures to the following resource areas.

- **Impact AQ-1a (construction), Impact AQ-3a (construction), Cumulative:** If all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year, maximum daily emissions from construction activities would exceed the SCAQMD regional threshold for NO_X. With implementation of mitigation measures, regional impacts would be mitigated to a less than significant level. However, localized impacts to sensitive receptors at the program-level would be considered potentially significant even after incorporation of mitigation. Therefore, localized impacts from program construction pertaining to NO_X emissions would be significant and unavoidable, if all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year). In addition, as the proposed program would have a localized impact from NO_X emissions, the proposed program would also conflict with Criterion 1 for determining the proposed program's consistency with the AQMP.
- **Impact CUL-1, Impact CUL-2, and Cumulative:** There are 22 potential historical resources within or immediately adjacent to the program area, including 14 archaeological resources and 8 historical architectural resources. In addition, the Los Cerritos Wetlands is part of a tribal cultural landscape identified by some tribal representatives during consultation with the CCC. Furthermore, given that the entire program area was not systematically surveyed as part of this assessment, there could be additional as-yet unidentified archaeological and historical architectural resources within the program area. As such, the proposed program would implement Mitigation Measure CUL-1 through CUL-16 to reduce impacts to historical resources by requiring qualified cultural resources personnel to conduct future project-specific studies; development of appropriate treatment for significant resources; and archaeological and Native American monitoring of ground disturbance (see Section 3.4, *Cultural Resources*, of this PEIR). The proposed program also includes several mitigation measures (see Mitigation Measures BIO-1 through BIO-11 in Section 3.3, *Biological Resources*, of this PEIR) that would lessen potential construction-related impacts to plants and animals that are considered part of the tribal cultural landscape. However, even with implementation of these mitigation measures, impacts to historical resources and archaeological resources would be significant and unavoidable at the program level during construction of the proposed program. Once specific projects are designed, additional cultural resources studies would be completed as necessary and impacts resulting from specific projects would be considered. It is possible that project-level impacts to historical and archaeological resources may be mitigated to a less than significant level. Project-level impacts would be analyzed as part of future CEQA analysis.
- **Impact TRI-2:** While no tribal cultural resources were identified in the program area by Public Resources Code Section 21074, the program area was identified as a tribal cultural landscape by some tribal representatives during consultation with the CCC that occurred in connection with the Los Cerritos Wetlands Oil Consolidation and Restoration Project. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15, as provided in Section 3.4, *Cultural Resources*, of this PEIR, would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape. The proposed program also includes several mitigation measures (see Mitigation Measures BIO-1 through BIO-11 in Section 3.3, *Biological Resources*, of this PEIR) that would lessen potential

construction-related impacts to plants and animals that are considered part of the tribal cultural landscape. Even with implementation of these measures, the destruction or material alteration of an archaeological resource that contributes to the landscape's significance would constitute a substantial adverse change since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level. Once specific projects are designed, additional tribal consultation would be conducted as necessary and impacts resulting from specific projects would be considered. It is possible that project-level impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape may be mitigated to a less than significant level. Project-level impacts would be analyzed as part of future CEQA analysis.

ES.10.6 Environmental Impacts of the Proposed Program and Alternatives

Table ES-8, *Summary of Environmental Effects and Mitigation Measures*, summarizes the (1) potential environmental impacts that would occur as a result of the proposed program, provided in the form of an "impact statement;" (2) the recommended mitigation measures that avoid or reduce significant environmental impacts; and (3) the level of significance after mitigation measures are implemented. The impact statement reflects the condition that would result after the implementation of all of the identified mitigation measures.

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
3.1 Aesthetics		
Impact AES-1: The proposed program would not have a substantial adverse effect on a scenic vista	No mitigation is required.	Less than Significant
Impact AES-2: The proposed program would not substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	No mitigation is required.	Less than Significant
Impact AES-3: The proposed program would not conflict with applicable zoning and other regulations governing scenic quality in an urbanized area.	No mitigation is required.	Less than Significant
Impact AES-4: The proposed program would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.	**Mitigation Measure AES-1: Lighting Plan.** Prior to issuance of a grading permit for each individual site that requires construction, a Lighting Plan for the individual site shall be developed and implemented that requires all exterior lighting to be directed downward and focused away from adjacent sensitive uses and habitats to encourage wayfinding and provide security and safety for individuals walking to and from parking areas.	Less than Significant
Cumulative	Mitigation Measure AES-1.	Less than Significant
3.2 Air Quality		
Impact AQ-1a: The proposed program would conflict with or obstruct implementation of the applicable air quality plan during construction of the proposed program.	Mitigation Measure AQ-1 (see Impact AQ-2a, below).	Significant and Unavoidable
Impact AQ-1b: The proposed program would not conflict with or obstruct implementation of the applicable air quality plan during operation of the proposed program.		Less than Significant
Impact AQ-2a: The proposed program would not result in a cumulatively considerable net increase of NOx during construction of the proposed program.	**Mitigation Measure AQ-1: Construction NO_X Reduction Measures.** The Applicant for the proposed program shall be responsible for the implementation of the following construction-related NO_X reduction measures: • Require all off-road diesel-powered construction equipment greater than 50 hp (e.g., excavators, graders, dozers, scrappers, tractors, loaders, etc.) to comply with EPA-Certified Tier IV emission controls where commercially available. Documentation of all off-road diesel equipment used for this proposed program including Tier IV certification, or lack of commercial availability if applicable, shall be maintained and made available by the contractor to the local permitting agency (City of Seal Beach and City of Long Beach) for inspection upon request. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB such as certified Level 3	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
	Diesel Particulate Filter or equivalent. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment. If Tier IV construction equipment is not available, LCWA shall require the contractor to implement other feasible alternative measures, such as reducing the number and/or hp rating of construction equipment, and/or limiting the number of individual construction subphases occurring simultaneously. The determination of commercial availability of Tier IV construction equipment shall be made by the City prior to issuance of grading or building permits based on applicant-provided evidence of the availability or unavailability of Tier IV equipment and/or evidence obtained by the City from expert sources such as construction contractors in the region. • Require all main engines for tugboats to comply with EPA-Certified Tier IV emission controls. • Eliminate the use of all portable generators. Require the use of electricity from power poles rather than temporary diesel or gasoline power generators. • Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow, including during the transportation of oversized equipment and vehicles. • Provide dedicated turn lanes for movement of construction trucks and equipment on site and off site. The location of these dedicated lanes shall be addressed in the Construction Trip Management Plan. • Reroute construction trucks away from congested streets or sensitive receptor areas. • Prohibit the idling of on-road trucks and off-road equipment in excess of 5 continuous minutes, except for trucks and equipment where idling is a necessary function of the activity, such as concrete pour trucks. The Applicant or construction contractor(s) shall post signs at the entry/exit gate(s), storage/lay down areas, and at highly visible areas throughout the active portions of the construction site of the idling limit. • On-road heavy-duty diesel haul trucks with a gross vehicle weight rating of 19,500 pounds or greater used to transport construction materials and soil to and from the program area shall be engine model year 2010 or later or shall comply with the USEPA 2007 on-road emissions standards.	
Impact AQ-2b: The proposed program would not result in a cumulatively considerable net increase of criteria pollutants during operation of the proposed program.	No mitigation is required.	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
Impact AQ-3a: The proposed program would expose sensitive receptors to substantial pollutant concentrations during construction of the proposed program.	Mitigation Measures AQ-1.	Significant and Unavoidable
Impact AQ-3b: The proposed program would not expose sensitive receptors to substantial pollutant concentrations during operation of the proposed program.	No mitigation is required.	Less than Significant
Impact AQ-4: The proposed program would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	No mitigation is required.	Less than Significant
Cumulative	Mitigation Measure AQ-1 (construction).	Significant and Unavoidable (construction). Less than Significant (operation).
3.3 Biological Resources		
Impact BIO-1: The proposed program would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	**Mitigation Measure BIO-1: Avoidance of Special-Status Plants.** Prior to ground-disturbing activities (e.g., vegetation removal and grading), a qualified botanist/biologist shall conduct a habitat assessment to determine the presence or absence of suitable habitat for special-status plant species. If suitable habitat is determined to be present, focused plant surveys should be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, March 20, 2018). The locations of any special-status plants within 25 feet of proposed disturbance areas shall be identified and mapped. Individual plants shall be flagged for avoidance and an avoidance buffer of at least 10 feet shall be established around the plant(s). If special-status plants cannot be avoided, they shall be incorporated into the proposed program's restoration design at a minimum ratio of 1:1 (one plant planted for every one plant removed, or 1 square foot of absolute cover planted for every 1 square foot of absolute cover removed). Special-status plants that cannot be avoided shall be salvaged prior to impacts using species-specific propagation methods, such as transplanting, seed and cuttings. Seed collection shall occur during the appropriate time of year for each species. Seeds shall be propagated by a qualified horticulturalist or in a local nursery, and shall be incorporated into habitat-specific seed mixes that will be used for revegetation of the restoration areas. **Mitigation Measure BIO-2: Environmental Awareness Training and Biological Monitoring.** Prior to commencement of activities within the program area, a qualified biologist shall prepare a Worker Environmental Awareness Program (WEAP) that provides a description of potentially	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
	occurring special-status species and methods for avoiding inadvertent impacts. The WEAP training shall be provided to all construction personnel. Attendees shall be documented on a WEAP training sign-in sheet. Initial grading and vegetation removal activities shall be supervised by a qualified monitoring biologist. The biologist shall ensure that impacts to special-status plants and wildlife, including wetland vegetation, are minimized to the greatest extent feasible during implementation of program activities on the South, Isthmus, Central and North Areas. If any special-status wildlife species are encountered during construction and cannot be avoided, the monitoring biologist shall have the authority to temporarily halt construction activities until a plan for avoidance has been prepared and approved by CDFW, and implemented by the monitoring biologist. Relocation of a federal- or state-listed species shall not be allowed without first obtaining take authorization from USFWS and/or CDFW. **Mitigation Measure BIO-3: Belding's Savannah Sparrow Breeding Habitat.** Prior to the commencement of activities within the program area, a qualified biologist shall map suitable Belding's savannah sparrow habitat as the location and amount of suitable habitat is anticipated to change over time. Project activities shall be limited to July 16 through February 14 within suitable costal marsh habitat to avoid impacts to breeding Belding's savannah sparrow. Suitable Belding's savannah sparrow breeding habitat that will be impacted by the proposed program shall be created within the program area at a minimum ratio of 1:1 (area created:area impacted). Restored breeding habitat shall consist of a minimum 60 percent absolute cover of salt marsh vegetation, and shall consist of a hydrologic regime similar to that currently present in the North Area or South Area, respectively. Other unique conditions within coastal salt marsh communities shall exist as well, such as, similar slope, aspect, elevation, soil, and salinity. A Mitigation, Maintenance and Monitoring Program shall be prepared and approved by CDFW prior to implementation. The proposed program shall be implemented by a qualified restoration ecologist, and at a minimum, shall include success criteria and performance standards for measuring the establishment of Belding's savannah sparrow breeding habitat, responsible parties, maintenance techniques and schedule, 5-year monitoring and reporting schedule, adaptive management strategies, and contingencies. **Mitigation Measure BIO-4: Nesting Bird and Raptor Avoidance.** A qualified biologist shall identify areas where nesting habitat for birds and raptors is present prior to the commencement of activities within the program area. To ensure the avoidance of impacts to nesting avian species, the following measures shall be implemented: • Construction and maintenance activities shall be limited to the non-breeding season (September 1 through December 31) to the extent feasible. If construction or maintenance activities will occur during the	

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
	avian nesting season (January 1 through August 31), a qualified biologist shall conduct pre-construction nesting avian surveys within no more than 5 days prior to the initiation of construction activities to identify any active nests. If a lapse in work of 5 days or longer occurs, another survey shall be conducted to verify if any new nests have been constructed prior to work being reinitiated. • If active nests are observed, an avoidance buffer shall be demarcated by a qualified biologist with exclusion fencing and shall be maintained until the biologist determines that the young have fledged and the nest is no longer active. **Mitigation Measure BIO-5: Habitat Assessment and Pre-Construction Surveys for Burrowing Owl.** A qualified biologist shall conduct a pre-construction burrowing owl survey of the program area within suitable habitat prior to construction activities. If burrowing owls are detected, a Burrowing Owl Management Plan shall be prepared and approved by CDFW, and implemented, prior to commencement of construction. The Burrowing Owl Management Plan shall be prepared in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation and shall address specific minimization and avoidance measures for burrowing owls, such as avoidance of occupied habitat, translocation of individuals, and on site revegetation. **Mitigation Measure BIO-6: Minimization of Light Spillage.** A Program Lighting Plan shall be designed to minimize light trespass and glare into adjacent habitat areas prior to the commencement of activities within the program area. Nighttime lighting associated with the visitor center, parking lot, and trails shall be shielded downward and/or directed away from habitat areas to minimize impacts to nocturnal species, including breeding birds. **Mitigation Measure BIO-7: Pre-Construction Bat Surveys.** A qualified biologist shall conduct a pre-construction bat survey of the program area prior to construction activities. Prior to commencement of construction activities, a qualified biologist shall conduct a preconstruction clearance survey of suitable bat roosting habitat, such as mature palm trees. If bats are determined to be roosting, the biologist will determine whether it is a day roost (non-breeding) or maternity roost (lactating females and dependent young). If a day roost is determined, the biologist shall ensure that direct mortality to roosting individuals will not occur by requiring that trees with roosts are not directly impacted (e.g., removed) until after the roosting period. If a maternity roost is determined to be present, the biologist shall determine a suitable buffer distance between construction activities and the roosting site. If direct disturbance to the maternity roost could occur, a Bat Exclusion Plan shall be prepared and approved by CDFW, and implemented, prior to impacting the roost. At a minimum, the Plan shall include avoidance and minimization measures to reduce potential impacts to breeding bats during	

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Impacts	Mitigation Measures	Significance after Mitigation
	construction activities and prescribed methods to safely and humanely evict bats from the roost to avoid mortality.	
	Mitigation Measure BIO-8: Focused Surveys for Special-Status Wildlife Species. Should suitable habitat occur, a qualified biologist shall conduct focused habitat assessments and focused surveys for special-status wildlife species listed in Table 3.3-4. Both habitat assessments and focused surveys shall occur prior to LCWA's approval of the project plans or the publication of subsequent CEQA documents for any project site that potentially contains special-status species. Agency-approved protocols shall be used for specific species where appropriate during the required or recommended time of year. For all other target (special-status) species, prior to initiating surveys, survey methods shall be verified and approved in writing by CDFW and USFWS for all state- and/or federally-protected species, respectively. If special-status species are detected, a Wildlife Avoidance Plan shall be prepared and approved by CDFW and USFWS prior to commencement of construction. The Wildlife Avoidance Plan shall include specific species minimization and avoidance measures, measures to minimize impacts to occupied habitat, such as avoidance and revegetation, as well as relocation/translocation protocols.	
	If special-status species cannot be avoided, Incidental Take Permits from the United States Fish and Wildlife Service and California Department of Fish and Wildlife will be required. If an incidental take permit is being obtained, compensatory mitigation for the loss of occupied habitat shall be provided through purchase of credit from an existing mitigation bank, private purchase of mitigation lands, or on-site preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce potential effects to less-than-significant levels.	

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Impacts	Mitigation Measures	Significance after Mitigation
Impact BIO-2: The proposed program would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	**Mitigation Measure BIO-9: Revegetation of Sensitive Natural Communities.** Sensitive natural communities located on the program area include: *Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance, *Arthrocnemum subterminale* Herbaceous Alliance, *Baccharis salicina* Provisional Shrubland Alliance, *Cressa truxillensis – Distichlis spicata* Herbaceous Alliance, *Frankenia salina* Herbaceous Alliance, *Isocoma menziesii* Shrubland Alliance, *Leymus cinereus – Leymus triticoides* Herbaceous Alliance, *Salicornia pacifica* Herbaceous Alliance, *Salix gooddingii* Woodland Alliance, *Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance and *Spartina foliosa* Herbaceous Alliance. Prior to impacts to Sensitive Natural Communities, the area(s) that will be impacted shall be delineated and quantified using current Global Information System (ArcGIS) mapping software. Sensitive Natural Communities that will be impacted by the proposed program shall be created within the program area at a minimum ratio of 1:1 (area created:area impacted). Restored Sensitive Natural Communities shall consist of a minimum 60 percent absolute vegetation cover and shall include community-specific growing conditions, such as, similar slope, aspect, elevation, soil, and salinity. A Mitigation, Maintenance and Monitoring Program shall be prepared and approved by CDFW prior to implementation. The Program shall be implemented by a qualified restoration ecologist, and at a minimum, shall include success criteria and performance standards for measuring the establishment of Sensitive Natural Communities, responsible parties, maintenance techniques and schedule, 5-year monitoring and reporting schedule, adaptive management strategies, and contingencies.	Less than Significant
Impact BIO-3: The proposed program would not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.	**Mitigation Measure BIO-10: Jurisdictional Resources Permitting.** Prior to project construction, a jurisdictional delineation report shall be prepared that describes these jurisdictional resources and the extent of jurisdiction under the USACE, RWQCB, CDFW, and CCC. If it is determined during final siting that jurisdictional resources cannot be avoided, the project applicant shall be subject to provisions as identified below: 1. If avoidance is not feasible, prior to ground disturbance activities that could impact these aquatic features, the project applicant shall file the required documentation and receive the following. a. Nationwide Permit or equivalent permit issued from USACE; b. Water Quality Certification issued from the Los Angeles RWQCB; c. Streambed Alteration Agreement issued from CDFW; and d. Coastal Development Permit issued from CCC.	Less than Significant

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SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
	2. Compensatory mitigation for impacts to jurisdictional resources is not anticipated as the proposed program's goal is the restoration and expansion of coastal salt marsh within the proposed program. 3. The project proponent shall comply with the mitigation measures detailed in permits issued from the USACE, RWQCB, CDFW, and CCC. **Mitigation Measure BIO-11: Monitoring and Adaptive Management Plan.** In conjunction with Section 3.8, *Hydrology and Water Quality*, a Monitoring and Adaptive Management Plan (MAMP) shall be prepared and implemented prior to commencement of construction or restoration activities. The MAMP shall provide a framework for monitoring site conditions in response to the proposed program implementation. The MAMP shall include provisions for conducting a pre-construction survey to collect baseline data for existing wetland function. The MAMP shall require that monitoring focus on the functional wetland values as well as sediment quality in areas subject to the greatest deposition from storm events and that are also not subject to regular tidal flushing, (e.g., the southwestern corner of the Long Beach Property site). The MAMP shall identify habitat functions, such as biotic structure and hydrology, that shall be monitored as part of the proposed program's monitoring and reporting requirements. The MAMP shall identify sediment quality monitoring requirements that shall be performed at a frequency that would capture the potential build-up of contaminants in the deposited sediment before concentration are reached that would impact benthic macro-invertebrates and other sensitive species. The MAMP shall require that the findings of the monitoring efforts be used to identify any source of functional loss of wetlands and water quality impairment, and if discovered, provide measures to improve wetland function and for remediation of the sediment source area(s). Upon completion of restoration activities, the proposed program shall demonstrate a no net loss of aquatic resource functions and demonstrate an increase in wetland functions and values throughout the entire site. The MAMP shall be submitted for review and approval to responsible permitting agencies prior to commencement of construction or restoration activities.	
Impact BIO-4: The proposed program would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Mitigation Measure BIO-8.	Less than Significant
Impact BIO-5: The proposed program would not have a substantial adverse effect and conflict with biological resources protected by local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No mitigation is required.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
Impact BIO-6: The proposed program would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No mitigation is required.	No Impact
Cumulative	No mitigation is required.	Less than Significant
3.4 Cultural Resources		
Impact CUL-1: The proposed program would cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.	Mitigation Measures BIO-1 through BIO-11, as provided in Section 3.3, *Biological Resources*. **Mitigation Measure CUL-1: Cultural Resources Personnel Professional Qualifications Standards.** Cultural resources consulting staff shall meet, or be under the direct supervision of an individual meeting, the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 Code of Federal Regulations [CFR] Part 61; 48 FR 44738-44739). **Mitigation Measure CUL-2: Historic Resources Assessment.** For each near-term, mid-term, and long-term project, LCWA shall retain an SOI-qualified architectural historian (Qualified Architectural Historian) to conduct a historic resources assessment including: a records search at the South Central Coastal Information Center; a review of pertinent archives and sources; a pedestrian field survey; recordation of all identified historic resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the assessment. The report(s) shall be submitted to LCWA for review and approval prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Architectural Historian shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its completion. A Historic Resources Assessment shall not be required for any project site that has already undergone the same or similar assessment as part of the program as long as the assessment is deemed adequate by the Qualified Architectural Historian for the purposes of the project currently under consideration. **Mitigation Measure CUL-3: Historic Resources Evaluation.** Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project site containing unevaluated historic resources, a Qualified Architectural Historian shall determine if the project has the potential to result in adverse impacts to identified historic resources. For any historic resource that may be adversely impacted, the Qualified Architectural Historian shall evaluate the resource for listing in the California Register under Criteria 1-4 in order to determine if the resource qualifies as a historical resource. If a historic resource is found eligible, the Qualified Architectural Historian shall determine if the project would cause a substantial adverse	Significant and Unavoidable

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Impacts	Mitigation Measures	Significance after Mitigation
	change in the significance of the resource. If a substantial adverse change would occur (i.e., the project would demolish the resource or materially alter it in an adverse manner), the Qualified Architectural Historian shall develop appropriate mitigation measures to be incorporated into subsequent CEQA documents. These measures may include, but would not be limited to, relocation, HABS/HAER/HALS documentation, development and implementation of an interpretative and commemorative program, or development and implementation of a salvage plan. All evaluations and resulting technical reports shall be completed and approved by LWCA prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Architectural Historian shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA. **Mitigation Measure CUL-4: Archaeological Resources Assessment.** For each near-term, mid-term, and long-term project that involves ground disturbance, LCWA shall retain an SOI-qualified archaeologist (Qualified Archaeologist) to conduct an archaeological resources assessment including: a records search at the South Central Coastal Information Center; a Sacred Lands File search at the Native American Heritage Commission; updated geoarchaeological review incorporating previously unavailable data (such as geotechnical studies); a pedestrian field survey; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report. The technical report shall: document the methods and results of the study; provide an assessment of the project's potential to encounter subsurface archaeological resources and human remains based on a review of the project plans, depth of proposed ground disturbance, and available project-specific geotechnical reports; and provide recommendations as to whether additional studies are warranted (i.e., Extended Phase I presence/absence testing or resource boundary delineation, Phase II testing and evaluation). The report(s) shall be submitted to LCWA for review and approval prior to approval of project plans or publication of subsequent CEQA documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its completion. An Archaeological Resources Assessment shall not be required for any project site that has already undergone the same or similar assessment as part of the program as long as the assessment is deemed adequate by the Qualified Archaeologist for the purposes of the project currently under consideration. **Mitigation Measure CUL-5: Extended Phase I Archaeological Investigation.** Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project with a high potential to encounter subsurface archaeological resources as determined by the project-specific archaeological resources assessment conducted under **Mitigation Measure CUL-4: Archaeological Resources Assessment**, a Qualified	

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Impacts	Mitigation Measures	Significance after Mitigation
	Archaeologist shall conduct an Extended Phase I investigation to identify the presence/absence of subsurface archaeological resources. Prior to the initiation of field work for any Extended Phase I investigation, the Qualified Archaeologist shall prepare a work plan outlining the investigation's objectives, goals, and methodology (e.g., field and lab procedures, collection protocols, curation and reporting requirements, Native American input/monitoring, schedule, security measures). For investigations related to Native American archaeological resources, monitoring shall be required in accordance with **Mitigation Measures CUL-13: Native American Monitoring**. All work plans shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects or grave goods (i.e., artifacts associated with human remains) are encountered in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Disposition of archaeological materials recovered during Extended Phase I investigations shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Projects occurring within the same timeframe may be covered by one overarching work plan. All investigations and resulting technical reports shall be completed and approved by LCWA prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA. An Extended Phase I investigation shall not be required for any project site or resource that has already undergone the same or similar investigation as part of the program as long as the investigation is deemed adequate by the Qualified Archaeologist for the purposes of the project currently under consideration. **Mitigation Measure CUL-6: Phase II Archaeological Investigation.** Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project site containing known unevaluated archaeological resources as identified by the project-specific archaeological resources assessment conducted under **Mitigation Measure CUL-4: Archaeological Resources Assessment**, a Qualified Archaeologist shall determine if the project has the potential to result in adverse impacts to identified **archaeological** resources (this may include initial Extended Phase I testing to identify the boundaries of resources, if necessary to properly assess potential impacts, following the procedures outlined under **Mitigation Measure CUL-5: Extended Phase I Archaeological Investigation**). For any archaeological resource that may be adversely impacted, the Qualified Archaeologist shall conduct Phase II testing and shall evaluate the resource for listing in the California Register under Criteria 1-4 in order to determine if the resource qualifies as a historical resource. If the resource does not	

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Impacts	Mitigation Measures	Significance after Mitigation
	qualify as a historical resource, it shall then be considered for qualification as a unique archaeological resource. Native American or prehistoric archaeological resources shall also be considered as contributors to the tribal landscape to determine if they contribute to the significance of the landscape. Prior to the initiation of field work for any Phase II investigation, the Qualified Archaeologist shall prepare a work plan outlining the investigation's objectives, goals, and methodology (e.g., research design, field and lab procedures, collection protocols, data requirements/thresholds, evaluation criteria, curation and reporting requirements, Native American input/monitoring, schedule, security measures). The Qualified Archaeologist and LCWA shall coordinate with participating Native American Tribes during preparation of Phase II work plans related to Native American archaeological resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered in the evaluation, including those related to the tribal cultural landscape. For investigations related to Native American archaeological resources, Native American Tribal coordination and monitoring shall be required in accordance with **Mitigation Measures CUL-12: Native American Coordination** and **CUL-13: Native American Monitoring**. All work plans shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects or grave goods (i.e., artifacts associated with human remains) are encountered in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Disposition of archaeological materials recovered during Extended Phase I or Phase II investigations shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Projects occurring within the same timeframe may be covered by one overarching work plan. All investigations and resulting technical reports shall be completed and approved by LWCA prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA. **Mitigation Measure CUL-7: Avoidance and Preservation in Place of Archaeological Resources.** In the event historical resources or unique archaeological resources or resources that contribute to the significance of the tribal cultural landscape are identified, avoidance and preservation in place shall be the preferred manner of mitigating impacts to such resources. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding	

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Impacts	Mitigation Measures	Significance after Mitigation
	the site into a permanent conservation easement. If avoidance is determined by the LCWA to be infeasible in light of factors such as the nature of the find, proposed project design, costs, and other considerations, then that resource shall be subject to **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. If avoidance and preservation in place of a resource is determined by LCWA to be feasible, then that resource shall be subject to **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan**. **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan.** A Qualified Archaeologist shall prepare a Phase III Archaeological Resources Data Recovery and Treatment Plan for significant archaeological resources (i.e., resources that qualify as historical resources or unique archaeological resources or that contribute to the significance of the tribal cultural landscape) that will be adversely impacted by a project. Consistent with *CEQA Guidelines* Section 15126.4, data recovery shall not be required for a historical resource if LCWA determines that testing or studies already completed have adequately recovered the scientifically consequential information for resources eligible under California Register Criterion 4. The Qualified Archaeologist and LCWA shall consult with interested Native American Tribes for recovery/treatment of Native American archaeological resources during preparation of the plan(s) to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered in assessing treatment, including those related to the tribal cultural landscape. Projects occurring within the same timeframe may be covered by one overarching plan. The plan(s) shall be submitted to LCWA for review and approval prior to the start of field work for data recovery efforts for resources that are eligible under California Register Criterion 4 (data potential). Data recovery field work shall be completed prior to the start of any project-related ground disturbance. Treatment for archaeological resources that are eligible under California Register Criterion 1 (events), Criterion 2 (persons), or Criterion 3 (design/workmanship) shall be completed within 3 years of completion of the project. Each plan shall include: a. *Research Design.* The plan shall outline the applicable cultural context(s) for the region, identify research goals and questions that are applicable to each resource or class of resources, and list the data needs (types, quantities, quality) required to answer each research question. The research design shall address all four California Register Criteria (1–4) and identify the methods that will be required to inform treatment, such as subsurface investigation, documentary/archival research, and/or oral history, depending on the nature of the resource. The research design shall also include consideration of Native American or prehistoric archaeological resources as contributors to the tribal cultural landscape.	

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Impacts	Mitigation Measures	Significance after Mitigation
	b. *Data Recovery for Resources Eligible under Criterion 4.* The plan shall outline the field and laboratory methods to be employed, and any specialized studies that will be conducted, as part of the data recovery effort for resources that are eligible under California Register Criterion 4 (data potential). If a resource is eligible under additional criteria, treatment beyond data recovery shall be implemented (see **CUL-6c**).	
	c. *Treatment for Resources Eligible under Criteria 1, 2, or 3.* In the event a resource is eligible under California Register Criterion 1 (events), Criterion 2 (persons), or Criterion 3 (design/workmanship), then resource-specific treatment shall be developed to mitigate project-related impacts to the degree feasible. This could include forms of documentation, interpretation, public outreach, ethnographic and language studies, publications, and educational programs, depending on the nature of the resource, and may require the retention of additional technical specialists. Treatment measures shall be generally outlined in the plan based on existing information on the resource. Once data recovery is completed and the results are available to better inform resource-specific treatment, the treatment measures shall be formalized and implemented. Treatment shall be developed by the Qualified Archaeologist in consultation with LCWA and Native American Tribal representatives for resources that are Native American in origin, including those related to the tribal cultural landscape.	
	d. *Security Measures.* The plan shall include recommended security measures to protect archaeological resources from vandalism, looting, and non-intentionally damaging activities during field work.	
	e. *Procedures for Discovery of Human Remains and Associated Funerary Objects or Grave Goods.* The plan shall outline the protocols and procedures to be followed in the event *that* human remains and associated funerary objects or grave goods are uncovered. Protocols and procedures shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.	
	f. *Reporting Requirements.* Upon completion of data recovery for resources eligible under Criterion 4, the Qualified Archaeologist shall document the findings in an Archaeological Data Recovery Report. The draft Archaeological Data Recovery Report shall be submitted to the LCWA within 360 days after completion of data recovery, and the final Archaeological Data Recovery Report shall be submitted to LCWA within 60 days after the receipt of LCWA comments. The Qualified Archaeologist shall submit the final Archaeological Data Recovery Report to the South Central Coastal Information Center within 30 days of its acceptance by LCWA.	
	Upon completion of all other treatment for resources eligible under Criteria 1, 2, or 3, the Qualified Archaeologist shall document the resource-	

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Impacts	Mitigation Measures	Significance after Mitigation
	specific treatment that was implemented for each resource and verification that treatment has been completed in a technical document (report or memorandum). The document shall be provided to LCWA within 30 days after completion of treatment. g. *Curation or Disposition of Cultural Materials.* The plan shall outline the requirements for final *disposition* of all cultural materials collected during data recovery. Disposition of all archaeological materials shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. h. *Protocols for Native American Coordination and Monitoring.* The plan shall outline the role and responsibilities of Native American Tribal representatives in *accordance* with **Mitigation Measure CUL-12: Native American Coordination**. It shall outline communication protocols, timelines for review of archaeological resources documents, and provisions for Native American monitoring. The plan shall include provisions for full-time Native American monitoring of all data recovery field work for resources that are Native American in origin, including those related to the tribal cultural landscape, in accordance with **Mitigation Measure CUL-13: Native American Monitoring**. **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan.** For each near-term, mid-term, and long-term project that involves ground disturbance, a Qualified Archaeologist shall prepare an Archaeological Resources Mitigation and Monitoring Plan taking into account the final LCWA-approved project design plans, depths/locations of ground disturbance, proximity to known archaeological resources, and potential to encounter subsurface archaeological resources. Projects occurring within the same timeframe may be covered by one overarching plan. Each plan shall include: a. *Establishment of Environmentally Sensitive Areas.* The plan shall outline areas that will be designated Environmentally Sensitive Areas (including maps), if needed. Significant or unevaluated *archaeological* resources that are being avoided and are within 50 feet of the construction zone shall be designated as Environmentally Sensitive Areas. The resources shall be *delineated* with exclusion markers to ensure avoidance. These areas shall not be marked as archaeological resources, but shall be designated as “exclusion zones” on project plans and protective fencing in order to discourage unauthorized disturbance or collection of artifacts. b. *Provisions for Archaeological Monitoring.* The plan shall outline requirements for archaeological monitoring and the archaeological monitor(s) role and responsibilities in accordance with **Mitigation Measure CUL-11: Archaeological Resources Monitoring**. Ground	

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Impacts	Mitigation Measures	Significance after Mitigation
	disturbance in locations/depths that have been previously monitored as part of the program shall not be subject to additional monitoring. c. *Procedures for Discovery of Archaeological Resources.* Procedures to be implemented in the event of an archaeological discovery shall be fully defined in the plan and shall be in accordance with **Mitigation Measure CUL-14: Archaeological Resources Discoveries**. Procedures outlined shall include stop-work and protective measures, notification protocols, procedures for significance assessments, and appropriate treatment measures. The plan shall state avoidance or preservation in place is the preferred manner of mitigating impacts to historical resources, unique archaeological resources, and contributors to the significance of the tribal cultural landscape, but shall provide procedures to follow should avoidance be infeasible in light of factors such as the nature of the find, project design, costs, and other considerations. If, based on the recommendation of a Qualified Archaeologist, it is determined that a discovered archaeological resource constitutes a historical resource or unique archaeological resource or is a contributor to the significance of the tribal cultural *landscape*, then *avoidance* and preservation in place shall be the preferred manner of mitigating impacts to such a resource in accordance with **Mitigation Measure CUL-7: Avoidance and Preservation in Place of Archaeological Resources**. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Data Recovery and Treatment Plan shall be prepared and implemented following the procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. LCWA shall consult with appropriate Native American representatives in determining treatment of resources that are Native American in origin to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered, including those related to the tribal cultural landscape. d. *Procedures for Discovery of Human Remains and Associated Funerary Objects or Grave Goods.* The plan shall outline the protocols *and* procedures to be followed in the event that *human* remains and associated funerary objects or grave goods are uncovered. Protocols and procedures shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. e. *Reporting Requirements.* The plan shall outline provisions for weekly and final reporting. The Qualified Archaeologist shall prepare weekly status reports detailing activities and locations observed (including maps) and summarizing any discoveries for the duration of monitoring to be submitted to LCWA via email for each week in which monitoring activities occur. The Qualified Archaeologist shall prepare a draft Archaeological	

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Impacts	Mitigation Measures	Significance after Mitigation
	Resources Monitoring Report and submit it to LCWA within 180 days after completion of the monitoring program or treatment for significant discoveries should treatment extend *beyond* the cessation of monitoring. The final Archaeological Resources Monitoring Report shall be submitted to LCWA within 60 days after receipt of LCWA comments. The Qualified Archaeologist shall also submit the final Archaeological Resources Monitoring Report to the South Central Coastal Information Center. f. *Curation or Disposition of Cultural Materials.* The plan shall outline the requirements for final disposition of all cultural materials collected during data recovery. Disposition of all archaeological materials shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. g. *Protocols for Native American Coordination and Monitoring.* The plan shall outline requirements for Native American coordination and monitoring, and the Native American monitor(s) role and responsibilities in accordance with **Mitigation Measures CUL-12: Native American Coordination** and **CUL-13: Native American Monitoring**. **Mitigation Measure CUL-10: Construction Worker Cultural Resources Sensitivity Training.** For each near-term, mid-term, and long-term project that involves ground disturbance, LCWA shall retain a Qualified Archaeologist to implement a cultural resources sensitivity training program. The Qualified Archaeologist, or their designee, and a Native American representative shall instruct all construction personnel of the importance and significance of the area as a tribal cultural landscape, the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, confidentiality of discoveries, and safety precautions to be taken when working with cultural resources monitors. In the event that construction crews are phased, additional trainings shall be conducted for new construction personnel. LCWA or their contractors shall ensure construction personnel are made available for and attend the training. LCWA shall retain documentation demonstrating attendance. **Mitigation Measure CUL-11: Archaeological Resources Monitoring.** For each near-term, mid-term, and long-term project, full-time archaeological monitoring of ground disturbance (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil) shall be conducted in areas and at depths where there is a potential to encounter archaeological **materials** or human remains, including excavations into existing artificial fill and native soils, based on the project-specific archaeological resources assessment	

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Impacts	Mitigation Measures	Significance after Mitigation
	prepared under **Mitigation Measure CUL-4: Archaeological Resources Assessment**. Ground disturbance in locations/depths that have been previously monitored as part of the program shall not be subject to additional monitoring. The archaeological monitor(s) shall be familiar with the types of resources that could be encountered and shall work under the direct supervision of a Qualified Archaeologist. The number of archaeological monitors required to be on site during ground-disturbing activities is dependent on the construction scenario, specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working, with the goal of monitors being able to effectively observe soils as they are exposed. Generally, work areas more than 500 feet from one another will require additional monitors. The archaeological monitor(s) shall keep daily logs detailing the types of activities and soils observed, and any discoveries. Archaeological monitor(s) shall have the authority to halt and re-direct ground disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with LCWA, and the Native American representatives in the event the resource is Native American in origin, and in accordance with the protocols and procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. Reporting of archaeological monitoring shall be conducted in accordance with the provisions outlined in **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan**. **Mitigation Measure CUL-12: Native American Coordination.** LCWA shall seek input from participating Native American Tribes during the preparation of documents required under **Mitigation Measures CUL-5: Extended Phase I Archaeological Investigation**, **CUL-6: Phase II Archaeological Investigation**, **CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**, and **CUL-14: Archaeological Resources Discoveries**, including but not limited to work plans, research designs, treatment plans, and associated technical reports. LCWA shall provide participating Native American Tribes with electronic copies of draft documents and afford them 30 days from receipt of a document to review and comment on the document. Native American comments will be provided in writing for consideration by LCWA. LCWA shall document comments and how the comments were/were not addressed in a tracking log. **Mitigation Measure CUL-13: Native American Monitoring.** For each near-term, mid-term, and long-term project, full-time Native American monitoring of ground disturbance (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil) shall be conducted in areas and at depths where	

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Impacts	Mitigation Measures	Significance after Mitigation
	there is a potential to encounter archaeological materials or human remains, including excavations into existing artificial fill and native soils, based on the project-specific study prepared under **Mitigation Measure CUL-4: Archaeological Resources Assessment**. LCWA shall retain a Native American monitor(s) from a California Native American Tribe that is culturally and geographically affiliated with the program area (according to the California Native American Heritage Commission) to conduct the monitoring. If more than one Tribe is interested in monitoring, LCWA shall contract with each Tribe that expresses interest and prepare a monitoring rotation schedule. LCWA shall rotate monitors on an equal and regular basis to ensure that each Tribal group has the same opportunity to participate in the monitoring program. If a Tribe cannot participate when their rotation comes up, they shall forfeit that rotation unless LCWA can make other arrangements to accommodate their schedule. The number of Native American monitors required to be on site during ground disturbing activities is dependent on the construction scenario, specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working, with the goal of monitors being able to effectively observe soils as they are exposed. Generally, work areas more than 500 feet from one another require additional monitors. Native American monitors shall have the authority to halt and re-direct ground disturbing activities in the event of a discovery until it has been assessed for significance. The Native American monitor(s) shall also monitor all ground disturbance related to subsurface investigations and data recovery efforts conducted under **Mitigation Measures CUL-5: Extended Phase I Archaeological Investigation**, **CUL-6: Phase II Archaeological Investigation**, and **CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan** for any resources that are Native American in origin, according to the rotation schedule, including those related to the tribal cultural landscape. **Mitigation Measure CUL-14: Archaeological Resources Discoveries.** In the event archaeological resources are encountered during construction of the proposed program, all activity in the vicinity of the find shall cease (within 100 feet), and the protocols and procedures for discoveries outlined in **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan** shall be implemented. The discovery shall be evaluated for potential significance by the Qualified Archaeologist. If the Qualified Archaeologist determines that the resource may be significant (i.e., meets the definition for historical resource in *CEQA Guidelines* subdivision 15064.5(a) or for unique archaeological **resource** in PRC subdivision 21083.2(g) or is a contributor to the tribal cultural landscape), the Qualified Archaeologist shall develop an Archaeological Resources Data Recovery and Treatment Plan for the resource following the procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment**	

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Impacts	Mitigation Measures	Significance after Mitigation
	Plan. When assessing significance and developing treatment for resources that are Native American in origin, including those related to the tribal cultural landscape, the Qualified Archaeologist and LCWA shall consult with the appropriate Native American representatives. The Qualified Archaeologist shall also determine if work may proceed in other parts of the project site while data recovery and treatment is being carried out. **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials.** LCWA shall curate all Native American archaeological materials, with the exception of funerary objects or grave goods (i.e., artifacts associated with Native American human remains) at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited **repository** accepts the collection, then LCWA may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then LCWA shall offer the collection to a public, non-profit institution with a research interest in the materials, or donate it to a local California Native American Tribe(s) (Gabrielino or Juañeno) for educational purposes. Disposition of Native American human remains and associated funerary objects or grave goods shall be determined by the landowner in consultation with LCWA and the Most Likely Descendant in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. LCWA shall curate all historic-period archaeological materials that are not Native American in origin at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then LCWA may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then LCWA shall offer the collection to a public, non-profit institution with a research interest in the materials, or to a local school or historical society in the area for educational purposes. If no institution, school, or historical society accepts the collection, LCWA may retain it for on-site display as part of its interpretation and educational elements. Prior to start of each project, LCWA shall obtain a curation agreement and shall be responsible for payment of fees associated with curation for the duration of the program. **Mitigation Measure CUL-16: Future Native American Input.** LCWA shall consult with participating California Native American Tribes, to the extent that they wish to participate, during future design of project-level components, plant and native plant selections or palettes, and development of content for educational and interpretative signage.	

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Impacts	Mitigation Measures	Significance after Mitigation
Impact CUL-2: The proposed program would cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	Mitigation Measures CUL-1, and CUL-4 through CUL-15.	Significant and Unavoidable
Impact CUL-3: The proposed program would not disturb any human remains, including those interred outside of formal cemeteries.	**Mitigation Measure CUL-17: Human Remains Discoveries:** If human remains are encountered, then LCWA or its contractor shall halt work in the vicinity (within 100 feet) of the discovery and contact the appropriate County Coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5, which requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the County Coroner determines the remains are Native American, then the Coroner will notify the California Native American Heritage Commission (NAHC) within 24 hours in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code Section 5097.98. The California Native American Heritage Commission shall then identify the person(s) thought to be the Most Likely Descendant (MLD). The MLD may, with the permission of the land owner, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the landowner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials. LCWA and the landowner shall discuss and confer with the MLD on all reasonable options regarding the MLD's preferences for treatment. Until LCWA and the landowner have conferred with the MLD, the contractor shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity and is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials. If the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the facility property in a location not subject to further and future subsurface disturbance.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
Cumulative	Mitigation Measures BIO-1 through BIO-9, as provided in Section 3.3, *Biological Resources*, and CUL-1 through CUL-17 (construction). Mitigation Measures BIO-1, BIO-6, and BIO-8 through BIO-11, as provided in Section 3.3, *Biological Resources* (operation).	Significant and Unavoidable (construction). Less than Significant (operation).
3.5 Geology, Soils, and Paleontological Resources		
Impact GEO-1a: The proposed program would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.	No mitigation is required.	Less than Significant
Impact GEO-1b: The proposed program would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	No mitigation is required.	Less than Significant
Impact GEO-1c: The proposed program would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, lateral spreading, and landslides.	No mitigation is required.	Less than Significant
Impact GEO-2: The proposed program would not result in a significant impact if the proposed program would result in substantial soil erosion or the loss of topsoil.	No mitigation is required.	Less than Significant
Impact GEO-3: The proposed program would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	No mitigation is required.	No Impact
Impact GEO-4: The proposed program would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	No mitigation is required.	Less than Significant
Impact GEO-5: The proposed program would not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.	No mitigation is required.	No Impact

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Impacts	Mitigation Measures	Significance after Mitigation
Impact GEO-6: The proposed program would not would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Mitigation Measure GEO-1: Retention of a Qualified Professional Paleontologist.** Prior to the start of construction of any near-term, mid-term, or long-term project, LCWA shall retain a Qualified Professional Paleontologist as defined by the Society of Vertebrate Paleontology to carry out all mitigation related to paleontological resources including: project-level review (Mitigation Measure **GEO-2**); paleontological resources sensitivity training (**GEO-3**); oversight of paleontological resources monitoring (Mitigation Measure **GEO-4**); and recovery, treatment, analysis, curation, and reporting (Mitigation Measures **GEO-5**, **GEO-6**, and **GEO-7**). **Mitigation Measure GEO-2: Project-Level Paleontological Resources Review and Monitoring Recommendations.** Prior to LCWA approval of any near-term, mid-term, and long-term project, the Qualified Professional Paleontologist shall review the *Los Cerritos Wetlands Program Paleontological Resources Assessment* (ESA, 2019), grading plans, and any available geotechnical reports/data to determine the potential for ground disturbance to occur within older alluvium and old shallow marine deposits. If available data is sufficient to accurately determine the depth of older alluvium and old shallow marine deposits within a project site, monitoring shall be required beginning at or just above that depth. If available data is insufficient to determine the depth of older alluvium and old shallow marine deposits, monitoring shall be required beginning at 5 feet below surface (consistent with the accepted depth at which high sensitivity sediments could occur based on regional evidence). The results of the reviews shall be documented in technical memoranda to be submitted to LCWA prior to the start of ground disturbance, along with recommendations specifying the locations, depths, duration, and timing of any required monitoring. The technical memoranda shall include map figures that outline where monitoring is required and at what depths, and shall stipulate whether screen washing is necessary to recover small specimens. Any required screen washing shall follow SVP Guidelines. **Mitigation Measure GEO-3: Paleontological Resources Sensitivity Training.** Prior to the start of ground disturbance for any near-term, mid-term, or long-term project, the Qualified Professional Paleontologist shall conduct paleontological resources sensitivity training. The training shall focus on the recognition of the types of paleontological resources that could be encountered within the program area, the procedures to be followed if they are found, confidentiality of discoveries, and safety precautions to be taken when working with paleontological monitors. LCWA shall ensure that construction personnel are made available for and attend the training, and retain documentation demonstrating attendance. The training should be repeated as necessary for incoming construction personnel. **Mitigation Measure GEO-4: Paleontological Resources Monitoring.** A qualified paleontological monitor, as defined by the Society of Vertebrate	Less than Significant

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SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
	Paleontology, shall monitor all ground-disturbing activities occurring in the older alluvium and old shallow marine deposits for each near term, mid-term, or long-term project. Monitoring shall be implemented consistent with the locations, depths, duration, and timing recommendations specified in the technical memorandum for the project. Monitors shall work under the direction of the Qualified Professional Paleontologist. The number of monitors required to be on site during ground-disturbing activities shall be determined by the Qualified Professional Paleontologist and shall be based on the construction scenario – specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working – with the goal of monitors being able to effectively observe sediments as they are exposed. Monitors shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens, and to request assistance from construction equipment operators to recover samples for screen washing as necessary. Monitors shall prepare daily logs detailing the types of activities and soils observed, and any discoveries. The Qualified Professional Paleontologist, in consultation with LCWA, shall have the ability to modify (i.e., increase, reduce, or discontinue) monitoring requirements based on observations of soil types and frequency of discoveries. Requests for modifications shall be submitted in writing to LCWA for approval prior to implementation. **Mitigation Measure GEO-5: Paleontological Discoveries.** If any potential fossils are discovered by paleontological resources monitors or construction personnel, all work shall cease at that location (within 100 feet) until the Qualified Professional Paleontologist has assessed the discovery and made recommendations as to the appropriate treatment. The paleontological resources monitor (if one is present) or construction personnel (if a monitor is not present) shall flag the fossiliferous area for avoidance until the Qualified Professional Paleontologist can evaluate the discovery and develop plans for avoidance or removal/salvage of the specimen(s), if deemed significant. Significant discoveries shall be salvaged following SVP Guidelines. **Mitigation Measure GEO-6: Preparation, Identification, Cataloging, and Curation Requirements.** All significant fossil discoveries shall be prepared to the point of identification to the lowest taxonomic level possible, cataloged, and curated into a certified repository with retrievable storage (such as a museum or university). All GPS data, field notes, photographs, locality forms, stratigraphic sections, and other data associated with the recovery of the specimens shall be deposited with the institution receiving the specimens. The Qualified Professional Paleontologist shall be responsible for obtaining a signed curation agreement from a certified repository in southern California prior to the start of the program. Given the length of the program, multiple agreements may be necessary due to changing capacities of repositories.	

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Impacts	Mitigation Measures	Significance after Mitigation
	Mitigation Measure GEO-7: Reporting Requirements. The Qualified Professional Paleontologist shall prepare weekly status reports detailing activities and locations observed (with maps) and summarizing any discoveries to be submitted to LCWA via email for each week in which monitoring activities occur. Monthly progress reports summarizing monitoring efforts shall be prepared and submitted to LCWA for the duration of monitored ground disturbance. Reports detailing the results of monitoring for any near-term, mid-term, or long-term project and treatment of significant discoveries shall be submitted to LCWA within 120 days of completion of treatment, or within 30 days of completion of monitoring if no significant discoveries occurred. If significant fossils are recovered, the Qualified Professional Paleontologist shall file the final report with the Natural History Museum of Los Angeles County and the certified repository.	
Cumulative	Mitigation Measures GEO-1 through GEO-7 (construction).	Less than Significant (construction and operation)
3.6 Greenhouse Gas Emissions and Energy		
Impact GHG-1: The proposed program would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	No mitigation is required.	Less than Significant
Impact GHG-2: The proposed program would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	No mitigation is required.	Less than Significant
Impact EN-1: The proposed program would not result in a significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during program construction or operation.	No mitigation is required.	Less than Significant
Impact EN-2: The proposed program would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	No mitigation is required.	Less than Significant
3.7 Hazardous and Hazardous Materials		
Impact HAZ-1: The proposed program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal, or reasonable foreseeable upset and accident conditions that release hazardous materials.	No mitigation is required.	Less than Significant
Impact HAZ-2: The proposed program would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	No mitigation is required.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
Impact HAZ-3: The proposed program would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.	**Mitigation Measure HAZ-1: Health and Safety Plan.** The contractor(s) shall prepare and implement site-specific Health and Safety Plans as required by and in accordance with 29 CFR 1910.120 to protect construction workers and the public during all excavation and grading activities. This Plan shall be submitted to LCWA, the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), for review prior to commencement of construction. The Health and Safety Plans shall include, but are not limited to, the following elements: • Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site Health and Safety Plan; • A summary of all potential risks to construction workers and maximum exposure limits for all known and reasonably foreseeable site chemicals; • Specified personal protective equipment and decontamination procedures, if needed; • Emergency procedures, including route to the nearest hospital; and • Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying the LCWA, and the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or the Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), the LARWQCB, or CalGEM, as appropriate, and retaining a qualified environmental firm to perform sampling and remediation. **Mitigation Measure HAZ-2: Soil, Landfill Materials, and Groundwater Management Plan.** In support of the Health and Safety Plan described in Mitigation Measure HAZ-1, the contractor(s) shall develop and implement a Soil, Landfilled Materials, and Groundwater Management Plan that includes a materials disposal plan specifying how the contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The Plan shall identify protocols for soil and landfilled materials testing and disposal, identify the approved disposal site, and include written documentation that the disposal site can accept the waste. Contract specifications shall mandate full compliance with all applicable federal, state, and local regulations related to the identification, transportation, and disposal of hazardous materials, including those encountered in excavated soil, landfilled materials, or dewatering effluent.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
	As part of the Soil, Landfill Materials, and Groundwater Management Plan, the contractor shall develop a groundwater dewatering control and disposal plan specifying how groundwater (dewatering effluent), if encountered, will be handled and disposed of in a safe, appropriate and lawful manner. The Plan shall identify the locations at which groundwater dewatering is likely to be required, the test methods to analyze groundwater for hazardous materials, the appropriate treatment and/or disposal methods, and approved disposal site(s), including written documentation that the disposal site can accept the waste. The contractor may also discharge the effluent under an approved permit to a publicly owned treatment works, in accordance with any requirements the treatment works may have. This Plan shall be submitted to the LCWA, and the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or the Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), or the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area) for review and approval prior to commencement of construction.	
Impact HAZ-4: The proposed program would not result in a safety hazard or excessive noise for people residing or working in the program area plan.	No mitigation is required.	Less than Significant
Impact HAZ-5: The proposed program would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	No mitigation is required.	No Impact
Impact HAZ-6: The proposed program would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	No mitigation is required.	No Impact
Cumulative	No mitigation is required.	Less than Significant

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SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
3.8 Hydrology and Water Quality		
Impact HYD-1: The proposed program would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	**Mitigation Measure HYD-1:** A Monitoring and Adaptive Management Plan (MAMP) shall be prepared and implemented prior to commencement of construction or restoration activities. The MAMP shall provide a framework for monitoring site conditions in response to the program implementation. The monitoring shall focus on sediment quality in areas subject to the greatest deposition from storm events and that are also not subject to regular tidal flushing, (e.g., the southwestern corner of the Long Beach Property site). The sediment quality monitoring shall be performed at a frequency that would capture the potential build-up of contaminants in the deposited sediment before concentration are reached that would impact benthic macro-invertebrates and other sensitive species. The findings of the monitoring efforts shall be used to identify any source of impairment, and if discovered, provide measures for remediation of the sediment source area(s). The MAMP shall be submitted for review and approval to permitting agencies prior to commencement of construction or restoration activities.	Less than Significant
Impact HYD-2: The proposed program would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed program may impede sustainable groundwater management of the basin.	No mitigation is required.	Less than Significant
Impact HYD-3a: The proposed program would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on site or off site.	Mitigation Measure HYD-1.	Less than Significant
Impact HYD-3b: The proposed program would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.	No mitigation is required.	Less than Significant
Impact HYD-3c: The proposed program would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	No mitigation is required.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
Impact HYD-3d: The proposed program would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.	No mitigation is required.	Less than Significant
Impact HYD-4: The proposed program would not risk release of pollutants due to program inundation.	No mitigation is required.	Less than Significant
Impact HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan rise.	No mitigation is required.	Less than Significant
Cumulative	No mitigation is required.	Less than Significant
3.9 Land Use and Planning		
Impact LU-1: The proposed program would not physically divide an established community.	No mitigation is required.	Less than Significant
Impact LU-2: The proposed program would not conflict with most applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed program, adopted for the purpose of avoiding or mitigating an environmental effect.	No mitigation is required.	Less than Significant
Cumulative	No mitigation is required.	Less than Significant
3.10 Mineral Resources		
Impact MIN-1: The proposed program would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	No mitigation is required.	No Impact
Cumulative	No mitigation is required.	No Impact

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Impacts	Mitigation Measures	Significance after Mitigation
3.11 Noise		
Impact NOI-1: The proposed program would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	No mitigation is required. While the proposed program would result in less-than-significant impacts associated with construction noise, to reduce and minimize the construction noise generated on the program area and attenuated at the nearest off-site residences, the following construction noise reduction measures are recommended: **Noise Reduction Measure NOISE-1: Staging Areas and Mufflers.** Staging areas for construction shall be located away from existing off-site residences. All construction equipment shall use properly operating mufflers. These requirements shall be included in construction contracts. **Noise Reduction Measure NOISE-2: Limit Grading.** All grading activities shall be conducted outside of the nesting season for sensitive bird species. The nesting season has been identified as extending from March 1 to August 15. (Refer to Section 3.3 Biological Resources for more information on potential impacts to bird species and the corresponding mitigation). **Noise Reduction Measure NOISE-3: Noise Barriers.** Where feasible, grading plans and specifications shall include temporary noise barriers for all grading, hauling, and other heavy equipment operations that would occur within 300 feet of sensitive off-site receptors and occur for more than 20 working days. The noise barriers shall be 12-feet high, but may be shorter if the top of the barrier is at least one foot above the line of sight between the equipment and the receptors. The barriers shall be solid from the ground to the top of the barrier, and have a weight of at least 2.5 pounds per square foot, which is equivalent to ¾ inch thick plywood. The barrier design shall optimize the following requirements: (1) the barrier shall be located to maximize the interruption of line-of-sight between the equipment and the receptor, which is normally at the top-of-slope when the grading area and receptor are at different elevations. However, a top-of-slope location may not be feasible if the top-of-slope is not on the project site; (2) the length and height of the barrier shall be selected to block the line-of-sight between the grading area and the receptors; (3) the barrier shall be located as close as feasible to the receptor or as close as feasible to the grading area; a barrier is least effective when it is at the midpoint between noise source and receptor.	Less than Significant
Impact NOI-2: The proposed program would not result in generation of excessive groundborne vibration or groundborne noise levels.	No mitigation is required.	Less than Significant
Impact NOI-3: The proposed program would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan.	No mitigation is required.	No Impact
Cumulative	No mitigation is required.	Less than Significant

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Impacts	Mitigation Measures	Significance after Mitigation
3.12 Public Services		
Impact PS-1a: The proposed program would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.	**Mitigation Measure PS-1: Fire Prevention and Protection Training.** Prior to the start of construction activities, the Applicant shall prepare and conduct a fire prevention and protection training for all construction personnel associated with the proposed program. Topics shall include general fire prevention practices such as avoiding smoking on the program area as well as specific preventative measures pertaining to high-fire-risk activities including handling of oil and welding and cutting. Personal protection measures including the locations of fire extinguishers on the program area and site exit routes should also be disclosed to ensure construction worker safety in the event of a fire. The material for the training shall be obtained in consultation with the Orange County Fire Authority and the Long Beach Fire Department.	Less than Significant
Impact PS-1b: The proposed program would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.	No mitigation is required.	Less than Significant
Impact PS-1c: The proposed program would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks.	Refer to Impact REC-1 and Impact REC-2 provided in Section 3.13, *Recreation*.	N/A
Cumulative	No mitigation is required.	Less than Significant
3.13 Recreation		
Impact REC-1: The proposed program would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	No mitigation is required.	Less than Significant
Impact REC-2: The proposed program would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	No mitigation is required.	Less than Significant
Cumulative	No mitigation is required.	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
3.14 Transportation		
Impact TRA-1: The proposed program would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	**Mitigation Measure TRA-1:** Prior to the start of construction of the program component(s) that require a full or partial roadway closure, LCWA shall require the construction contractor(s) to prepare a traffic control plan. The traffic control plan will show all signage, striping, delineated detours, flagging operations and any other devices that will be used during construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation to the satisfaction of the cities of Seal Beach and Long Beach and Orange and Los Angeles Counties, as applicable. The traffic control plan shall be prepared in accordance with the applicable jurisdiction's traffic control guidelines and will be prepared to ensure that access will be maintained to individual properties, and that emergency access will not be restricted. Additionally, the traffic control plan will ensure that congestion and traffic delays are not substantially increased as a result of the construction activities. Furthermore, the traffic control plan will include detours or alternative routes for bicyclists using on-street bicycle lanes as well as for pedestrians using adjacent sidewalks. LCWA shall provide written notice at least two weeks prior to the start of construction to owners/occupants along streets to be affected during construction. During construction, LCWA will maintain continuous vehicular and pedestrian access to any affected residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, LCWA shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure. The traffic control plan shall include provisions to ensure that the construction of the proposed program does not interfere unnecessarily with the work of other agencies such as mail delivery, school buses, and municipal waste services. LCWA shall also notify local emergency responders of any planned partial or full lane closures or blocked access to roadways or driveways required for program construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the program area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.	Less than Significant
Impact TRA-2: The proposed program would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	No mitigation is required.	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
Impact TRA-3: The proposed program would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Mitigation Measure TRA-1.	Less than Significant
Cumulative	Mitigation Measure TRA-1.	Less than Significant
3.15 Tribal Cultural Resources		
Impact TRI-1: The proposed program would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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 Public Resources Code section 5020.1(k).	No mitigation is required.	Less than Significant
Impact TRI-2: The proposed program would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Mitigation Measures BIO-1 through BIO-11 as provided in Section 3.3, *Biological Resources*, and Mitigation Measures CUL-1, and CUL-4 through CUL-16, as provided in Section 3.4, *Cultural Resources*.	Significant and Unavoidable
Cumulative	Mitigation Measures BIO-1 through BIO-9, as provided in Section 3.3, *Biological Resources*, and Mitigation Measures CUL-1, and CUL-4 through CUL-16, as provided in Section 3.4, *Cultural Resources* (construction). Mitigation Measures BIO-1, BIO-6, and BIO-8 through BIO-11, as provided in Section 3.3, *Biological Resources* (operation).	Less than Significant

TABLE ES-8
SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
3.16 Utilities and Service Systems		
Impact UTL-1: The proposed program would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Mitigation Measure TRA-1, as provided in Section 3.14, *Transportation*. **Mitigation Measure UTL-1: Water Will Serve Letter.** Prior to issuance of a certificate of occupancy of the visitor center, a will serve letter will be obtained to verify that the water mains surrounding the program boundary have the capacity to serve the visitor center. **Mitigation Measure UTL-2: Sewer Capacity Study.** Prior to issuance of a certificate of occupancy of the visitor center, a sewer capacity study will be performed to verify that the sewer lines surrounding the program boundary have the capacity to serve the visitor center.	Less than Significant
Impact UTL-2: The proposed program would not have sufficient water supplies available to serve the proposed program and reasonably foreseeable future development during normal, dry and multiple dry years.	Mitigation Measure UTL-1.	Less than Significant
Impact UTL-3: The proposed program would not result in a determination by the wastewater treatment provider which serves or may serve the proposed program that it has adequate capacity to serve the proposed program's projected demand in addition to the provider's existing commitments.	Mitigation Measure UTL-2.	Less than Significant
Impact UTL-4: The proposed program would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	No mitigation is required.	Less than Significant
Impact UTL-5: The proposed program would not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	No mitigation is required.	Less than Significant
Cumulative	No mitigation is required.	Less than Significant

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CHAPTER 1
Introduction

1.1 Introduction

To comply with the California Environmental Quality Act (CEQA), the Los Cerritos Wetlands Authority (LCWA) has developed a Los Cerritos Wetlands Restoration Plan Program Environmental Impact Report (PEIR). The Los Cerritos Wetlands Restoration Plan would restore wetland and upland habitats. LCWA, as the Lead Agency, has prepared this Draft PEIR to provide the public and trustee agencies with information about the potential effects on the local environment associated with implementation of the proposed activities under the Los Cerritos Wetlands Restoration Plan (proposed program). This Draft PEIR has been prepared in compliance with CEQA (as amended), codified at California Public Resources Code Sections 21000 et seq. and the *CEQA Guidelines* in the California Code of Regulations Title 14, Division 6, Chapter 3.

1.2 Purpose of the Environmental Impact Report

This PEIR has been prepared to address the potential environmental impacts associated with implementing the proposed program. Since the Los Cerritos Wetlands Restoration Plan consists of numerous conceptual restoration designs that involve implementation of projects over a long time period, a PEIR has been prepared. *CEQA Guidelines* Section 15168 states that a PEIR may be used to evaluate a plan or program that has multiple components (projects and actions) or addresses a series of actions that are related:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental affects that can be mitigated in similar ways.

A PEIR can provide the following additional advantages:

- Provide for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensure consideration of cumulative impacts that might not be evident in a case-by-case analysis;
- Avoid duplicative consideration of basic policy issues;

- Allow the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the process when the agency has greater flexibility to deal with basic problems or cumulative impacts; and
- Allow a reduction in paperwork.

A PEIR may be prepared for a plan before the details of each and every project within the long-term plan have been developed. For the proposed program, restoration designs are in the concept development or planning phase. The PEIR analysis is not intended to focus on the site-specific construction and operation details of individual restoration activities. Rather, this PEIR serves as a first-tier environmental document that focuses on the overall effects of implementing the proposed program as a plan with some project-level detail, to provide for wetland and upland habitat restoration.

1.3 CEQA Environmental Review Process

1.3.1 CEQA Process Overview

The basic purposes of CEQA are to (1) inform the public and governmental decision makers regarding potential significant environmental effects of proposed activities, (2) identify ways in which potential environmental damage can be avoided or significantly reduced, (3) prevent significant, avoidable environmental damage by requiring changes in projects through the use of alternatives or mitigation measures, and (4) disclose to the public the reasons why a governmental agency approved the project if significant environmental effects are involved.

An environmental impact report (EIR) should use a multidisciplinary approach applying social and natural sciences to provide a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in *CEQA Guidelines* Section 15151:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.*

This PEIR was prepared to comply with CEQA regulations and is to be used by local regulators and the public in their review of the potential environmental impacts of the proposed program, alternatives, and mitigation measures that would minimize or avoid the potential environmental effects. LCWA will consider the information presented in this PEIR, along with other factors, prior to approving the Los Cerritos Wetlands Restoration Plan and related projects for implementation.

1.3.2 Notice of Preparation

To determine the appropriate scope of analysis for this PEIR, the LCWA prepared and circulated an NOP and Initial Study (NOP/IS) from March 8, 2019, through April 8, 2019, as required by *CEQA Guidelines* Sections 15082 and 15063. The NOP/IS was circulated to solicit input from interested public agencies (e.g., responsible and trustee agencies) and interested individuals on the scope and content of this PEIR. **Table 1-1**, *Scoping Meeting Commenters*, below, provides a

list of the commenters that sent comments on the NOP/IS. A copy of the letters and comments received during the NOP/IS comment period are provided in Appendix A to this PEIR.

TABLE 1-1
SCOPING MEETING COMMENTERS

No.	Entity	Name	Date
1	State	Caltrans District 7 letter by Miya Edmonson, IGR/CEQA Branch Chief, contact is Reece Allen, Project coordinator	28-Mar-19
2	State	California Coastal Commission via letter from Kate Hucklebridge, Senior Environmental Scientist	8-Apr-19
3	State	Department of Fish and Wildlife letter by Erinn Wilson, Environmental Program Manager I	17-Apr-19
4	Local	South Coast Air Quality Management District via letter from Lijin Sun, Draft Supervisor, CEQA IGR	2-Apr-19
5	Local	Los Angeles County Sanitation District via letter by Adriana Raza	3-Apr-19
6	Local	OC Public Works via letter from Richard Vuong, Manager, Planning Division	8-Apr-19
7	Local	Los Angeles County Public Works and Los Angeles County Flood Control District via email from Toan Duong, Civil Engineer	9-Apr-19
8	Organization	Native American Heritage Commission via letter from Steve Quinn, Associate Governmental Program Analyst	2-Apr-19
9	Organization	Sierra Club, Angeles Chapter, Long Beach Area Group via email from Ana Christensen, Conservation Committee Representative	8-Apr-19
10	Organization	El Dorado Audubon via electronic comment card submitted by Mary Parsell and Cindy Crawford	8-Apr-19
11	Organization	Chief of Gabrielino/Tongva, Anthony Morales via email by Rebecca Robles	8-Apr-19
12	Organization	Los Cerritos Wetlands Land Trust via letter by Michelle Black of Chatten-Brown, Carstens & Minteer LLP	8-Apr-19
13	Organization	Los Angeles Chapter of the Climate Reality Project via email from Co-Chair, Michael Zelniker	8-Apr-19
14	Organization	Los Angeles Chapter of the Climate Reality Project via email from Climate Reality Leader, Molly Basler	8-Apr-19
15	Individual	boerum245@gmail.com via email	13-Mar-19
16	Individual	Douglas Frackenfeld via comment card at Scoping Meeting	21-Mar-19
17	Individual	Amy LeSage via comment card	21-Mar-19
18	Individual	Kim Garvey via comment card	21-Mar-19
19	Individual	Janice Dahl via letter	7-Apr-19
20	Individual	Virginia Bickford via emailed letter	8-Apr-19
21	Individual	Protect the Los Cerritos/Long Beach Wetlands via email from Ann Cantrell	8-Apr-19

1.3.3 Scoping Meeting

Pursuant to the *CEQA Guidelines* Section 15083, the LCWA held a scoping meeting during the 30-day scoping period to solicit comments and inform the public of this PEIR. The scoping meeting was held on March 21, 2019, from 7 p.m. to 8:30 p.m. at the Recreation Park Community Center, 4900 E 7th Street, Long Beach, CA. The purpose of the meeting was to present the proposed program and receive public input regarding the proposed scope of the PEIR analysis. Attendees were provided an opportunity to voice comments or concerns regarding

potential effects of the proposed program. Table 1-1 includes the commenters that provided comments in the scoping meeting.

This PEIR addresses the environmental issues determined to be potentially significant as identified and disclosed in the Initial Study and based on input from agencies, organizations and interested individuals provided during the scoping meeting and comment letters on the NOP/IS.

1.3.4 Draft PEIR

As described above, a PEIR can be prepared on a series of related actions characterized as one large project or program (*CEQA Guidelines* Section 15168(a)). Prior to implementation, each action in the program must be evaluated to determine if additional environmental documentation is required (*CEQA Guidelines* Section 15168(c)). If the environmental effects resulting from an action are fully covered by the analysis in this PEIR and no new mitigation measures are required, then the action is within the scope of this PEIR, and no additional environmental documentation is necessary (*CEQA Guidelines* Section 15168(c)(2)). If an action would result in significant or more severe significant environmental effects or new mitigation measures not included in the PEIR then additional environmental documentation, such as a Mitigated Negative Declaration or EIR, would be required (*CEQA Guidelines* Section 15168(c)(1)). The mitigation measures developed in a PEIR may be incorporated into subsequent environmental documents (*CEQA Guidelines* Section 15168(c)(3)).

This Draft PEIR describes the proposed program and the existing environmental setting, identifies short-term, long-term, and cumulative environmental impacts, identifies mitigation measures for impacts found to be significant, and provides an analysis of program alternatives. Significance criteria have been developed for each environmental resource analyzed in this Draft PEIR.

1.3.5 Known Areas of Controversy and Issues of Concern

Pursuant to *CEQA Guidelines* Section 15123(b)(2), a lead agency is required to include areas of controversies raised by agencies and the public during the public scoping process in the EIR. Commenting parties have identified issues of concern. These issues include aesthetics, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, land use, traffic, and tribal cultural resources impacts.

1.3.6 Public Review

In accordance with *CEQA Guidelines* Section 15105, the Draft PEIR is available for public review and comment for a 45-day review period. The Draft PEIR has been circulated to federal, state, and local agencies and interested parties who may wish to review and provide comments on its contents. Send all comments to:

Los Cerritos Wetlands Authority
Attn: Sally Gee
100 N. Old San Gabriel Canyon Rd.
Azusa, California 91702
(626) 815-1019 x 104
sgee@rmc.ca.gov

The Draft PEIR is available for public review and download on the LCWA website at http://intoloscerritoswetlands.org/the-lcws-eir/.

The Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083), which has been incorporated by reference, is available online at http://www.longbeach.gov/lbds/planning/environmental/reports/.

1.3.7 Final PEIR Publication and Certification

Written and oral comments received on the Draft PEIR will be addressed in a Response to Comments document, which, together with changes and corrections to the Draft PEIR, will constitute the Final PEIR. Following review of the Final PEIR, the LCWA will decide whether to certify the Final PEIR. If the PEIR identifies environmental impacts that are considered significant and unavoidable, LCWA must state, in writing, the reasons for approving the proposed program despite its significant environmental effects in a Statement of Overriding Considerations, as required by *CEQA Guidelines* Section 15093. A Statement of Overriding Considerations shall be adopted by a lead agency if the agency finds that the benefits of a project outweigh significant, unavoidable adverse impacts and decides to approve a project even though these impacts cannot be mitigated to less than significant levels. The Statement of Overriding Considerations will be included in the record of the program approval and cited in the Notice of Determination (*CEQA Guidelines* Section 15093(c)).

1.3.8 Mitigation Monitoring and Reporting Program

Public Resources Code Section 21081.6(a) requires lead agencies to "adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." Throughout the PEIR, mitigation measures are clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by the LCWA will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The MMRP will be included within the Final PEIR.

1.4 Approach to this PEIR

This PEIR evaluates impacts that could result from implementation of the proposed program as compared to existing conditions. CEQA requires that before a decision can be made to approve a project with potentially significant environmental impacts, an EIR must be prepared that fully describes the environmental impacts of the project and identifies feasible mitigation for significant impacts. The PEIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. The information contained in the PEIR is reviewed and considered by the governing agency prior to the ultimate decision to approve, disapprove, or modify the proposed program.

CEQA requires that a lead agency shall neither approve nor implement a project as proposed unless the significant environmental impacts of that project have been reduced to less than significant levels, which essentially involves "eliminating, avoiding, or substantially lessening" the expected impacts. If the lead agency approves the project despite residual significant adverse impacts that cannot be mitigated to less than significant, the agency must state the reasons for its action in writing.

As described under Section 1.3.7, *Final PEIR Publication and Certification*, above, a Statement of Overriding Considerations shall be adopted by a lead agency if the agency finds that the benefits of a project outweigh significant, unavoidable adverse impacts and decides to approve a project even though these impacts cannot be mitigated to less than significant levels.

1.5 PEIR Organization

This Draft PEIR is organized into the following chapters:

- **Executive Summary.** This chapter summarizes the contents of the Draft PEIR.
- **Chapter 1, Introduction.** This chapter discusses the CEQA process and the purpose of the PEIR.
- **Chapter 2, Project Description.** This chapter provides an overview of the proposed program, describes the need for and objectives of the proposed program, and provides detail on the characteristics of the proposed program.
- **Chapter 3, Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed program for each of the following environmental resource areas; Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology, Soils, and Paleontological Resources; Greenhouse Gas Emissions and Energy; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise; Public Services; Recreation; Transportation; Tribal Cultural Resources; and Utilities and Service Systems. Measures to mitigate the impacts of the proposed program are presented for each resource area.
- **Chapter 4, Other CEQA Considerations.** This chapter describes the effects that were found not to be significant and those that were found to be significant and unavoidable. In addition, this section discusses the significant irreversible environmental changes and growth-inducing impacts associated with the proposed program.
- **Chapter 5, Alternatives.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed program that were considered.
- **Chapter 6, Report Preparation.** This chapter identifies the key staff at LCWA and the authors involved in preparing this Draft PEIR.
- **Appendices.** This PEIR includes appendices that provide either background information or additional technical support for the analysis. The following technical reports have been prepared and incorporated into the PEIR:
  - Appendix A – NOP/IS, Scoping Meeting Materials, and NOP and Scoping Meeting Comments
  - Appendix B – Air Quality Technical Report

- Appendix C – Biological Resources
- Appendix D – Cultural Resources Assessment Report
- Appendix E – Paleontological Resources Assessment
- Appendix F – Greenhouse Gas Emissions Technical Report
- Appendix G – Energy Calculations
- Appendix H – Hydrodynamic Modeling Technical Report
- Appendix I – Sediment Dynamics and Sediment Budget Analysis
- Appendix J – Sediment and Water Quality Investigation Technical Report
- Appendix K – Noise Analysis Report
- Appendix L – Summary of Environmental Effects and Mitigation Measures for the Los Cerritos Wetlands Oil Consolidation and Restoration Project

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CHAPTER 2
Project Description

2.1 Introduction

The Los Cerritos Wetlands Authority (LCWA), as the Lead Agency pursuant to CEQA, is proposing to implement a restoration program for the Los Cerritos Wetlands Complex. The Los Cerritos Wetlands Restoration Plan (proposed program) (described in Section 2.7, *Program Characteristics*) identifies conceptual restoration designs for approximately 503 acres of land and water located on the border of Orange County and Los Angeles and County in the cities of Seal Beach and Long Beach. The program area contains large expanses of open space, including wetland habitat, as well as other uses described in more detail below. This Program Environmental Impact Report (PEIR) serves as a first-tier environmental document that focuses on the overall effects of implementing the activities that make up the program. As a first-tier environmental document, this PEIR will serve as the foundation for subsequent CEQA analysis (e.g., project-level EIRs, addendums) which may be conducted for project-specific restoration designs (see Section 1.2, *Purpose of the Environmental Impact Report*, in Chapter 1, *Introduction*). To provide LCWA with the broadest of foundations as a first-tier environmental document, where appropriate, assumptions have been made in describing the program features that would potentially result in the worst-case impacts[1]. This ensures that the analysis in the PEIR documents the potential for environmental impacts from all of the projects under this program. Once LCWA begins the process of designing specific restoration projects, they will seek to minimize impactful aspects of the project, wherever feasible.

2.1.1 Los Cerritos Wetlands Authority

The LCWA, founded in 2006, is a joint powers authority consisting of the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC), State Coastal Conservancy (SCC), and cities of Seal Beach and Long Beach. The mission of the LCWA is to provide a comprehensive program of acquisition, protection, conservation, restoration, maintenance and operation, and environmental enhancement of the Los Cerritos Wetlands Complex, consistent with the goals of flood protection, habitat protection and restoration, and improved water supply, water quality, groundwater recharge, and water conservation. The LCWA currently owns 165 acres within the Program Area.

[1] For example, detailed data on soil contamination is not available for all of the sites within the program boundary, so this PEIR assumes a worst-case scenario that a large area of soil would need to be remediated. However, during future phases of the restoration design process, more data on soil contamination will be collected which in turn will be used to refine the restoration design so that a smaller area of soil requires remediation, thereby reducing impacts associated with larger-scale remediation.

2.1.2 Los Cerritos Wetlands Restoration Plan Planning Process

The first major step in the design process for the restoration of the Los Cerritos Wetlands Complex was the development of the Los Cerritos Wetlands Final Conceptual Restoration Plan (CRP; Moffatt & Nichol). The CRP is a restoration alternatives analyses report that provides the LCWA with a roadmap for habitat enhancement and improved public access for the Los Cerritos Wetlands Complex. Adopted by the LCWA Board of Directors in August 2015, the CRP identifies goals and objectives (see Section 2.5, *Los Cerritos Wetlands Restoration Plan Goals and Objectives*) and three restoration design alternatives (minimum alteration, moderate alteration, and maximum alteration) with varying degrees of alterations to existing site conditions under a range of sea-level rise scenarios. The report was prepared with input by the LCWA Steering Committee (made up of staff representing agencies of the LCWA joint powers authority), a Technical Advisory Committee (comprised of representatives of 20 resource and permitting agencies, and research groups covering federal, state, regional, and local jurisdictions), and the public (based on input during 6 community workshops). The plan is supported by 8 technical reports that provide baseline information for numerous topics including hydrology and hydraulics, soils, watersheds, and habitat. The CRP identified the next step in the restoration design process:

> *Further concept development of a hybrid alternative may occur at some point in the future to maximize benefits and minimize impacts of restoration. This work may include "mixing" and "matching" certain footprints of particular alternatives with those of different alternatives to create more alternatives that may provide more overall benefit than any of these individual concepts (pg 7).*

In 2017, LCWA received funding to further the design of the alternatives identified in the CRP with the development of a program-level restoration design, to prepare a PEIR, and to prepare a Los Cerritos Wetlands Optimized Restoration Plan (expected to be completed in 2020). The purpose of the Los Cerritos Wetlands Optimized Restoration Plan is to provide a conceptual basis of design for the restoration of the Los Cerritos Wetlands Complex, and to provide guidance for future phases of the restoration process. Future phases of the restoration would involve identifying individual projects, and developing more detailed, project-level designs (i.e., engineering designs, grading plans) and analysis (i.e., wetland delineation reports).

After the PEIR, the Los Cerritos Wetlands Optimized Restoration Plan will be developed. The restoration design presented in the Los Cerritos Wetlands Optimized Restoration Plan will be informed by this PEIR and public input.

2.2 Program Area

2.2.1 Regional Location

The proposed program is located within the cities of Seal Beach and Long Beach. The City of Seal Beach is within the northwestern portion of Orange County, California. The City of Long Beach is within the southeastern portion of Los Angeles County, California.

The City of Seal Beach is bounded by the City of Long Beach to the west; the City of Los Alamitos and the neighborhood of Rossmoor to the north; and the cities of Huntington Beach, Westminster and Garden Grove to the east. The Pacific Ocean borders the City of Seal Beach to the south. The U.S. Navy Naval Weapons Station Seal Beach is located within Seal Beach city boundaries to the southeast of the program area.

The City of Long Beach is bounded by the cities of Carson and Los Angeles, the neighborhood of Wilmington, and the Port of Los Angeles to the west; the cities of Compton, Paramount, and Lakewood to the north; and the cities of Hawaiian Gardens, Cypress, Los Alamitos, and Seal Beach to the east. The Pacific Ocean borders the City of Long Beach to the south.

Figure 2-1, *Regional Location*, shows the regional location of the proposed program.

Regional access to the program area is provided by Interstate 405 (I-405) and Interstate 605 (I-605) as well as State Route 22 (SR-22) which terminates as 7th Street. Pacific Coast Highway (SR-1) traverses the area from the northwest corner to the southeast corner. Locally, 2nd Street, Loynes Drive, and 7th Street all provide east/west connections across the area (City of Long Beach 2016).

2.2.2 Project Vicinity

The program area is located in West Seal Beach and East Long Beach, straddling the border of Orange County and Los Angeles County in southern California (see **Figure 2-2**, *Program Area and Local Vicinity*). Three major channels are present in the program area: Los Cerritos Channel, San Gabriel River, and the Haynes Cooling Channel. A remnant historic tidal channel, called Steamshovel Slough, is also present, and drains to the Los Cerritos Channel.

Figure 2-2 illustrates the program area relative to its immediate surroundings.

2.2.3 Project Areas

For purposes of organizing the environmental analysis and discussion, the proposed program has been separated into 4 areas (South, Isthmus, Central, and North) and 17 individual sites (Figure 2-2). The program boundary totals approximately 503 acres of land and water. Property within the program boundary is held by 10 landowners. Each area's location and ownership is provided in more detail below:

- **South Area:** The South Area is bounded by the Isthmus and Island Village to the north, industrial and residential development to the east, residential development to the south, and the Pacific Coast Highway to the west. It includes the **Haynes Cooling Channel** owned by the City of Los Angeles Department of Water and Power, along with two small upland parcels owned by the City of Long Beach and the State of California, the **State Lands Parcel** site owned by the State of California, the **South LCWA** site owned by the LCWA, the **Hellman Retained** site owned by Hellman Properties, LLC, and the **Los Alamitos Pump Station** and **Los Alamitos Retarding Basin** sites, both owned by the County of Orange Flood Control District. The South area is within the City of Seal Beach with the exception of the Haynes Cooling Channel and Los Alamitos Retarding Basin site which are within both the cities of Seal Beach and Long Beach, and Los Alamitos Pump Station site which is within the City of Long Beach. (Assessor's Parcel Numbers: 7237-020-902, 7237-020-900, 7237-

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SOURCE: ESRI

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-1
Regional Location

ESA

SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-2
Project Site and Local Vicinity

ESA

020-275, 7237-020-276, 7237-020-280, 7237-020-281, 7237-020-282, 7237-020-282, 0431-603-6, 0431-605-3, 0431-604-5, 0950-106-3, 0950-106-4, 0950-106-7, 0950-106-8, 0950-103-6, 7237-020-277, 7237-020-278, and 7237-020-279).

- **Isthmus Area:** The Isthmus Area is bounded by the San Gabriel River and 2nd Street to the north, Haynes Cooling Channel to the east and south, and Pacific Coast Highway to the west. It includes the **Callaway Marsh** site owned by the City of Los Angeles Department of Water and Power, the **Isthmus LCWA** site owned by the LCWA (surface rights only), **Zedler Marsh** site owned by the LCWA, the **Isthmus Bryant** site owned by Bryant Dakin, LLC, and the **DWP** site owned by the City of Los Angeles Department of Water and Power. The Isthmus area is within the City of Long Beach. Portions of 2nd Street adjacent to the individual sites are also part of the Isthmus Area (Assessor's Parcel Numbers: 7237-020-275, 7237-020-276, 7237-020-901, 7237-020-054)
- **Central Area:** The Central Area is bounded by 2nd Street to the north, the Isthmus to the east and south, and commercial-retail uses at the Marketplace Long Beach development to the west. It includes the **Central LCWA** site owned by the LCWA (surface rights only), the **Central Bryant** site owned by Bryant Dakin, LLC, the **Long Beach City Property** site owned by the City of Long Beach, the **Pumpkin Patch** site owned by Lyon Housing, and the **San Gabriel River**. The portion of the San Gabriel River that is located within the program boundary is owned by the LCWA. Portions of 2nd Street and Shopkeeper Road adjacent to the individual sites are also part of the Central area. The Central area is within the City of Long Beach. (Assessor's Parcel Numbers: 7237-020-901, 7237-020-903, 7237-020-053, 7237-020-044, 7237-020-045, and 7237-020-043)
- **North Area:** The North Area is bounded by the Los Cerritos Channel to the north, Studebaker Road to the east, 2nd Street to the south, and Pacific Coast Highway to the west. It includes the **Northern Synergy Oil Field** site and **Southern Synergy Oil Field** site owned by Los Cerritos Wetlands, LLC, and **Alamitos Bay Partners** site owned by Alamitos Bay Partnership, LLC. The North area is within the City of Long Beach. (Assessor's Parcel Numbers: 7237-022-012, 7237-017-010, 7237-017-011, 7237-017-012, 7237-017-013, 7237-017-014, 7237-017-018, and 7237-017-019)

2.3 Existing Land Management and Site Conditions

2.3.1 Property Ownership and Oil Leases

There are four oil leases operated within the program area (see **Figure 2-3**, *Oil Operators*). These oil leases are owned and/or managed by Hellman Properties, LLC, Signal Hill Petroleum, Inc., Synergy Oil and Gas, LLC, and Termo Company (Moffatt & Nichol, 2015).

The LCWA has an agreement with Signal Hill Petroleum, Inc. on the Central LCWA and Isthmus LCWA sites that allows the oil operator to remove vegetation from around their mineral extraction equipment consistent with the requirements of the City of Long Beach Fire Department and the California Geologic Energy Management Division (CalGEM) [formerly known as the Division of Oil, Gas, and Geothermal Resources (DOGGR)]. The oil operator compensates for this impact by providing the LCWA with an annual fee to be used for wetlands habitat restoration.

The City of Long Beach has an agreement with LCW Oil Operations, LLC on the Long Beach City Property site that includes clauses for relocating oil infrastructure and abandoning wells (Moffatt & Nichol, 2015).

SOURCE: Moffatt Nichol, 2015

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-3
Oil Operators

ESA

2.3.2 Site Conditions by Program Area

The program area is composed of four individual areas, as described above in Section 2.2.3, *Project Areas*, and totals approximately 503 acres of land and water. Information in this section is presented for individual sites within each of the four program areas, and generally addresses existing land uses, current oil operators and land managers, habitat types, known presence of special-status plant and animal species, vehicular access to individual sites and existing public access opportunities. Determination of habitat types and presence of special-status plants and animal species is based on *Los Cerritos Wetlands Habitat Assessment Report: Habitat Types and Special Status Species* prepared by Tidal Influence in 2012 and field observation by EIR project team biologists during site visits conducted in 2018. This section is also informed by field observation during site visits conducted by EIR project team engineers and designers and architectural historian and cultural resource specialists during 2018 and 2019.

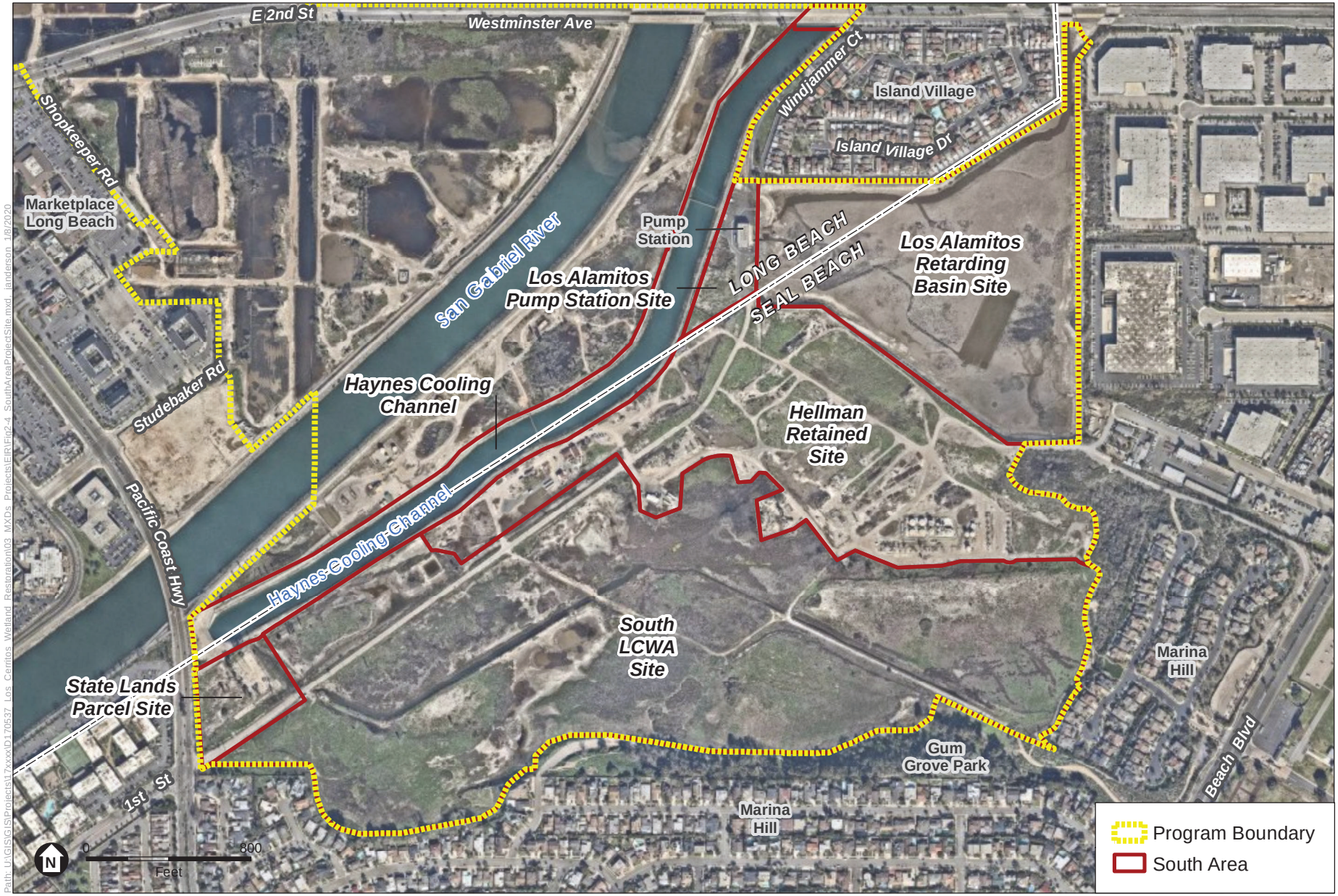
2.3.2.1 South Area

The South Area includes the following individual sites: Haynes Cooling Channel, State Lands Parcel, South LCWA, Hellman Retained, Los Alamitos Pump Station, and Los Alamitos Retarding Basin (**Figure 2-4**, *South Area*).

The Haynes Cooling Channel is a waterway used by the Haynes Generating Station located north of the program area to bring in water from the Pacific Ocean via 7 culverts in the Alamitos Bay Marina to cool the power plant through a method called once-through cooling. Once the water is used, it is discharged into the San Gabriel River slightly upstream of where the River crosses under 2nd Street. The Haynes Generating Station, owned and operated by the City of Los Angeles Department of Water and Power (LADWP), is a natural gas and steam power plant that was built in the mid-1960s. The Haynes Generating Station is undergoing a modernization project that would eliminate the use of ocean water to cool the power plant by 2029. Once the modernization project is completed, the Haynes Cooling Channel will be decommissioned and no longer be in use for the Haynes Generating Station.

The State Lands Parcel site contains the remnant building foundation of what was once a music venue called the Airport Club and Marina Palace. Major habitat types include ruderal uplands and southern coastal salt marsh with muted tidal connection in the channel that runs along the south of the parcel. Portions of the site that do not contain the remnant building foundation support special-status plant and animal species (**Table 2-1**, *Special-Status Species Known to Occur in the South Area*). Access to the site is available via an existing gated driveway on 1st Street.

The South LCWA site contains multiple former sumps, landfills, and contaminated areas from prior oil operations, and is currently owned and maintained by the LCWA. Some areas of tidal southern coastal salt marsh still persist on the site but other areas were converted by previous land owners. Conversion from coastal salt marsh habitat to primarily ruderal uplands with no tidal connections occurred due to extensive filling of the property from dredged material associated with the excavation of the Haynes Cooling Channel in the 1960s. Former access roads still bisect the site and cause ecological and hydrological fragmentation. Remnant geomorphic features indicate historic southern coastal bluffs.



SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-4
South Area

ESA

TABLE 2-1
SPECIAL STATUS SPECIES KNOWN TO OCCUR IN THE SOUTH AREA

Special-Status Species	Scientific Name	Haynes Cooling Channel	State Lands Parcel	South LCWA	Hellman Retained	Los Alamitos Retarding Basin	Los Alamitos Pump Station
Flora							
California Boxthorn	*Lycium californicum*			P			
Coulter's Goldfields	*Lasthenia glabrata* ssp. *coulteri*			P	P		P
Estuary Sea-Blite	*Suaeda esteroa*						
Lewis' Evening Primrose	*Cammissonia lewisii*			P			
Southern Tarplant	*Centromadia parryi* ssp. *australis*		P	P	P	P	P
Southwestern Spiny Rush	*Juncus acutus* ssp. *leopoldii*						P
Woolly Sea-Blite	*Suaeda taxifolia*					P	P
Fauna							
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingii*	P		P		P	P
Black Skimmer	*Rynchops niger*	P					
Burrowing Owl	*Athene cunicularia*						
California Brown Pelican	*Pelecanus occidentalis californicus*						
California Least Tern	*Sterna antillarum browni*	P		P			
Least Bell's Vireo	*Vireo belii pusillus*						
Loggerhead Shrike	*Lanius ludovicianus*		P	P	P	P	
Mudflat Tiger Beetle	*Cicindela trifasciata sigmoidea*						
Northern Harrier	*Circus cyaneus*		P	P	P	P	P
Pacific Green Sea Turtle	*Chelonia mydas*	P					
Red-Diamond Rattlesnake	*Crotalus ruber*						
Salt Marsh Tiger Beetles	*Cicindella trifasciata sigmoides*						
Salt Marsh Wandering Skipper	*Panoquina errans*			P	P	P	P
Short-Eared Owl	*Asio flammeus*						
Yellow-Breasted Chat	*Icteria virens*		P	P	P	P	
White-Tailed Kite	*Elanus leucurus*						

P = species presence

SOURCES: Tidal Influence, 2012; Field observation in 2018

The Hellman Channel is a small, muted tidal channel that connects to the San Gabriel River through a culvert that goes around the southern end of the Haynes Cooling Channel and above the siphons connecting the cooling channel to the Alamitos Bay Marina. The Hellman Channel runs through the South LCWA site and provides habitat for several special-status animal and plant species (Table 2-1). The site is accessed via a gated private road on 1st Street.

The Hellman Retained site is an active oil field with substantial oil operation infrastructure (pipelines, pumps, tanks, and roadways). There are 43 active oil wells and 11 idle oil wells on site. The Hellman Retained site is owned and operated by Hellman Properties, LLC. Historically, the site was primarily coastal salt marsh habitat; today the parcel is composed mostly of ruderal wetlands with no tidal connection. Past surveys indicate that the Hellman Retained site may host several special status plant species (Table 2-1). Access to the site is available via a gated private road on 1st Street.

The Los Alamitos Retarding Basin site is a 30-acre depressed basin surrounded by an earthen berm and access road that receives stormwater runoff and other drainage from a 3,600-acre area in the City of Seal Beach. The site is owned and operated by the County of Orange Flood Control District. The retarding basin provides habitat for several special-status animal species (Table 2-1). Access to the site is from 1st Street via locked gates on a private road, or off Adolfo Lopez Drive through a similarly gated private road.

The Los Alamitos Pump Station site includes a pump station, which moves the stormwater runoff from the Los Alamitos Retarding Basin, under the San Gabriel River Levee, and into the San Gabriel River. The site is owned and operated by the County of Orange Flood Control District. The site includes a wetland and upland habitat restoration site (not tidally connected) constructed to mitigate for the pump station impacts. The Los Alamitos Pump Station site provides habitat for several special-status animal/plant species (Table 2-1). Access to the site is via 1st Street via locked gates on a private road, or off Adolfo Lopez Drive through a similarly gated private road.

The South Area has some existing public access located just outside the program boundary. A small public parking lot is located off of Seal Beach Boulevard providing access to the Hellman Ranch Trail. The trail runs west and north between the Heron Pointe residential neighborhood and the South Area and includes interpretive signage, benches, and a gathering area. The north end of the trail ends at a locked gate at the boundary of the oil operations. The Hellman Ranch trail also connects west to the Gum Grove Trail in Gum Grove Park and is served by a second, small, public parking area accessed from Avalon Drive along the south program boundary. Gum Grove Trail and Hellman Ranch Trail combine to provide approximately a 1-mile trail just outside the South Area program boundary. A gated and locked access drive from 1st Street provides occasional guided access to restricted areas within the site.

2.3.2.2 Isthmus Area

The Isthmus Area includes the following individual sites: Callaway Marsh, DWP, Zedler Marsh, Isthmus LCWA, and Isthmus Bryant (**Figure 2-5**, *Isthmus Area*).

SOURCE: Mapbox, LCWA

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Figure 2-5
Isthmus Area

ESA

The Callaway Marsh site is a vacant site with a heavily degraded perched salt marsh, tidally connected to the San Gabriel River by a three-foot-wide culvert, which mutes the water levels reaching the site. The site contains salt marsh plant communities and is surrounded by ruderal upland species that support special-status plant and animal species (**Table 2-2**, *Special-Status Species Known to Occur in the Isthmus Area*). Access to the site is available via an existing driveway on Pacific Coast Highway.

TABLE 2-2
SPECIAL-STATUS SPECIES KNOWN TO OCCUR IN THE ISTHMUS AREA

Special-Status Species	Scientific Name	Callaway Marsh	Zedler Marsh	Isthmus LCWA	Isthmus Bryant	DWP
Flora						
California Boxthorn	*Lycium californicum*		P			
Coulter's Goldfields	*Lasthenia glabrata* ssp. *coulteri*		P			
Estuary Sea-Blite	*Suaeda esteroa*		P			
Lewis' Evening Primrose	*Cammissonia lewisii*					
Southern Tarplant	*Centromadia parryi* ssp. *australis*	P	P	P	P	P
Southwestern Spiny Rush	*Juncus acutus* ssp. *leopoldii*		P		P	
Woolly Sea-Blite	*Suaeda taxifolia*		P			
Fauna						
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingii*	P	P		P	
Black Skimmer	*Rynchops niger*					
Burrowing Owl	*Athene cunicularia*	P		P		
California Brown Pelican	*Pelecanus occidentalis californicus*					
California Least Tern	*Sterna antillarum browni*		P			
Least Bell's Vireo	*Vireo belii pusillus*		P			
Loggerhead Shrike	*Lanius ludovicianus*	P	P	P	P	
Northern Harrier	*Circus cyaneus*	P	P	P	P	
Pacific Green Sea Turtle	*Chelonia mydas*					
Red-Diamond Rattlesnake	*Crotalus ruber*					
Salt Marsh Tiger Beetles	*Cicindella trifasciata sigmoides*		P			
Salt Marsh Wandering Skipper	*Panoquina errans*	P	P	P	P	
Short-Eared Owl	*Asio flammeus*					
Yellow-Breasted Chat	*Icteria virens*	P	P	P	P	
White-Tailed Kite	*Elanus leucurus*					

P = species presence
SOURCE: Tidal Influence, 2012; Field observation in 2018

The Zedler Marsh site is a 12-acre restoration site operated and managed by the LCWA and is currently being enhanced and restored as part of the LCWA Stewardship Program (see Section 2.4.3, *Los Cerritos Wetlands Stewardship Program*, for more information). Recent restoration activity involved the removal of over 50,000 pounds of trash and debris and installation of nearly 5,000

native plants by community volunteers. The site contains tidal salt marsh and surrounding habitat. The site receives muted tidal circulation via a three-foot wide culvert connection to the San Gabriel River. Special-status plants and animals are present on the site (Table 2-2). The site can be accessed via existing gated driveways on Pacific Coast Highway and 2nd Street.

The Isthmus LCWA site is an active oil field maintained and operated by Signal Hill Petroleum, Inc. who own the mineral rights. The oil operation infrastructure includes 4 active oil wells, 2 water injection wells, 1 idle oil well a tank farm, associated buildings, and an exclusive use easement area. The site contains a mix of disturbed ruderal habitats. Special-status plants and animals are present on the site (Table 2-2). The site can be accessed via existing private gated driveways on Pacific Coast Highway and 2nd Street.

The Isthmus Bryant site is a vacant site and the surface is not currently in use by oil operators. The site contains salt flat and alkali meadow wetland habitat types but is fragmented both ecologically and hydrologically by the access road that bisects the site. The site is adjacent to Zedler Marsh and two culverts in the access road allow some hydrologic connection between the area adjacent to Zedler Marsh and the area northwest of the road during major high tide events. The site supports special-status plant and animal species (Table 2-2). Access to the Isthmus Bryant site is via an existing gated driveway on 2nd Street.

The DWP site is a vacant site. The site contains upland and wetland habitat types, with no hydrologic connection. The site is adjacent to Isthmus Bryant site. The site supports a special-status plant species (Table 2-2). Access to the DWP site is via an existing gated driveway on 2nd Street.

Restricted public access to the trails and other public amenities at the Zedler Marsh site is available from the San Gabriel River Trail located in the Central Area via a locked gate located on the trail midway between Pacific Coast Highway and 2nd Street. The Zedler Marsh site facilities include an outdoor classroom area, native plant restoration area, benches, picnic tables, informational kiosks, and a native wetland nursery. A fishing area is located at the southwest end of the Haynes Cooling Channel at the west end of the Isthmus Area. It can be accessed from the San Gabriel River Trail, or by vehicle or bicycle from Pacific Coast Highway, and has a small gravel parking area adjacent to the fishing spot. A network of gated maintenance roads connects from the fishing spot at the west end to the Zedler Marsh site and out to 2nd Street at the east end of the Isthmus. There is a bike lane along Pacific Coast Highway, which also serves as a pedestrian path between the San Gabriel River Trail and the fishing area, as well as along 2nd Street. There are no sidewalks along the Pacific Coast Highway or 2nd Street. Dirt footpaths have developed in some areas due to the lack of pedestrian infrastructure.

2.3.2.3 Central Area

The Central Area includes the following individual sites: Pumpkin Patch, Long Beach City Property, Central LCWA, Central Bryant, and the San Gabriel River (**Figure 2-6**, *Central Area*).

The majority of the Pumpkin Patch site is vacant land zoned for commercial use. The site within the program boundary has an active oil field with an oil well and associated pipeline. There is one active oil well on site. The oil infrastructure is maintained and operated by Synergy Oil and Gas, LLC. The site contains ruderal upland habitat type and southern coastal salt marsh. Special-status

SOURCE: Mapbox, LCWA

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Figure 2-6
Central Area

ESA

plants and animals are present on site (**Table 2-3**, *Special-Status Species Known to Occur in the Central Area*). Vehicular access to the site is via Pacific Coast Highway.

TABLE 2-3
SPECIAL-STATUS SPECIES KNOWN TO OCCUR IN THE CENTRAL AREA

Special-Status Species	Scientific Name	Pumpkin Patch	Long Beach City Property	Central LCWA	Central Bryant	San Gabriel River
Flora						
California Boxthorn	*Lycium californicum*					
Coulter's Goldfields	*Lasthenia glabrata* ssp. *coulteri*					
Estuary Sea-Blite	*Suaeda esteroa*					
Lewis' Evening Primrose	*Cammissonia lewisii*					
Southern Tarplant	*Centromadia parryi* ssp. *australis*	P	P	P	P	
Southwestern Spiny Rush	*Juncus acutus* ssp. *leopoldii*					
Woolly Sea-Blite	*Suaeda taxifolia*					
Fauna						
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingii*	P		P		
Black Skimmer	*Rynchops niger*					P
Burrowing Owl	*Athene cunicularia*					
California Brown Pelican	*Pelecanus occidentalis californicus*					
California Least Tern	*Sterna antillarum browni*					P
Least Bell's Vireo	*Vireo belii pusillus*					
Loggerhead Shrike	*Lanius ludovicianus*		P	P	P	
Pacific Green Sea Turtle	*Chelonia mydas*					P
Red-Diamond Rattlesnake	*Crotalus ruber*					
Salt Marsh Tiger Beetles	*Cicindella trifasciata sigmoides*					
Salt Marsh Wandering Skipper	*Panoquina errans*	P	P	P	P	
Northern Harrier	*Circus cyaneus*		P	P	P	
Short-Eared Owl	*Asio flammeus*					
Yellow-Breasted Chat	*Icteria virens*		P	P	P	
White-Tailed Kite	*Elanus leucurus*					

P = species presence
SOURCE: Tidal Influence, 2012; Field observation in 2018

The Long Beach City Property site is an active oil field with oil storage tanks and associated oil production infrastructure, such as pipelines. There are 11 active oil wells and 2 idle oil wells on site. Aboveground pipelines and dirt access roads traverse the site. A majority of the site is disturbed, and vegetation is generally sparse. Existing road and oil well pads severely fragment the site ecologically and hydrologically. The oil field is maintained and operated by Synergy Oil and Gas, LLC. The site contains southern coastal brackish marsh habitat where urban stormwater runoff is

directed via storm drains onto the salty soils of formerly tidal areas. Alkali meadow, southern coastal salt marsh, and ruderal upland habitat types are also present. There is a perched culvert at the southern tip of the property that receives tidal waters during major high tide events, but the majority of the site is non-tidal. Special-status plants and animals are present throughout the site (Table 2-3). Vehicular access to the site is via an existing gated driveway along Shopkeeper Road.

The Central LCWA site is an active oil field with oil operation infrastructure (roadways, wells, power lines, pipelines, and pumps), which severely fragment the site ecologically and hydrologically. The oil wells are accessed via raised dirt roads that vary from 10 to 30 feet in width. There are 7 active oil wells on site. The oil field is maintained and operated by Signal Hill Petroleum, Inc. who own the mineral rights. The site is composed of a mixture of native and non-native wetland habitats, including southern coastal salt marsh, alkali meadow, and salt flat, and non-native upland habitats. The Central LCWA site is disconnected from any tidal action. The site contains several special-status plant and animal species (Table 2-3). Vehicular access to the site is through the Long Beach City Property site. Restricted access is also available along the north levee of the San Gabriel River, which can be accessed from Pacific Coast Highway and 2nd Street.

The Central Bryant site is an undeveloped, vacant site with no active oil operations. Stormwater runoff supports mulefat scrub and other wetland habitats on parts of the site. The site is comprised of southern coastal salt marsh, alkali meadow, salt flat, and ruderal wetland and upland habitats and is disconnected from tidal action. The site contains special-status plant and animal species (Table 2-3). Vehicular access to the Central Bryant site is not currently available.

The San Gabriel River is a waterway that originates in the San Gabriel Mountains and flows generally south for 58 miles, passing through 19 cities before reaching the Pacific Ocean (LADPW, 2019), approximately 0.75 miles southwest of the program area. The San Gabriel River drains a watershed of 640 square miles. There are levees along the north and south banks of the San Gabriel River within the program boundary. LCWA owns the levees as part of their property that extends from the Central Area into the Isthmus Area (APN #7237-020-901). The Los Angeles County Flood Control District (LACFCD) currently operates and maintains these levees consistent with the U.S. Army Corps of Engineers' Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) Manual for the Los Angeles County Drainage Area project (Corps 1999, as amended).

The Class 1 San Gabriel River Trail runs on the levee along the south bank of the San Gabriel River and extends upstream beyond the program area to the Azusa River Wilderness Park located about 38 miles inland. There are access points to the trail at both Pacific Coast Highway and 2nd Street, at either end of the Central Area. The levee along the north bank is closed to public access with gates and fences at each end. On-street public parking is available on Shopkeeper Road.

Restricted public access to the Central LCWA site is available. Existing bike lanes are provided along 2nd Street. Dirt footpaths have developed between the curb and fence along the street frontages due to the lack of pedestrian infrastructure. There are partial crosswalks at the south and west crossing points at the intersection of 2nd Street and Shopkeeper that do not connect to sidewalks on the north or east sides of the intersection.

2.3.2.4 North Area

The North Area includes the following individual sites: Northern Synergy Oil Field, Southern Synergy Oil Field, and Alamitos Bay Partners (**Figure 2-7**, *North Area*).

The Northern Synergy Oil Field site is an undeveloped, vacant site with no active oil operations. It is separated from the oil operation areas to the south by an earthen berm and varying expanses of open space. It contains Steamshovel Slough, an area of tidally influenced salt marsh, tidal channels, and mudflats. Steamshovel Slough is a relatively pristine remnant of the historic tidal marsh of Alamitos Bay Marina. Steamshovel Slough is considered a historic or "ancient" marsh in that it has not been modified through dredging or filling. The site also supports a variety of wetland flora and fauna, including special-status plants, animals, and insects, and federally and state-listed animals (**Table 2-4**, *Special-Status Species Known to Occur in the North Area*). Vehicular access to the Northern Synergy Oil Field site is not currently available.

The Southern Synergy Oil Field site is an active oil field with oil production and wells, tank farms, a network of roads and pipelines, and other oil production-related infrastructure, including the Bixby Ranch Field Office. There are 22 active oil wells and 17 idle oil wells on site. The oil operation is maintained and operated by Synergy Oil and Gas, LLC. The site supports salt marsh habitat and areas with non-native plant species. The site is subject to tidal influence. A series of pipes are used to restrict the tidal influence from interfering with oil operations in the Synergy Oil Field site. The site supports special status species (Table 2-4). Vehicular access to the site is via an existing gated driveway on 2nd Street.

The Alamitos Bay Partners site is an active oil field with oil wells and associated oil production infrastructure, such as pipelines and tanks. There are three active oil wells and one idle oil well on site. Dirt access roads traverse the site. The oil field is maintained and operated by The Termo Company. A majority of the site is disturbed, and vegetation is generally sparse. The site contains southern coastal salt marsh and ruderal wetlands habitats. The site is connected to muted tidal action in the northern-most end of the site via a small culvert. Special-status plant and animal species are present on the site (Table 2-4). Vehicular access to the site is via an existing driveway along Pacific Coast Highway.

The North Area is mostly fenced along the street frontages and closed to public access. There are existing bike lanes on Studebaker Road and the north half of the Pacific Coast Highway frontage. There are no existing sidewalks along the streets. Dirt footpaths have developed between the curb and fence along the street frontages due to the lack of pedestrian infrastructure. The only public access currently available to the Southern Synergy Oil Field Site is views of the site from the street or footpath through a chain-link fence. The Los Cerritos Channel likely provides some public access for boaters and kayakers along the north perimeter. Floating booms across Steamshovel Slough at the confluence with the channel restrict access into the Northern Synergy Oil Field site, but have a kayak crossing that allows guided access to the slough.

SOURCE: Mapbox, LCWA

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Figure 2-7
North Area

ESA

TABLE 2-4
SPECIAL-STATUS SPECIES KNOWN TO OCCUR IN THE NORTH AREA

Special Status Species	Scientific Name	Northern Synergy Oil Field	Southern Synergy Oil Field	Alamitos Bay Partners
Flora				
California Boxthorn	*Lycium californicum*			
Coulter's Goldfields	*Lasthenia glabrata* ssp. *coulteri*			
Estuary Sea-Blite	*Suaeda esteroa*	P		
Lewis' Evening Primrose	*Cammissonia lewisii*			
Southern Tarplant	*Centromadia parryi* ssp. *australis*	P	P	P
Southwestern Spiny Rush	*Juncus acutus* ssp. *leopoldii*			
Woolly Sea-Blite	*Suaeda taxifolia*	P		
Fauna				
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingii*	P	P	P
Black Skimmer	*Rynchops niger*	P		
Burrowing Owl	*Athene cunicularia*			
California Brown Pelican	*Pelecanus occidentalis californicus*	P		P
California Least Tern	*Sterna antillarum browni*	P		
Least Bell's Vireo	*Vireo belii pusillus*			
Loggerhead Shrike	*Lanius ludovicianus*	P	P	P
Mudflat Tiger Beetle	*Cicindela trifasciata sigmoidea*	P		
Northern Harrier	*Circus cyaneus*	P	P	P
Pacific Green Sea Turtle	*Chelonia mydas*	P		
Red-Diamond Rattlesnake	*Crotalus ruber*	P	P	P
Salt Marsh Tiger Beetles	*Cicindella trifasciata sigmoides*	P		
Salt Marsh Wandering Skipper	*Panoquina errans*	P	P	
Short-Eared Owl	*Asio flammeus*	P		
Yellow-Breasted Chat	*Icteria virens*	P	P	P
White-Tailed Kite	*Elanus leucurus*	P	P	P

P = species presence
SOURCES: Tidal Influence, 2012; Field observation in 2018

2.4 Background

2.4.1 History of the Los Cerritos Wetlands Complex

Until the late 1800s, the wetlands within and beyond the program area, collectively known as the Los Cerritos Wetlands Complex, spanned approximately 2,400 acres and consisted of a network of tidal channels, vegetated wetlands, and upland areas. Historically, the Los Cerritos Wetlands Complex was almost entirely tidal wetland, with a few natural streams and intertidal flat channels.

Beginning in the late 1800s, the Los Cerritos Wetlands Complex began to undergo significant alterations due to cattle and beet farming, the demands of a growing population, and oil extraction. Oil was first discovered at the Seal Beach Oil Field in 1926. The development of oil production operations, paired with channelization of the San Gabriel River, resulted in substantial dredge and fill of the Los Cerritos Wetlands Complex. Today, nearly all of the program area has been converted from its historic wetland habitat, though a few remnant and degraded historic habitats remain. The most notable example of remaining historic habitat within the program area is the Steamshovel Slough, a fully tidal marsh connected to the Los Cerritos Channel that maintains high plant diversity and estuarine ecological communities.

2.4.2 Cultural History of the Los Cerritos Wetlands Complex

Archaeological evidence from the Channel Islands indicates that the first people migrated down the California Coast as early as 12,000 years ago (Cassidy et al. 2004; Erlandson et al. 2007), with permanent settlements established between 8,000 and 3,000 years ago (Douglass et al. 2015; Glassow et al. 1988; Grenda and Altschul 2002; Koerper et al. 2002; Macko 1998). From 1,000 years before present to approximately 1542 C.E., Los Angeles County and Northern Orange County were occupied by the Gabrielino people (named after the Spanish Mission where many of them were baptized). Approximately 50 major villages were located along the coast and inland prairies. The Gabrielino used the local wetlands, rivers, and streams to hunt and fish, to gather reeds and willows to build homes, and as a reliable water source (McCawley, 1996). Nearby Native American sites are known to be located at California State University Long Beach, Rancho Los Alamitos Historic Ranch, and Heron Pointe (California Coastal Commission, 2018).

The Los Cerritos Wetlands Complex has been identified by California Native American tribal members as a Tribal Cultural Landscape as part of government-to-government consultation with LCWA regarding the proposed program and as part of consultations related to the Los Cerritos Wetland Oil Consolidation and Restoration Project (see Section 2.4.4, *Los Cerritos Wetlands Oil Consolidation and Restoration Project*, for more detail on this project). Tribal members consulted believe the Tribal Cultural Landscape is eligible for listing in the National Register of Historic Places as a Tribal (or Traditional) Cultural Property (or TCP) – a type of significance that is often related to religious or ceremonial values because of unique landscape features, such as a mountain or bluff top, places with significant or special natural views, rivers and estuaries, or vegetation and wildlife, or areas with burials or religious artifacts/monuments. The wetlands are within walking distance to both *Puvungna* and *Motuucheyngna* village sites and served as an important resource to native peoples and was used both historically and in current times by native peoples. The California Coastal Commission has acknowledged the significance of this area as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse No. 2016041083) (California Coastal Commission, 2018). Section 3.4, *Cultural Resources*, and Section 3.15, *Tribal Cultural Resources*, of this PEIR, provides a more exhaustive description of the cultural/tribal framework

2.4.3 Los Cerritos Wetlands Stewardship Program

The Los Cerritos Wetlands Stewardship Program[2] was created in 2009 by the LCWA to engage the public and allow volunteers to help the LCWA with managing and enhancing habitat that exists on LCWA property. The Los Cerritos Wetlands Stewardship Program Vision Plan prepared by the LCWA in 2018 identifies future restoration projects, including opportunities for improved public access.

2.4.4 Los Cerritos Wetlands Oil Consolidation and Restoration Project

A project-level EIR was prepared for the City of Long Beach to evaluate the environmental effects associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse No. 2016041083). The project applicant, Beach Oil Minerals Partners (BOMP), proposes to consolidate existing oil operations and implement a wetlands habitat restoration project in portions of the North and Central Areas within the program area and on property that falls completely outside the program area. The EIR was certified by the City of Long Beach City Council on January 16, 2018. The Local Coastal Program Amendment associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project was approved by the California Coastal Commission (CCC) on August 8, 2018, with modifications to the amendment approved on October 2, 2018. The Coastal Development Permit was conditionally approved by the CCC on December 13, 2018. This PEIR relies on the technical analysis, impact discussion, and mitigation measures documented in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) for portions of the program area. No new information of substantial importance or change in circumstance with the Los Cerritos Wetlands Oil Consolidation and Restoration Project requires re-evaluation of the analysis in that EIR. Appendix L provides a summary of the environmental effects and mitigation measures for the Los Cerritos Wetlands Oil Consolidation and Restoration Project.

The Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) contains more detail and quantitative analysis than this program-level EIR because this EIR is evaluating the impacts associated with implementing the Los Cerritos Wetlands Restoration Plan, not a specifically designed project as is the case for the Los Cerritos Wetlands Oil Consolidation and Restoration Project. The Los Cerritos Wetlands Oil Consolidation and Restoration Project was designed to be consistent with the goals and objectives of the Los Cerritos Wetlands Final Conceptual Restoration Plan.

2.4.4.1 Project Characteristics Not Evaluated in this PEIR

The environmental effects associated with the following project characteristics of the Los Cerritos Wetlands Oil Consolidation and Restoration Project are evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) and will

[2] http://intoloscerritoswetlands.org/wp-content/uploads/2015/12/LCWA-Stewardship-Program-Vision-Plan.pdf

not be further evaluated in this PEIR (see **Figure 2-8**, *Los Cerritos Wetlands Oil Consolidation and Restoration Project*).

North Area

The Los Cerritos Wetlands Oil Consolidation and Restoration Project would involve removing the existing oil operations and associated facilities and implementing a wetlands habitat restoration project on the Northern and Southern Synergy Oil Field sites.

The first phase of the project would be focused on the 76.52-acre Northern Synergy Oil Field site, and provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions, including:

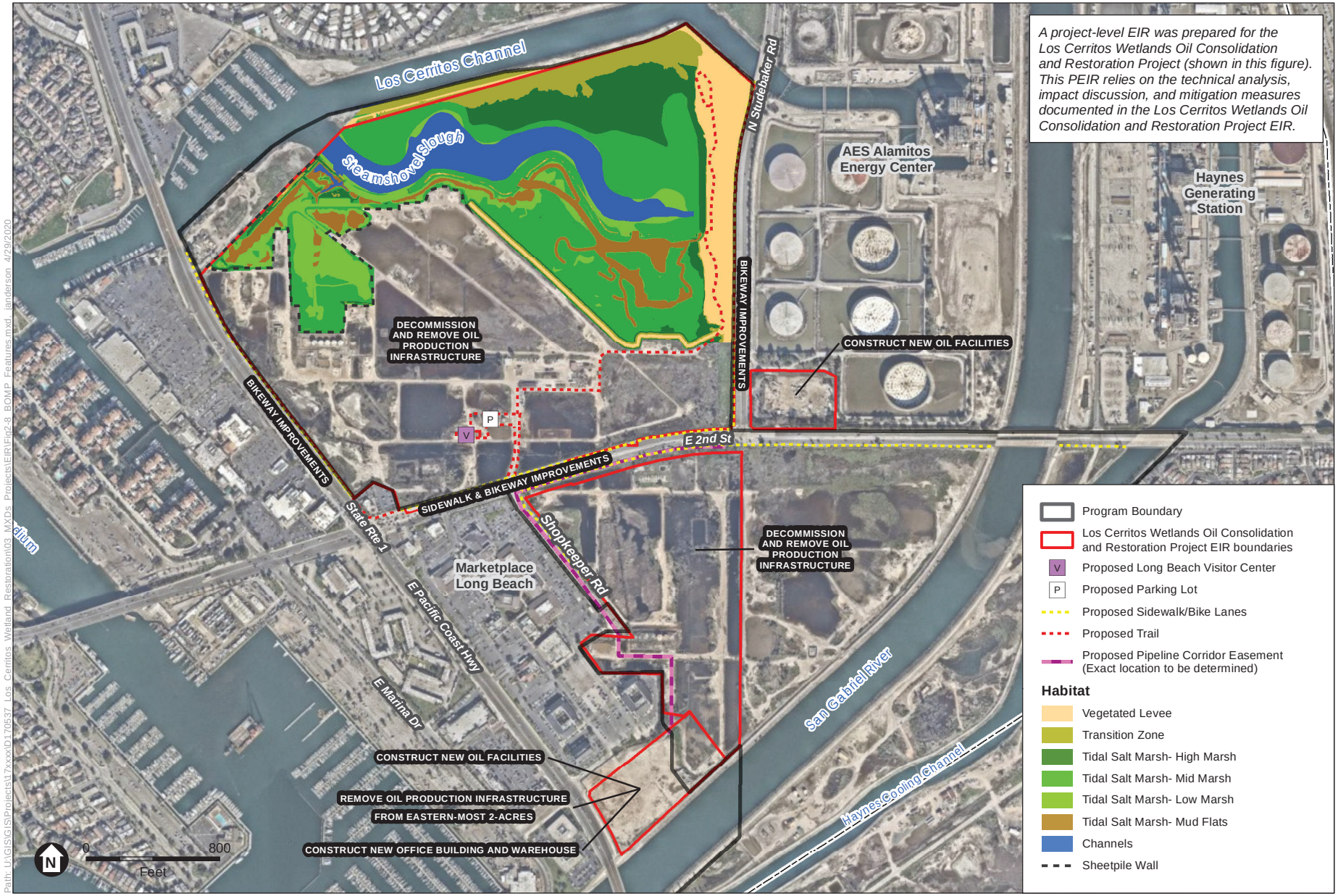
- Remediating any contaminated areas identified through sampling, and as required by permit, and restoring a natural wetland area that would be operated as a wetlands mitigation bank.[3]
- Constructing a new barrier consisting of sheet piles and earthen berms along the southern limits of the Northern Synergy Oil Field site;
- Establishing tidal channels, by means of grading, to convey tidal water from the Los Cerritos Channel/Steamshovel Slough to areas that currently lack tidal flows; and
- Removing segments of the existing berm and roads that currently separate Steamshovel Slough from non-tidal portions of the Northern Synergy Oil Field site.

The first phase of the project would also include work on the Southern Synergy Oil Field site, including relocating the existing office building on site to house the Long Beach Visitor Center, and construction of a parking lot, trail, overlook, sidewalk enhancements, and bikeway improvements.

The first phase of the project is expected to be implemented within 4 years of obtaining construction permits.

Within 20 years after obtaining Certificate of Occupancy for the new office on the Pumpkin Patch site, in the second phase of the project, all remaining oil operations would be removed and the 73.07-acre Southern Synergy Oil Field site may be restored to tidal salt marsh by breaching or lowering the earthen berm and removing the sheet pile wall.

[3] Mitigation banking is the sale of credits for the preservation, enhancement, restoration or creation of a wetland, stream, or habitat conservation area which offsets, or compensates for, expected adverse impacts to similar nearby ecosystems. The approval and establishment of the mitigation bank, including the wetlands restoration plan that may be implemented, is subject to a separate regulatory process overseen by the interagency review team (IRT) consisting of State and federal resources agencies, and led by the U.S. Army Corps of Engineers.



SOURCE: Mapbox, LCWA, NOAA, ESA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-8

Los Cerritos Wetlands Oil Consolidation and Restoration Project

ESA

Central Area

An aboveground pipeline system and underground utility corridor would be constructed in the first phase of the project, along 2nd Street from Studebaker Road down to, and along, Shopkeeper Road on the Long Beach City Property site to the Pumpkin Patch site. On the Long Beach City Property, the tanks and 95 percent of all pipelines would be removed. Up to 95 percent of oil production infrastructure within the program area would be removed from the Pumpkin Patch site in the near term to allow for restoration. Sidewalks could be constructed along all parcel frontages. Construction on the Pumpkin Patch site is expected to take 3 to 4 years, while construction of the pipeline system on the Long Beach City Property is expected to take 2 to 3 years.

Within 20 years from the New Occupancy Date, in the second phase of the project, oil operations would be removed from the Long Beach City Property site and contaminated areas would be remediated.

Outside the Program Boundary

Outside the program boundary, on the LCWA-owned property on the northeast corner of Studebaker Road and 2nd Street, oil processing facilities would be constructed after the site is remediated and graded. The facilities would include an elevated pipe rack, tank storage, well cellars, and an emergency flaring system. The Pumpkin Patch site outside the program area would be graded and new oil facilities would be constructed at the site. Oil facilities would include a tank storage area, well cellars, a water treatment system, and oil separation system. Additionally, a new office building and warehouse would be constructed on the Pumpkin Patch site. A bike station would be constructed adjacent to the Pumpkin Patch site. The first phase of the project is expected to be implemented within 2 years of obtaining construction permits. Potential environmental impacts to this activity are not analyzed under this PEIR, except to the extent these activities are reasonably anticipated future activities that may have a cumulative effect on activities within the program area (see Table 3-1 in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, which includes the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083), which is included as Cumulative Project No. 24).

2.5 Los Cerritos Wetlands Restoration Plan Goals and Objectives

The goals and objectives of the proposed program are presented below and are identical to the goals and objectives identified in the CRP (Moffatt & Nichol, 2015):

1. Restore tidal wetland processes and functions to the maximum extent possible.
    a. Increase estuarine habitat with a mix of tidal channels, mudflat, salt marsh, and brackish/ freshwater marsh and ponds.
    b. Provide adequate area for wetland-upland ecotone and upland habitat to support wetlands.
    c. Restore and maintain habitat that supports important life history phases for species of special concern (e.g., federal and state listed species), essential fish habitat, and migratory birds as appropriate.

2. Maximize contiguous habitat areas and maximize the buffer between habitat and sources of human disturbance.
    a. Maximize wildlife corridors within the LCW Complex and between the LCW Complex and adjacent natural areas within the region.
    b. Incorporate native upland vegetation buffers between habitat areas and human development to mitigate urban impacts (e.g., noise, light, unauthorized human encroachment, domestic animals, wastewater runoff) and reduce invasion by non-native organisms.
    c. Design the edges of the LCW Complex to be respectful and compatible with current neighboring land uses.
3. Create a public access and interpretive program that is practical, protective of sensitive habitat and ongoing oil operations, economically feasible, and will ensure a memorable visitor experience.
    a. Build upon existing beneficial uses.
    b. Minimize public impacts on habitat/wildlife use of the LCW Complex.
    c. Design interpretive concepts that promote environmental stewardship and the connection between the wetlands and the surrounding community.
    d. Solicit and address feedback from members of the surrounding community and other interested parties.
4. Incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available.
    a. Include projects that can be implemented as industrial operations are phased out and other properties are acquired over the near, mid, and long terms (next 10 years, 10–20 years, and 20+ years).
    b. Investigate opportunities to restore levels of tidal influence that are compatible with current oil leases and neighboring private land holdings.
    c. Remove/realign/consolidate existing infrastructure (roads, pipelines, etc.) and accommodate future potential changes in infrastructure, to the maximum extent feasible.
5. Strive for long-term restoration success.
    a. Implement an adaptive management framework that is sustainable.
    b. Restore habitats in appropriate areas to minimize the need for long-term maintenance activities that are extensive and disruptive to wildlife.
    c. Design habitats that will accommodate climate changes (e.g., incorporate topographic and habitat diversity and natural buffers and transition zones to accommodate migration of wetlands with rising sea levels).
    d. Provide economic benefit to the region.
6. Integrate experimental actions and research into the project, where appropriate, to inform restoration and management actions for this project.
    a. Include opportunities for potential experiments and pilot projects to address gaps in information (e.g., effect of warm river water on salt marsh ecosystem) that are protective of sensitive habitat and wildlife and that can be used to adaptively manage the restoration project.
    b. Include areas on the site, where appropriate, that prioritize research opportunities (such as those for adaptive management) over habitat sensitivities.

2.6 Land Use and Zoning Designations

The program area is located entirely within the California Coastal Zone, which means it is subject to the California Coastal Act and the City of Long Beach Local Coastal Program, adopted in 1980.

The Seal Beach General Plan designates the portion of the program area within Seal Beach city boundaries as Community Facilities, Industrial – Oil Extraction, Open Space, and Commercial Service (**Figure 2-9**, *General Plan Land Use Designations*).

According to the Seal Beach zoning map, and as shown in **Figure 2-10**, *Zoning Districts*, the properties within Seal Beach are zoned as Specific Plan Regulation, Open Space Natural, and Oil Extraction. The Hellman Ranch Specific Plan applies to the entire portion of the program area within the City of Seal Beach.[4]

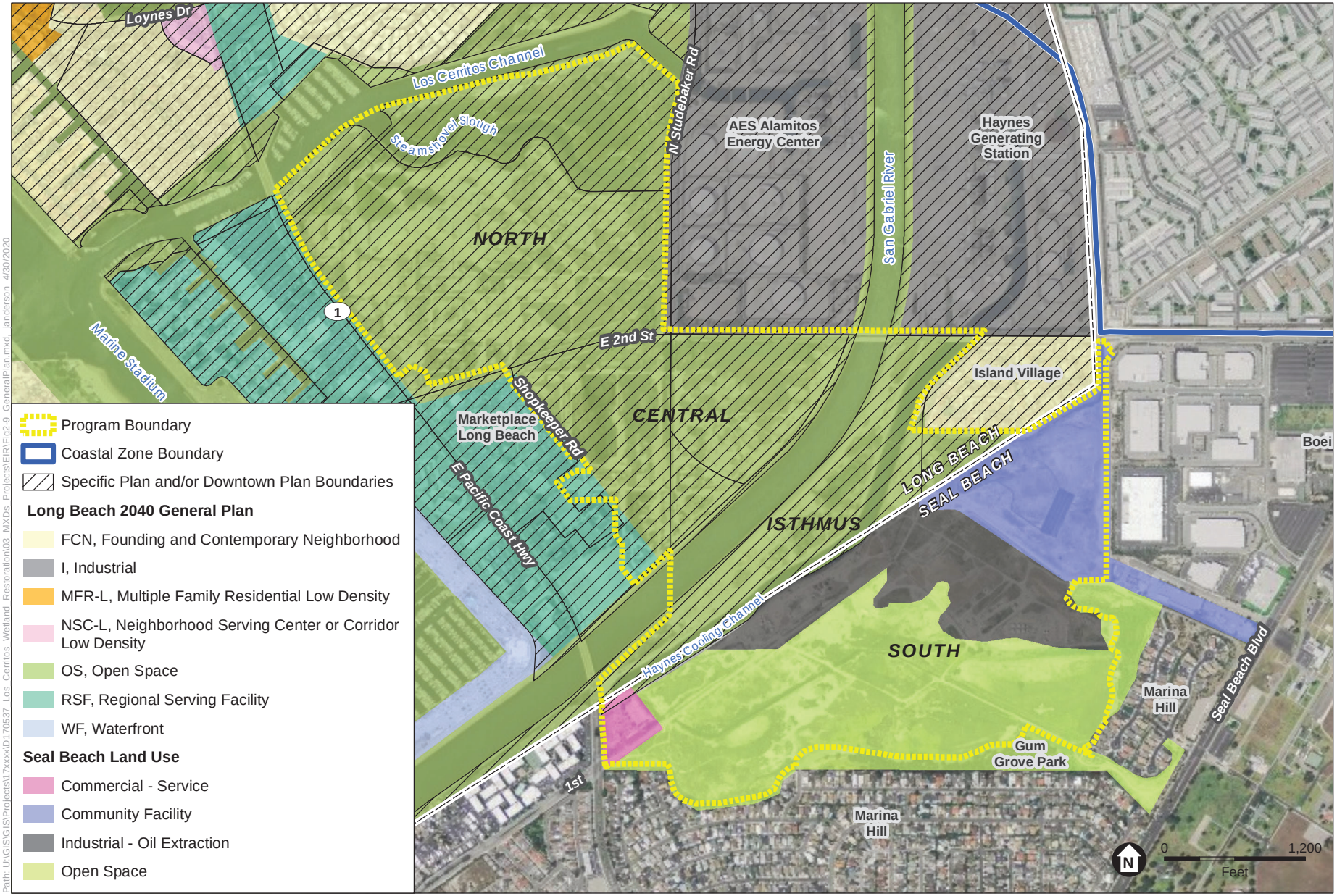
The City of Long Beach recently adopted the General Plan Land Use Element on December 2019. The currently adopted land use designations for the program area (as shown in Figure 2-9) are an Open Space (OS) PlaceType with a Specific Plan Overlay, with the exception of the Pumpkin Patch site and a portion of the Long Beach City Property site, which have a Regional-Serving Facility (RSF) Placetype with a Specific Plan Overlay.

The properties within the City of Long Beach are subject to the South East Area Development and Improvement Plan (SEADIP). The City of Long Beach is in the process of replacing the SEADIP with the Southeast Area Specific Plan (SEASP) 2060, which would change the zoning of the program area and introduce new development standards (setbacks, densities, heights, buffers, etc.) and design guidelines.

2.7 Program Characteristics

As described in Section 2.2, *Program Area*, the program area consists of the South, Isthmus, Central and North areas (Figure 2-2). The proposed program would restore wetland, transition, and upland habitats throughout the program area. This would involve remediation or containment of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor center, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), modification of existing infrastructure and utilities, and integrating experimental actions and research into the proposed program.

[4] A specific plan is a document designed to implement the goals and policies of the General Plan. These plans will contain detailed development standards, distribution of land uses, infrastructure requirements, and implementation measures for the development of a specific geographic area.



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SOURCE: Mapbox, LCWA, City of Long Beach, City of Seal Beach, ESA

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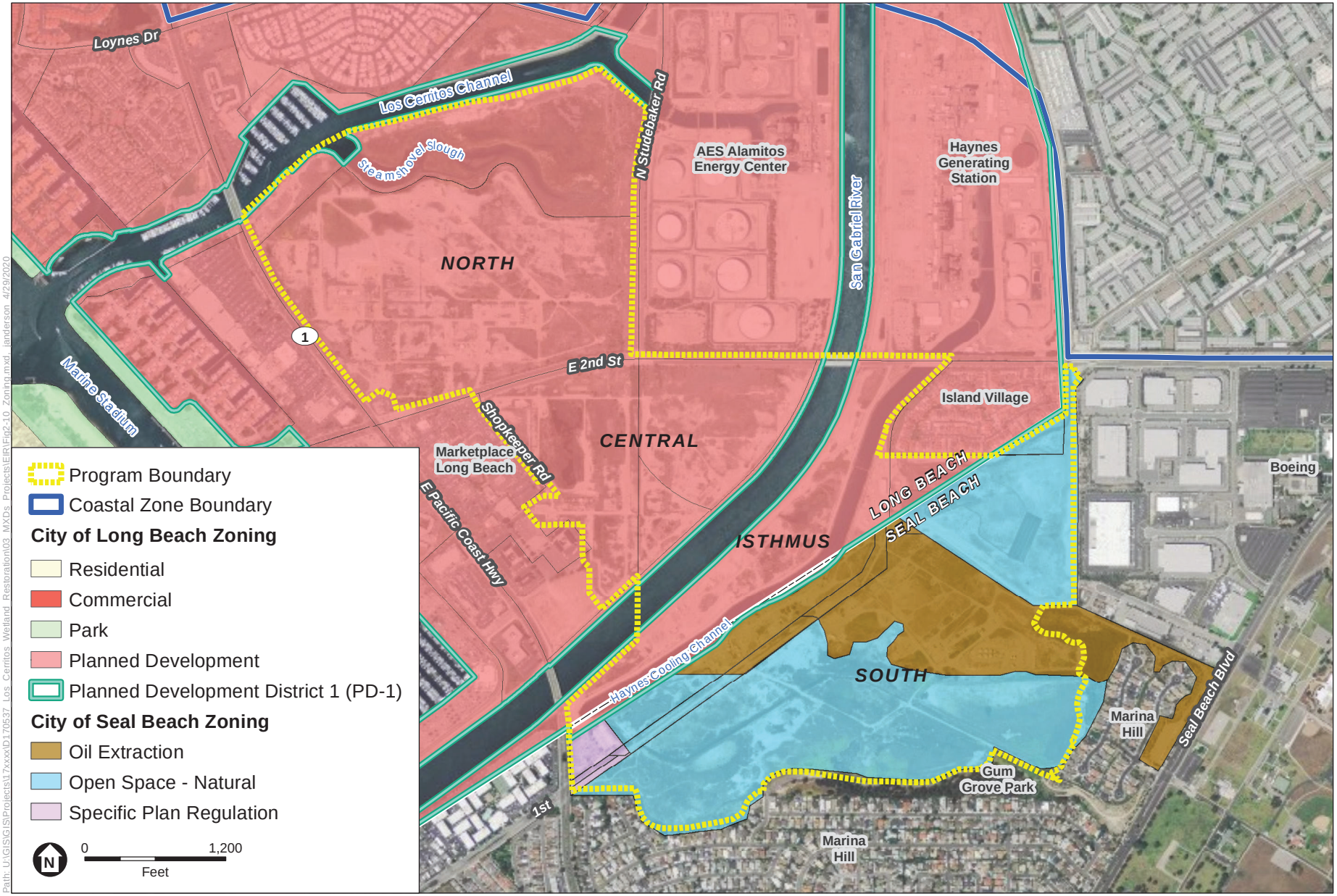
Figure 2-9

General Plan Land Use Designations

ESA



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SOURCE: Mapbox, LCWA, City of Long Beach, City of Seal Beach

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Figure 2-10
Zoning Districts

ESA

2.7.1 Overview of Common Program Features

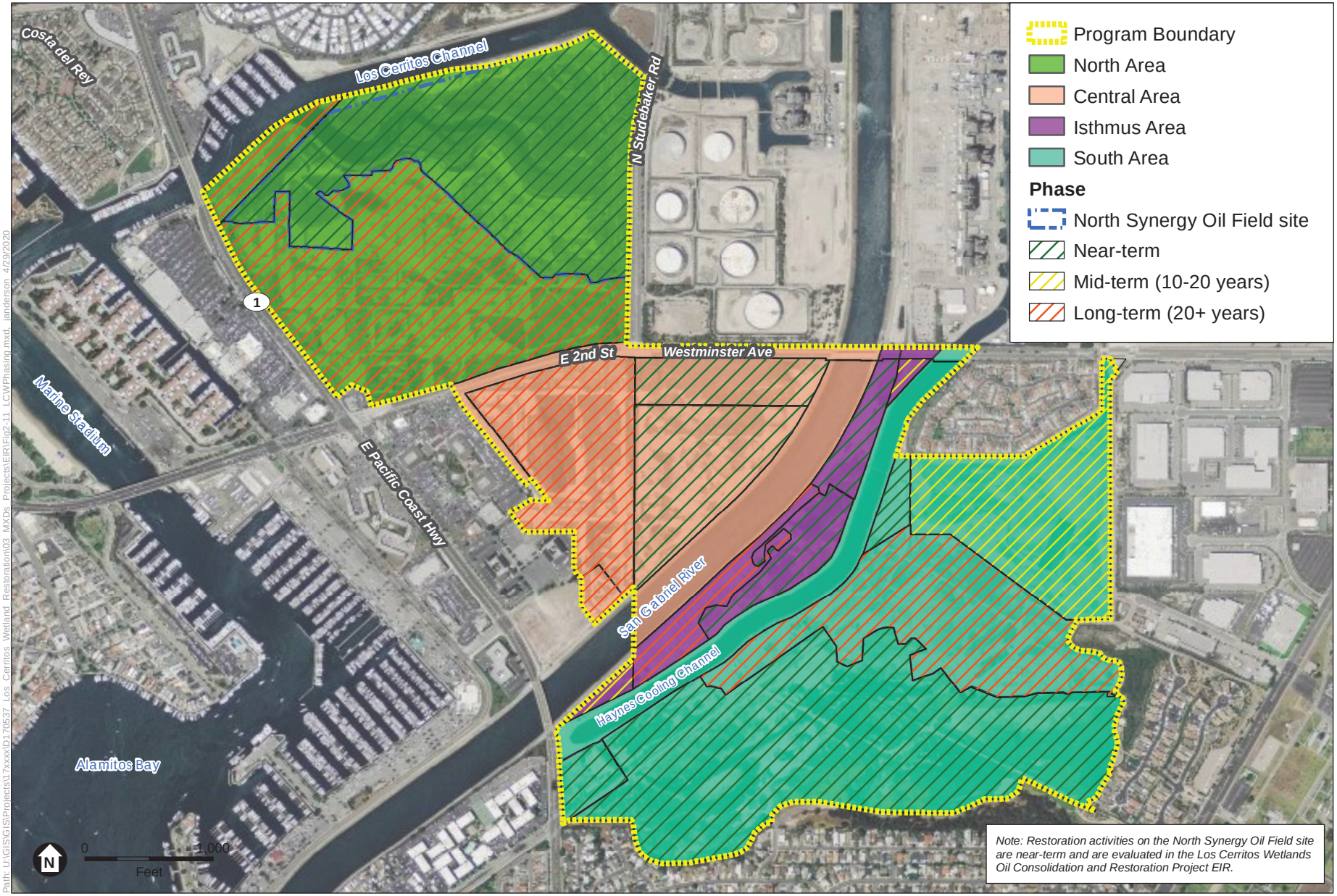
The description of each of the program areas is broken down into the following elements: phasing, ecosystem restoration, flood risk and stormwater management, public access and visitor facilities, and infrastructure and utility modification. An overview of each of these elements is provided below, followed by a more detailed description by program area. After the program area descriptions, at the end of Section 2.7, *Program Characteristics*, a description is provided for the entire program area regarding the implementation and restoration process (the construction phase), and the monitoring and adaptive management and operations and maintenance (the post-restoration phase).

2.7.1.1 Phasing

One of the Los Cerritos Wetlands Restoration Plan objectives (Objective #4, provided above in Section 2.5, *Los Cerritos Wetlands Restoration Plan Goals and Objectives*) is to incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available. The restoration activities would be phased over time as properties become available for acquisition by LCWA, as shown in **Figure 2-11**, *Los Cerritos Wetlands Restoration Plan Phasing*. The timing of construction at each site is dependent on multiple variables, including property transfers, removal of oil infrastructure, and related facilities, availability of funding, and permit approvals. Each phase of the proposed program will take multiple years to complete construction activities and with multiple years anticipated between each phase.

Construction on properties currently under the ownership of LCWA or in the process of being transferred to the LCWA is expected to occur in the **near term** (within approximately 10 years). Construction on properties that would be connected to or are associated with the decommissioning of the Haynes Cooling Channel or that may require more time than the near-term timeframe is expected to occur in the **mid term** (between approximately 10–20 years). The timing of the **long-term** phase depends on decommissioning of existing oil operations and could vary from around 20 years (where agreements are already in place) to much longer time frames. For oil operations that do not have agreements in place with LCWA, it is expected that overall levels of oil and natural gas production would continue until production decreases to below economically viable levels, after which oil production would stop production.

What is described in this PEIR is an approximation of the sequence of restoration that could occur; however, it is possible that a property identified as available for restoration in the mid term may not be restored until the long term, or a property identified as available for restoration in the mid term is available to be restored in the near term, etc. Restoration will not begin until a variety of actions are taken, including: preparation of project level restoration designs, completion of studies and analysis in support of design and permit approvals, acquiring project-level funding, acquiring permit approvals and associated CEQA clearance documents, amendments made with easement holders, and property transfers.



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SOURCE: ESRI,LCWA

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Figure 2-11

Los Cerritos Wetlands Restoration Plan Phasing

ESA

2.7.1.2 Ecosystem Restoration

Ecosystem restoration includes actions that will restore more natural ecosystem processes (physical and biological) from disturbed habitats within the program area. Restoration of more natural ecosystem processes through actions like grading, altering tidal connections, and revegetation will lead to more extensive and higher functioning wetland, transition, and upland habitats. Habitat types that would be restored or enhanced within the program area include subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub. Restored habitat distribution and acreages vary by program area and are described in more detail below.

Excavation of tidal channels to enhance tidal connection would require a balancing of temporary impacts to existing resources, which in most instances are moderately to substantially degraded wetlands, with maximizing the long-term functions of the areas receiving tidal exchange. To the extent feasible, tidal channels would avoid existing areas of pickleweed mats, Parish's glasswort patches and saltgrass flats and instead would be located in unvegetated flats and low elevation areas. In some areas it would not be possible to fully avoid existing vegetation while establishing the necessary elevations for the tidal channels.

The restored salt marsh areas would be re-vegetated through a combination of seeding and installation of nursery container stock. Restoration would include soil amendments (to enhance soil texture and nutrients), irrigation, and weed control. The salt marsh would support a mix of species such as Parish's glasswort, shoregrass, saltgrass, Pacific pickleweed, alkali heath, and Pacific cordgrass.

Revegetation activities in non-tidal areas would include removing or controlling invasive plant species and seeding/planting native plant species. Appropriate conditions will need to be restored in order to support target plant communities. A few important factors to consider will be hydrology, salinity, soil texture, and slope aspect. Invasive-nonnative plant species would be removed or treated according to the protocols described in Section 2.7.6.4, *Implementation Methods*. Additional details of implementing revegetation procedures are described in Section 2.7.6.4 under *Revegetation of Graded and Disturbed Areas*.

Intertidal areas with unrestricted connections to fully tidal waters will, over time with sea-level rise, experience an upward elevation shift in vegetation communities. In the shorter term, subtidal and low salt marsh areas would expand, and mid and high salt marsh areas would shrink. In the longer term, elevations that support intertidal communities at current sea level will be converted entirely to subtidal habitats. Gently sloped transition zone and low-lying upland habitats adjacent to today's salt marsh could support intertidal communities in the longer term.

Potential disturbances to sensitive habitats and species during operation of the proposed program would be minimized through effective design of public access areas to keep people on trails and out of habitat areas. The success of restoration efforts would be measured based on established performance criteria focusing on the abundance and diversity of native vegetation and the wildlife that use the Los Cerritos Wetlands Complex (see Section 2.7.7, *Monitoring and Adaptive Management*).

2.7.1.3 Flood Risk and Stormwater Management

Improving connection of wetlands to tidal flows to allow for habitat restoration would require changes to existing flood risk and stormwater management elements, and construction of new flood risk and stormwater management elements.

The proposed program would include modifications to Los Angeles County Drainage Area project structures within the program area by modifying the existing levee along the San Gabriel River, constructing new flood risk management structures (e.g., earthen levees and berms, or flood walls), restoring the wetland floodplain, constructing new water-control structures that allow for increased tidal connections, and constructing new stormwater management features (e.g., bioswales). The proposed program would also include modifications to existing operations and maintenance practices for flood risk and stormwater management structures.

The existing Los Angeles County Drainage Area project structures and facilities are maintained in such a manner and operated at such times and for such periods as necessary to obtain the maximum flood protection benefits (33 C.F.R. §208.10). The implementation of the proposed program would require revisions to the U.S. Army Corps of Engineers' OMRR&R Manual to reflect changes made to the existing Los Angeles County Drainage Area project structures and facilities within the program area.

2.7.1.4 Public Access and Visitor Facilities

Potential public access improvements and visitor amenities would include construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. These improvements would develop and enhance public access, recreation, and educational opportunities within the program area, while balancing the need for protection of sensitive habitats.

2.7.1.5 Infrastructure and Utility Modification

Infrastructure and utility modifications include oil well and associated pipeline abandonment and relocation, and electric and water line relocation. These modifications would allow for increased connectivity of habitat restoration within the program area and protection of existing utilities that are not otherwise abandoned or relocated.

2.7.2 South Area

2.7.2.1 Phasing

Ecosystem restoration in the South Area would occur in three phases based on land and oil lease ownership. The near- and mid-term phases of the program in the South Area would be mostly focused on the South LCWA and State Lands Parcel sites and would provide the conditions necessary for the expansion of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. Long-term phases of the program would be focused on the Hellman Retained site. The operations on the Los Alamitos Retarding Basin are proposed to be modified in the mid term, and no changes are proposed for the Los Alamitos Pump Station site, which was formerly restored as part of a mitigation project.

Near-term activities would include (**Figure 2-12**, *Proposed South Area Near-Term Restoration*):

- Remediating soils (e.g., on-site treatment, excavation and removal, or cap in place) that have been impacted by oil operations;
- Grading the South LCWA site, including excavation to create channels and revegetation of native plants to support a diversity of marsh, transitional, and upland habitats;
- Constructing a new earthen berm or flood wall along the Hellman property boundary on the South LCWA site to protect the Hellman site from flooding;
- Raising 1st Street on the South LCWA site out of the floodplain by placing it on fill;
- Building a Seal Beach Visitor Center and associated parking on an existing raised building pad on the State Lands Parcel site;
- Removing the gate on the existing culvert connecting the South LCWA site to the San Gabriel River and removing the culverts under the former access roads. The existing culvert under 1st Street would either be improved or replaced with a bridge; and
- Restoring native grassland for raptor foraging habitat on South LCWA site.

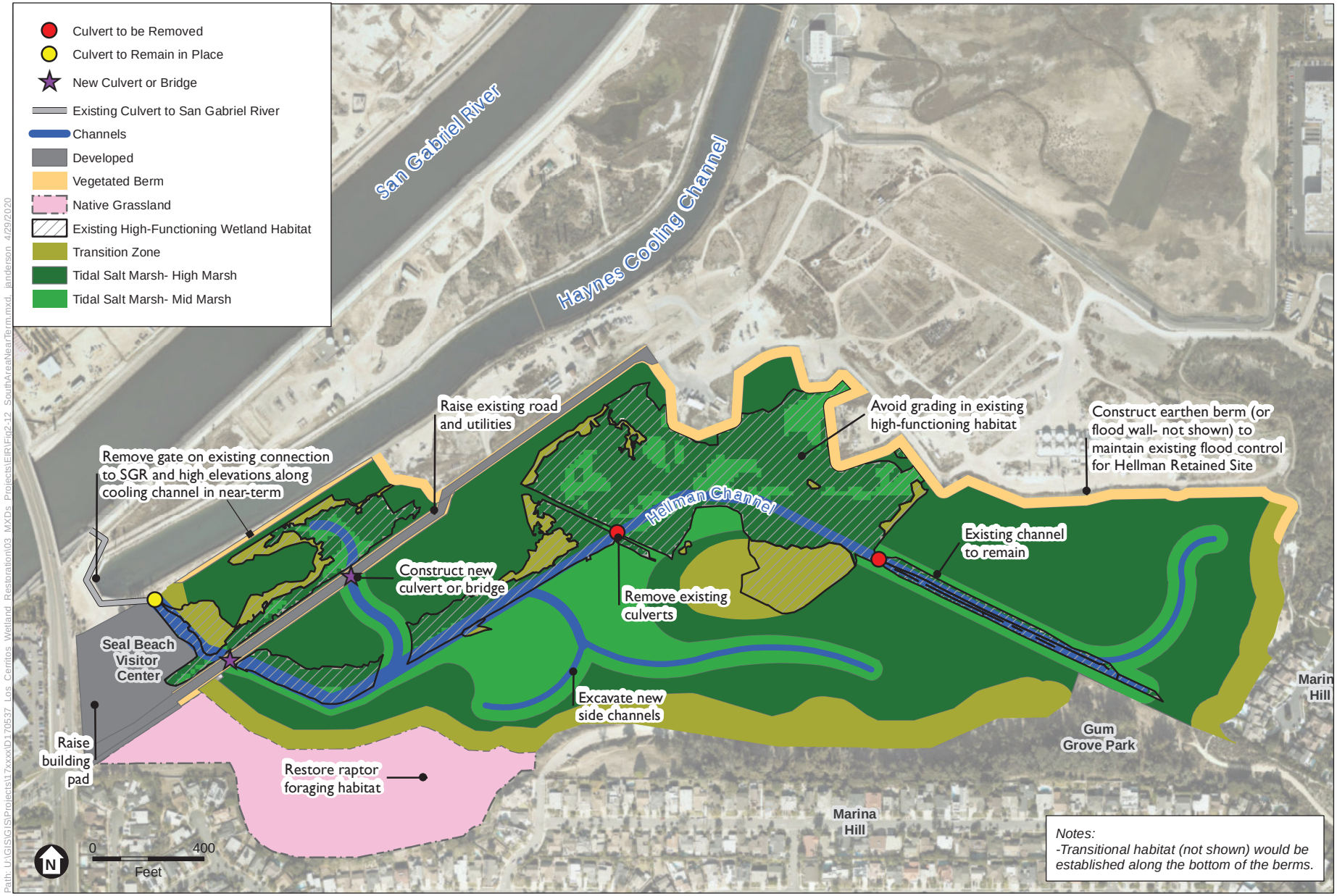
Mid-term activities would include (**Figure 2-13**, *Proposed South Area Mid-Term Restoration*):

- Excavating a channel connecting the Hellman Channel directly to the Haynes Cooling Channel and lowering the berm along the Haynes Cooling Channel to increase the tidal range in the South LCWA site; and
- Modifying the Los Alamitos Retarding Basin operations to enhance the habitat value in the basin (e.g., change pumping operations to maintain ponding for shorter or longer time).

Long-term activities would include (**Figure 2-14**, *Proposed South Area Long-Term Restoration*):

- Removing or consolidating oil operations on the Hellman Retained site to allow for restoration;
- Lowering, breaching, or removing the earthen berm or flood wall separating the South LCWA site and the Hellman Retained site
- Removing 1st Street (through the South LCWA site) and removing, lowering, or breaching the berm under the road.

Table 2-5, *South Area Phasing*, summarizes the activities associated with each phase.



SOURCE: ESRI,LCWA

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Figure 2-12

Proposed South Area Near-Term Restoration

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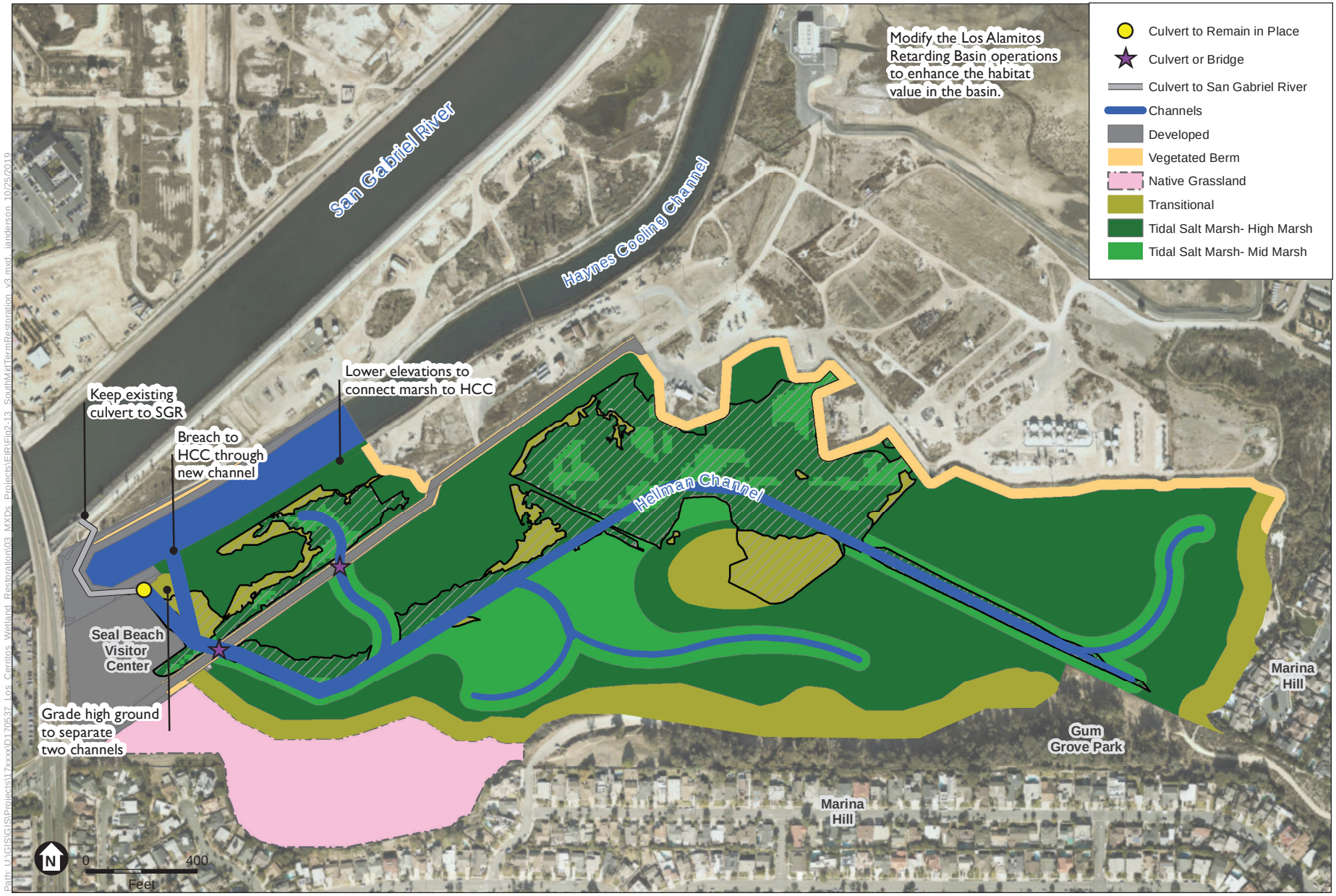


SOURCE: ESRI,LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-13

Proposed South Area Mid-Term Restoration

ESA

TABLE 2-5
SOUTH AREA PHASING

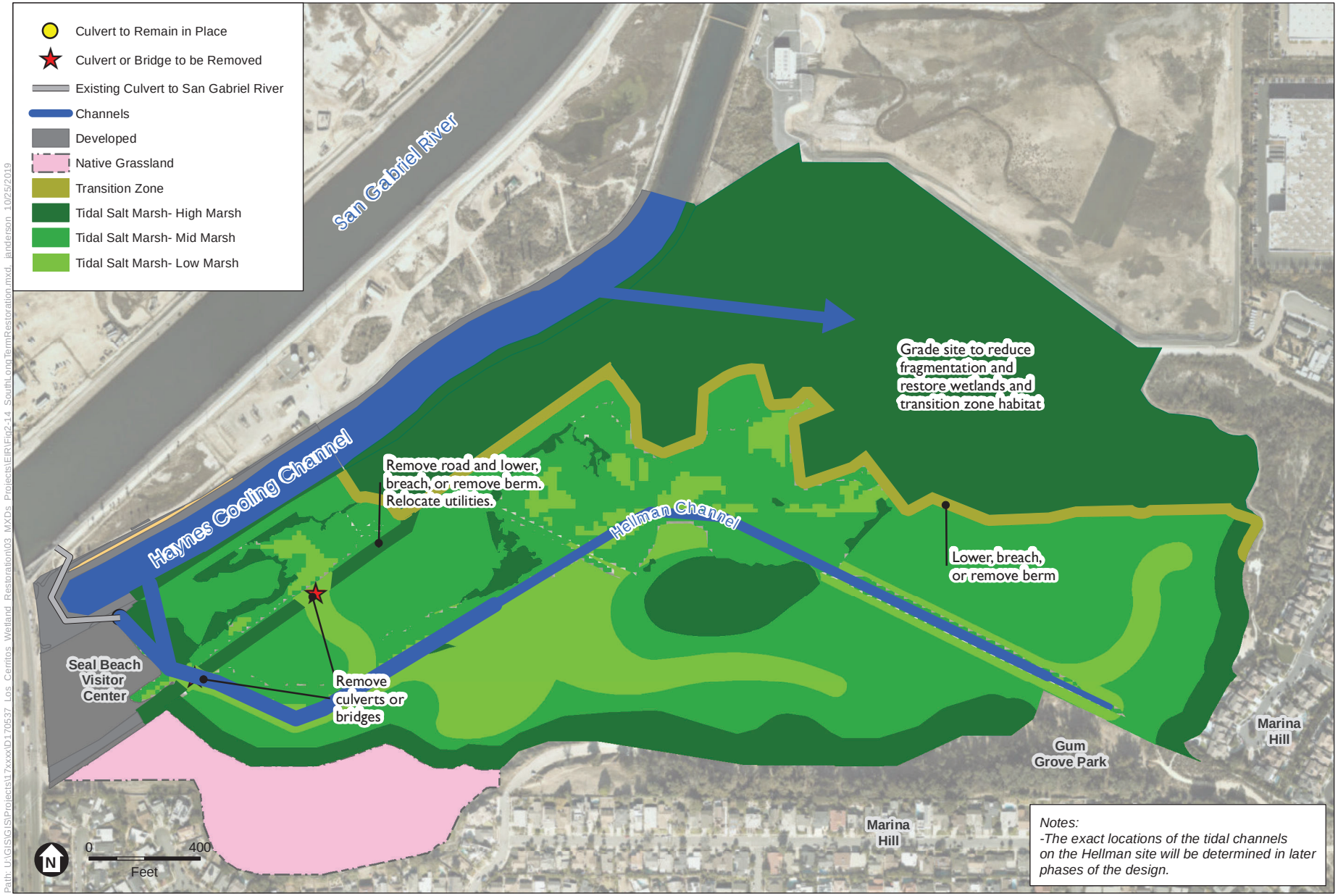
	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Los Alamitos Pump Station Site	• Previously restored	n/a	n/a
South LCWA Site	• Remediation of soils • Grading of site to support habitat restoration • Constructing an earthen berm or flood wall to protect Hellman Retained site • Raising 1st Street • Removing the gate on the Hellman Channel culvert to the San Gabriel River	• Excavating a channel to connect the Haynes Cooling Channel to the site • Lower berm separating the Haynes Cooling Channel from the site	• Lower or breach earthen berm or remove flood wall to connect to Hellman Retained site • Remove 1st Street and lower or breach berm
State Lands Parcel Site	• Building a Seal Beach Visitor Center and associated parking facilities	n/a	n/a
Haynes Cooling Channel	n/a	• Channel is decommissioned	n/a
Los Alamitos Retarding Basin Site	n/a	• Operations of retarding basin are modified to enhance habitat	n/a
Hellman Retained Site	n/a	n/a	• Oil operations removed or consolidated to allow for restoration • Remediation of soils • Grading of site to support habitat restoration • New tidal channel excavated to connect the Haynes Cooling Channel to the site

2.7.2.2 Ecosystem Restoration

Restored Habitats

Focused marsh and transitional wetland grading would occur across the South Area to lower the site to wetland elevations transitioning up to upland elevations along the southern and eastern borders of the South Area. Existing tidal salt marsh habitat would be avoided as much as possible. Tidal channels would be excavated in the near term on the South LCWA site and connected to the San Gabriel River through the existing culvert.

A 10-acre grassland, raptor foraging habitat is required to be restored in the southwest corner of the site. Target native grassland species would include Alkali sacaton (*Sporobolus airoides*), purple needlegrass (*Stipa pulchra*), and alkali ryegrass (*Elymus triticoides*). This area would meet the conditions for Heron Pointe, a previously approved residential development located outside the program boundaries south and east of the South Area per Coastal Development Permit 5-97-367-A1. The Coastal Development Permit's Amendment Staff Report (filed on September 12,



SOURCE: ESRI,LCWA

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Figure 2-14

Proposed South Area Long-Term Restoration

ESA

2000) requires the creation of 9.2 acres of suitable raptor foraging habitat to support various bird species which nest and/or forage in the South Area and within Gum Grove Park.

In the mid term, the site would be connected to the Haynes Cooling Channel, in addition to the existing culvert to the San Gabriel River, to increase the tide range at the site. Additionally, in the mid term the Los Alamitos Retarding Basin operations would be modified to enhance the habitat value in the basin. In the long term, a channel would be connected from the Haynes Cooling Channel into the Hellman Retained site, to bring tidal flows in.

Restoration habitat targets and acreages by phase are presented in **Table 2-6**, *Post-Restoration Habitats and Acreages in South Area*.

TABLE 2-6
POST-RESTORATION HABITATS AND ACREAGES IN SOUTH AREA

		Near Term	Mid Term	Long Term
Habitat Type	**Existing Conditions**	**Proposed Restoration**	**Proposed Restoration**	**Proposed Restoration**
Wetlands[a]	**49.7**	**94.3**	**94.5**	**146.3**
Transitional zone	4.3	15.5	15.5	19.2
Salt flat	2.9	0.0	0.0	0.0
Tidal salt marsh	0.0	0.0	66.5	115.0
Muted-tidal salt marsh	18.8	66.3	0.0	0.0
Non-tidal salt marsh	8.6	0.0	0.0	0.0
Non-native wetlands	6.6	2.0	1.9	0.0
Subtidal	8.5	10.5	10.7	12.1
Uplands	**60.3**	**10.7**	**10.6**	**10.2**
Native grassland	0.0	10.0	10.0	10.0
Native shrubland	7.1	0.5	0.5	0.2
Non-native upland	53.1	0.2	0.1	0.0
Managed Habitats	**0.0**	**3.6**	**3.6**	**0.0**
Vegetated berms	0.0	3.6	3.6	0.0
Non-Natural	**51.1**	**52.5**	**52.4**	**4.9**
Disturbed habitat	22.1	22.0	22.0	0.0
Developed (e.g., impervious surfaces)	29.1	30.5	30.4	4.9
Total[b]	**161**	**161**	**161**	**161**

[a] These habitat acreages may or may not be jurisdictional wetlands, but they have plants and/or hydrology that is indicative of wetlands. Jurisdictional surveys would be conducted when individual projects move forward.

[b] Acreages do not include the Los Alamitos Pump Station site or the Los Alamitos Retarding Basin site. Acreages presented here assume the construction of an earthen berm, which has a slightly larger footprint than a flood wall

Hydrology and Grading

Marshplain Grading

Soil would be removed in focused areas to restore tidal wetlands near the Hellman Channel with transitional habitats between the wetlands and the new berm to be constructed along the Hellman Retained site boundary (transitional habitat not shown in figures) or the surrounding uplands. Areas of existing high-functioning wetland and transition habitat could be avoided. The soil removed would be used to construct the new berm, and the excess material would be used to build the levee system in the Central Area (Section 2.7.4, *Central Area*). In the near term, existing road and high elevations ranging from 8 to 14 feet mean lower low water (MLLW)[5] on the South LCWA site would be graded down to marshplain elevation.

In the mid term, the existing high elevations along the south edge of the Haynes Cooling Channel on the South LCWA site would be lowered to allow sheet flow over the marshplain and into the South LCWA site. The Los Alamitos Retarding Basin site could be graded to enhance habitats, without affecting flood management functions and existing habitat mitigation.

Some of the elevations on the Hellman Retained site (5 to 11 feet MLLW) are already low enough and support high marsh species, but in the long term, some grading would be needed to expand areas of high marsh and improve tidal connections.

Perimeter Berm or Flood Wall

A perimeter earthen berm or flood wall would be constructed in the near term to maintain protection of the Hellman Retained site from seasonally high tide levels and storm events (**Figure 2-15**, *Artistic Rendering of South Area Perimeter Berm and Flood Wall*). Soil excavated from the tidal channels or marshplain grading would be used to construct the berm (approximately 16,000 cy would be required).

The berm or wall crest elevation would be set to 10 feet NAVD,[6] or roughly 4 feet above the marshplain, to allow for higher water levels while maintaining the existing level of inundation protection for the Hellman Retained site. If an earthen berm is used, it would be constructed with a top width of 12 feet to accommodate an access road for maintenance and a public access trail, and side slopes of 3:1 horizontal to vertical (H:V) down to the marsh and Hellman Retained site. If a flood wall is used, the wall would be 5 feet wide/thick with a 12-foot access road for maintenance behind it.

Raised Road

An additional berm would be constructed in the near term along 1st Street to raise the existing road onto the berm so that it is above the marshplain and to maintain the existing access easement for the Hellman Retained site. The berm would be constructed with a top width of 30 feet and side slopes of 3:1 H:V down to the marsh on either side.

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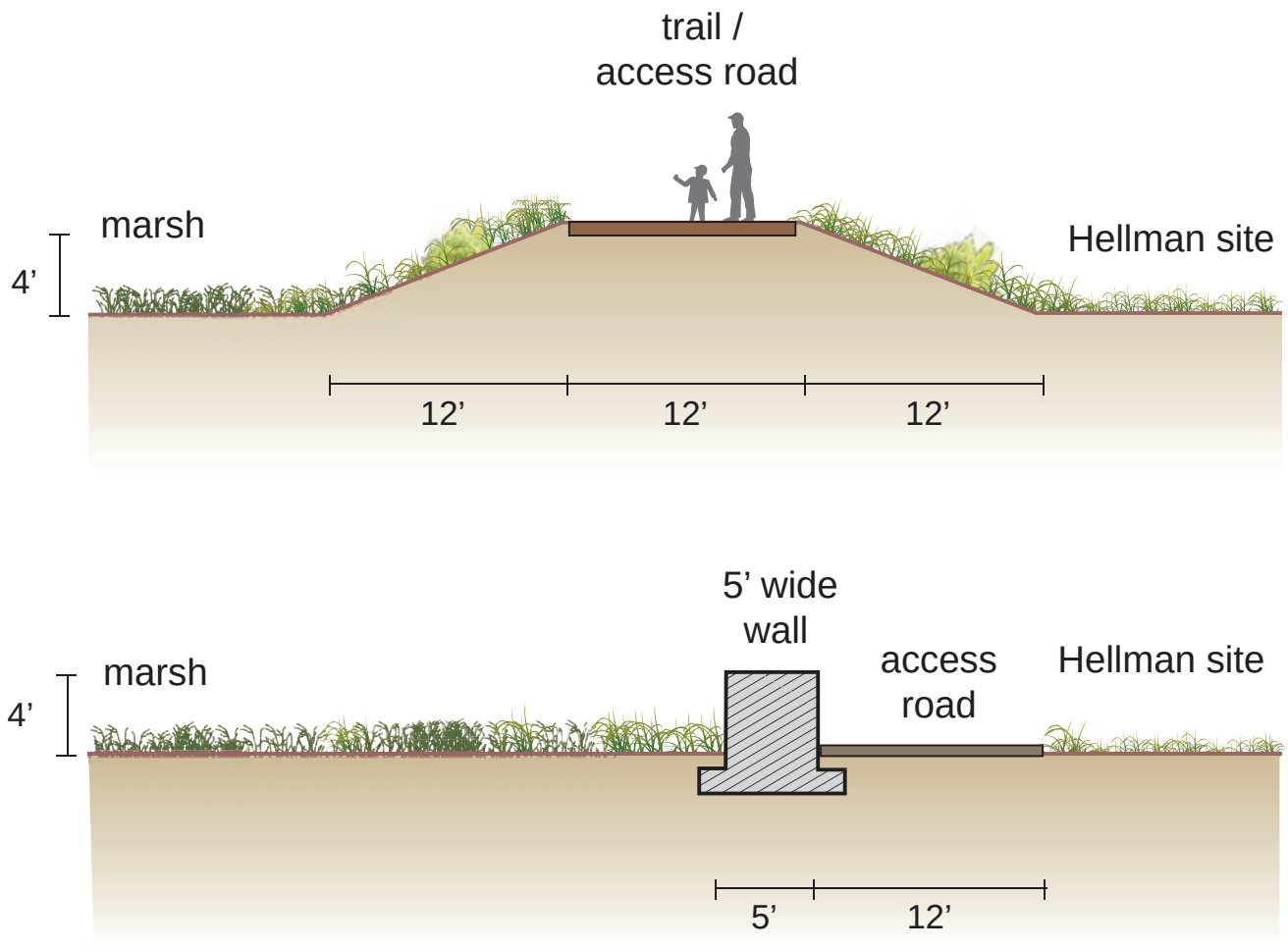
5 Mean lower low water is the average of the lowest tide every day over a 13-year period.

6 The North American Vertical Datum of 1988 (NAVD) is the vertical elevation control datum established for vertical control surveying in the United States and accounts for the fact that mean sea level is not the same equipotential surface at all tidal bench marks.



SOURCE: ESA, 2019

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Figure 2-15
Artistic Rendering Berms

Tidal Channels

In the near term, new tidal channels would be excavated off of the Hellman Channel on the South LCWA site to create a sinuous and branching network of tidal channels through the wetlands. The existing channel would connect to the existing San Gabriel River culvert and would continue to be subtidal. The smaller channels throughout the rest of the marsh would be intertidal and would drain at low tide. The larger channels would branch into smaller distributary channels.

In the mid term, a short channel would be excavated to connect the existing main channel to the Haynes Cooling Channel. The existing culvert and channel connection would remain.

In the long term, a new channel network would be excavated from the Haynes Cooling Channel into the Hellman Retained site.

Water-Control Structures

In the near term, two of the existing culverts along the Hellman Channel would be improved to enhance tidal connection to the southern and eastern portions of the South LCWA site. The existing culvert under 1st Street would be improved or replaced with a bridge once the road is raised, and a second culvert or bridge would be installed through the road berm as well to connect the marsh west of the road with the marsh east of the road. The existing culvert connecting the main channel to the San Gabriel River would be improved, as needed, and the flap gate on the culvert would be removed.

Berm or Flood Wall Removal

The earthen berm or flood wall constructed in the near term would be lowered, breached, or removed to create marsh and increase connectivity to the Hellman Retained site once that site has been restored in the long term. The 1st Street berm would also be lowered or breached once the road is removed.

2.7.2.3 Flood Risk and Stormwater Management

Perimeter Berm or Flood Wall

To increase tidal flows to the site, the gate on the existing culvert connecting the South LCWA site to the San Gabriel River would be removed. To prevent flooding of the Hellman Retained site, a perimeter berm or flood wall would be constructed along the Hellman Retained site and South LCWA site boundary and tied into areas of high ground to maintain the existing level of flood risk protection.

Stormwater Management

In the near term, new stormwater basin or bioswales would be constructed to function as a water quality treatment measure for the stormwater runoff from the new Seal Beach Visitor Center and associated parking.

2.7.2.4 Public Access and Visitor Facilities

The proposed program would develop and improve public access, recreation, and interpretative opportunities within the South Area in the near term, as shown in **Figure 2-16**, *Proposed South Area Near-Term Public Access*, and in the long term, as shown in **Figure 2-17**, *Proposed South Area Long-Term Public Access*.

Visitor Center and Parking

A new Seal Beach Visitor Center would be constructed on the existing raised building pad at the southeast corner of the San Gabriel River Trail and PCH. Parking would be provided along 1st Street adjacent to the Seal Beach Visitor Center for employees and visitors. An additional existing parking lot would be available at the western end of the Gum Grove Trail. The Seal Beach Visitor Center would serve as the main access point to the Isthmus and South Areas, with trail connections to Callaway and Zedler Marshes to the north, and to Gum Grove Park and the Hellman Ranch Trail to the east.

Trails and Overlooks

A new restricted trail would be constructed through the raptor habitat on the South LCWA site in the near term. The trail would connect Gum Grove Park to the existing San Gabriel River Trail, fishing area, and trails on the Isthmus area. Initially this trail would be restricted to docent-led tours until habitat areas are established and a management plan is approved. A viewpoint would be constructed in the raptor habitat area.

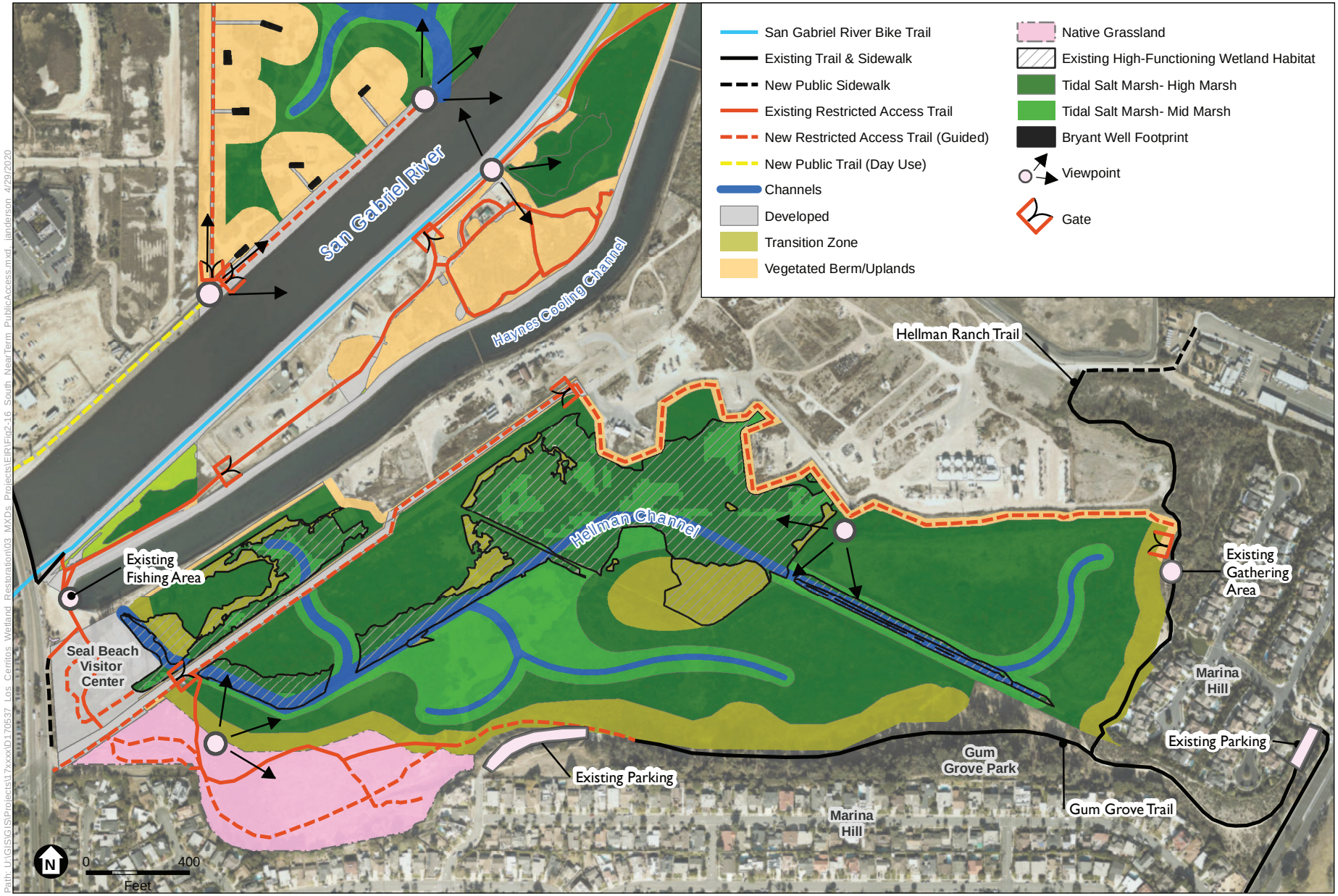
Another restricted trail would be constructed along the top of the new berm, connecting with 1st Street on the west and Gum Grove Trail on the east. If the perimeter flood wall is constructed instead of the berm, public access would be reduced. A viewpoint would be constructed along the new berm. This trail would be restricted to docent-led tours and maintenance access. In the long-term phase, this trail would be removed to allow for full restoration of the South Area.

The existing fishing area at the Haynes Cooling Channel would be retained. Public access along PCH would be improved by the addition of sidewalks between 1st Street and the San Gabriel River Trail, and improvements to formalize parking at the fishing area.

2.7.2.5 Infrastructure and Utility Modification

In the near term, the existing road (1st Street) through the marsh would be raised on a berm to move it out of the restored marsh floodplain. The City of Seal Beach is planning to replace the water line within the road, which could be done at the same time as the road upgrade. The utility poles supporting the power lines along the road would likely need to be improved (e.g., relocated, heightened) as part of the raising of the road. Preferably the power lines could be replaced underground.

In the long term, the oil wells and associated oil production infrastructure on the Hellman Retained site would need to be decommissioned and removed before restoration can occur. Because there are no agreements in place between the oil operators and LCWA in the South area, it is expected that overall levels of oil and natural gas production would continue until production



SOURCE: ESRI,LCWA, ESA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-16

Proposed South Area Near-Term Public Access

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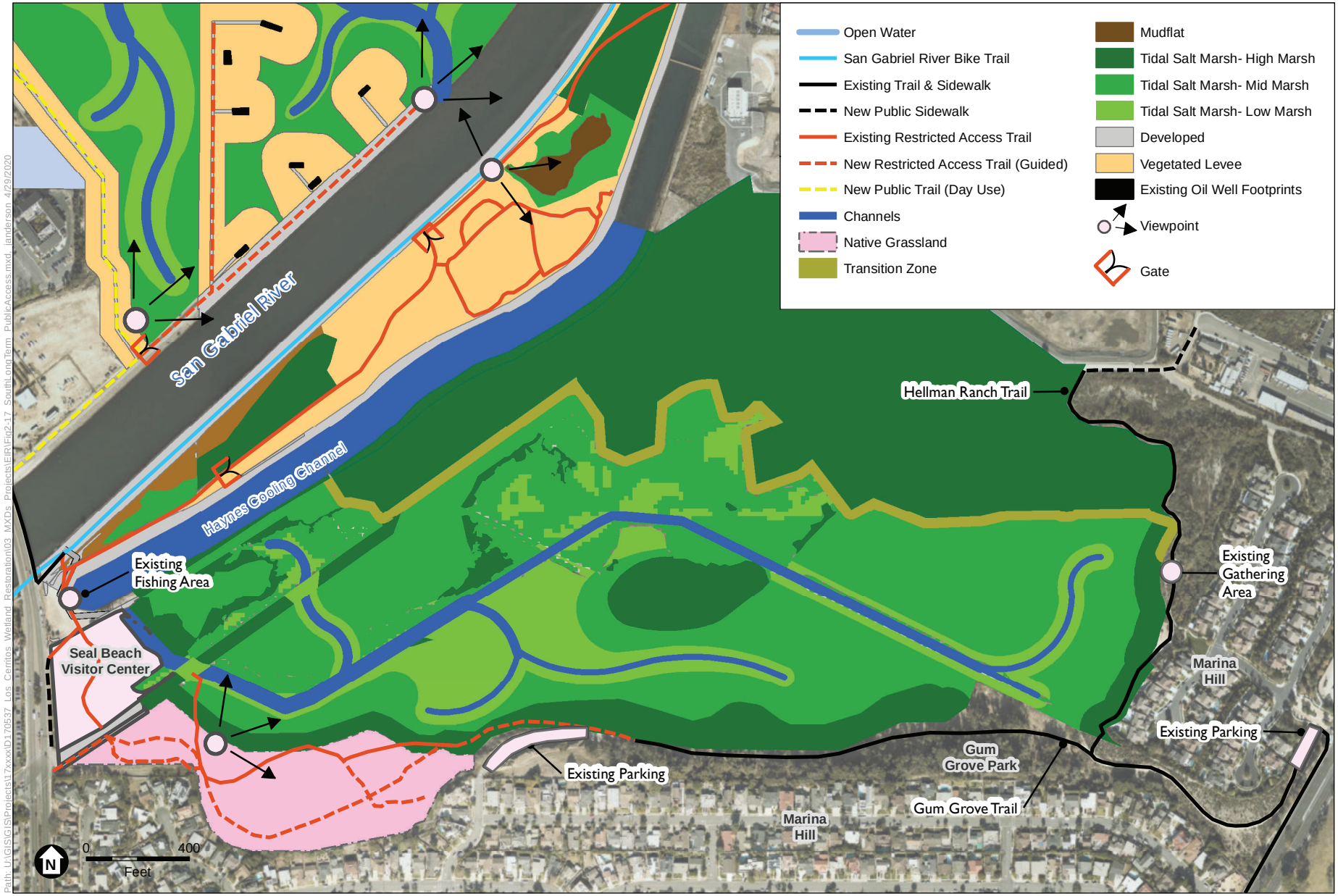


SOURCE: ESRI,LCWA, ESA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-17

Proposed South Area Long-Term Public Access

ESA

decreases to below economically viable levels, after which oil production would stop. When the owner/operators of those oil operations elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The work would involve plugging and abandoning oil wells and is discussed in more detail under the heading Oil Well Abandonment in Section 2.7.6.4 *Implementation Methods*. Additionally, 1st Street would be removed, to allow for restoration of the berm. The water line and power lines would be relocated off site.

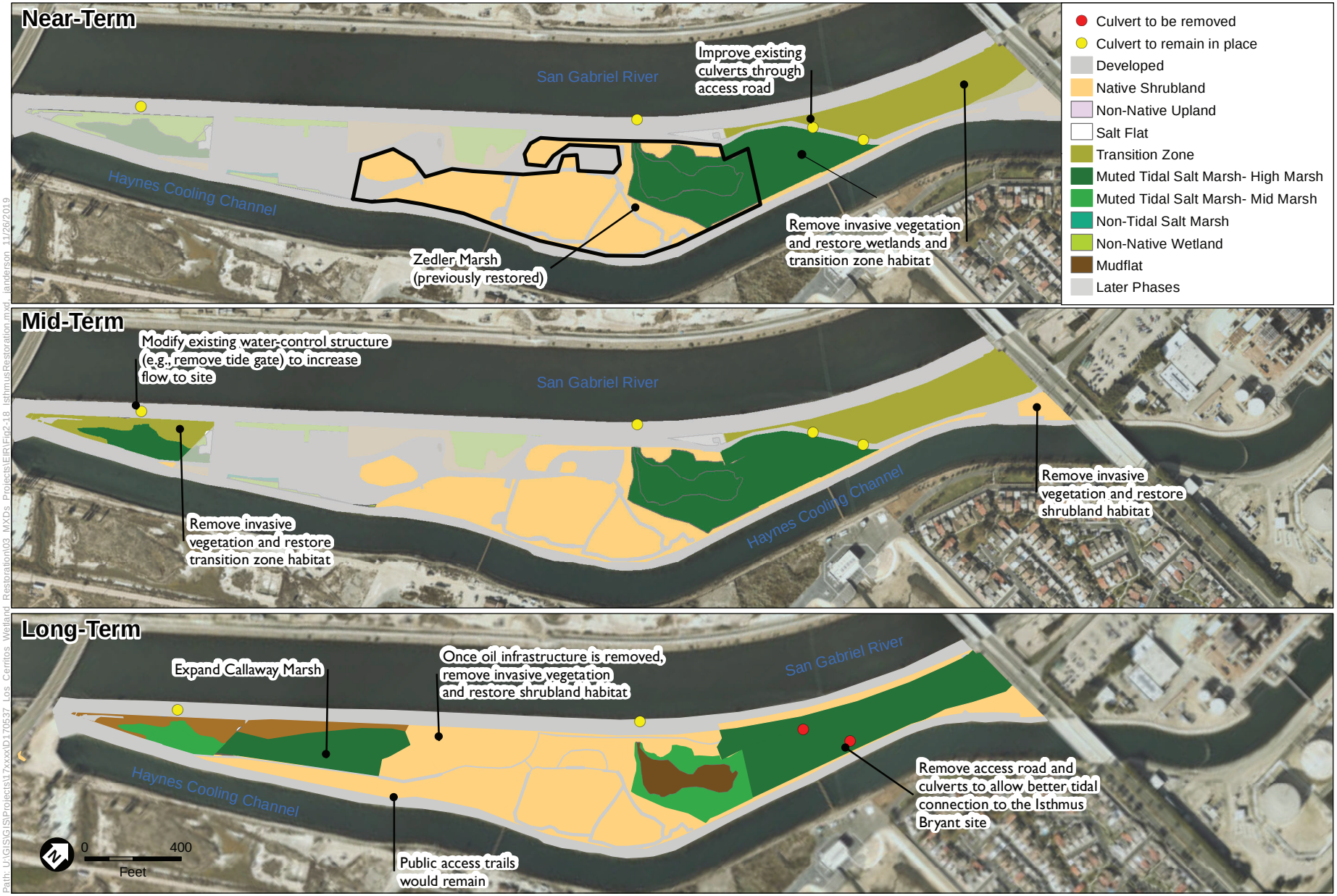
2.7.3 Isthmus Area

2.7.3.1 Phasing

In the near term, the proposed program would extend the restoration currently present on the Zedler Marsh site north into the Isthmus Bryant site and the portion of the DWP site west of the gas access road (**Figure 2-18**, *Proposed Isthmus Area Restoration*). The Callaway Marsh site and the rest of the DWP site would be enhanced in the mid term, once the Haynes Cooling Channel is decommissioned by LADWP and no longer in use for the Haynes Generating Station. In the long term, the oil operations on the Isthmus LCWA site would be removed or consolidated off site to allow for restoration once the oil operations are no longer active. **Table 2-7**, *Isthmus Area Phasing*, summarizes the activities associated with each phase.

TABLE 2-7
ISTHMUS AREA PHASING

	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Zedler Marsh Site	• Previously restored with ongoing restoration activities per the Stewardship Vision Plan	n/a	n/a
Isthmus Bryant Site	• Limited grading of site to support habitat restoration and provide tidal connection to Zedler Marsh • Removal of invasive species and planting of native vegetation	n/a	• Removal of access road and culverts to allow better tidal flow to the north
DWP Site	• Removal of invasive species and planting of native vegetation west of the gas access road	• Removal of invasive species and planting of native vegetation east of the gas access road	• Removal of access road to reduce habitat fragmentation
Callaway Marsh Site	n/a	• Limited grading of site to support habitat restoration • Removal of flap gate on culvert connecting site to San Gabriel River • Removal of invasive species and planting of native vegetation	n/a
Isthmus LCWA Site	n/a	n/a	• Oil operations removed or consolidated to allow for restoration • Remediation of soils • Limited grading of site to support habitat restoration • Removal of invasive species and planting of native vegetation



SOURCE: Mapbox, LCWA, NOAA, ESA

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Figure 2-18

Proposed Isthmus Area Restoration

ESA

2.7.3.2 Ecosystem Restoration

Restored Habitats

In the near term, the Isthmus Bryant site would be graded in limited places to eliminate habitat fragmentation and to create small tidal creeks. The area southeast of the gas access road would be restored to muted tidal salt marsh habitat, while the habitat northwest of the gas access road (on both the Isthmus Bryant and DWP sites) would be restored to transitional habitat. Community volunteers through the LCWA Stewardship Program would be involved in revegetation activities and invasive plant species removal on this site.

In the mid term, wetland enhancements in Callaway Marsh would include invasive vegetation removal and native vegetation restoration in the wetlands and transition zone along the edges of the site, and include modifications to the existing water-control structure (e.g., removing the existing tide gate) to increase the tidal flow to the Callaway Marsh site. Grading would take place in locations as necessary to maximize tidal wetland, while preserving areas for transitional habitat. On the DWP site east of the oil operations access road, invasive vegetation would be removed and native shrubland would be restored.

In the long term, restoration of the Isthmus LCWA site would involve invasive vegetation removal and native vegetation restoration. The southwest portion of the site has lower elevations which would support muted tidal salt marsh vegetation, while the northern portion of the site would support native shrubland habitat. The gas access road through the Isthmus Bryant site would be removed in order to provide better hydrologic connections between Zedler Marsh and the vegetation in the north.

Restoration habitat targets and acreages by phase are presented in **Table 2-8**, *Post-Restoration Habitats and Acreages in Isthmus Area*.

Hydrology and Grading

Marshplain Grading

In the near term, there may be minimal grading activity on the Isthmus Bryant site and the western portion of the DWP site to allow for current high tides to flow from Zedler Marsh further north towards 2nd Street. The existing culverts under the oil operations access road would remain in place to provide some tidal connection to the area north of the road.

In the mid term, some grading in areas of ruderal upland around the perimeter of the Callaway Marsh site (8 to 10 feet MLLW) would be conducted to expand the marsh and increase areas that would be inundated by tidal waters, while maintaining transitional and upland habitat.

Depending on the rate of sea-level rise when the long-term restoration is implemented, the elevations on the Isthmus LCWA site (6 to 15 feet MLLW) may be appropriate for both upland and muted tidal salt marsh habitats in the west near Callaway Marsh. Some grading would be needed to eliminate habitat fragmentation caused by the existing development.

TABLE 2-8
POST-RESTORATION HABITATS AND ACREAGES IN ISTHMUS AREA

Habitat Type	Existing Conditions	Near Term Proposed Restoration	Mid Term Proposed Restoration	Long Term Proposed Restoration
Wetlands[a]	**10.5**	**10.7**	**10.7**	**13.5**
Transitional zone	0.0	3.0	3.8	2.2
Salt flat	1.9	0.2	0.2	0.0
Muted-tidal salt marsh	3.3	5.3	5.2	11.2
Non-tidal salt marsh	3.1	0.1	0.1	0.0
Non-native wetlands	2.2	2.2	1.4	0.0
Uplands	**7.7**	**7.7**	**8.0**	**11.7**
Native shrubland[b]	7.3	7.7	8.0	11.7
Non-native upland	0.4	0.0	0.0	0.0
Non-Natural	**9.8**	**9.7**	**9.7**	**2.9**
Developed (e.g., impervious surfaces)	9.8	9.7	9.7	2.9
Total[c]	**28**	**28**	**28**	**28**

[a] These habitat acreages may or may not be jurisdictional wetlands, but they have plants and/or hydrology that is indicative of wetlands. Jurisdictional surveys would be conducted when individual projects move forward.

[b] Under existing conditions, this category includes recently restored shrubland that is still being weeded and irrigated. However, it is expected that this habitat will evolve to a natural stand in the future.

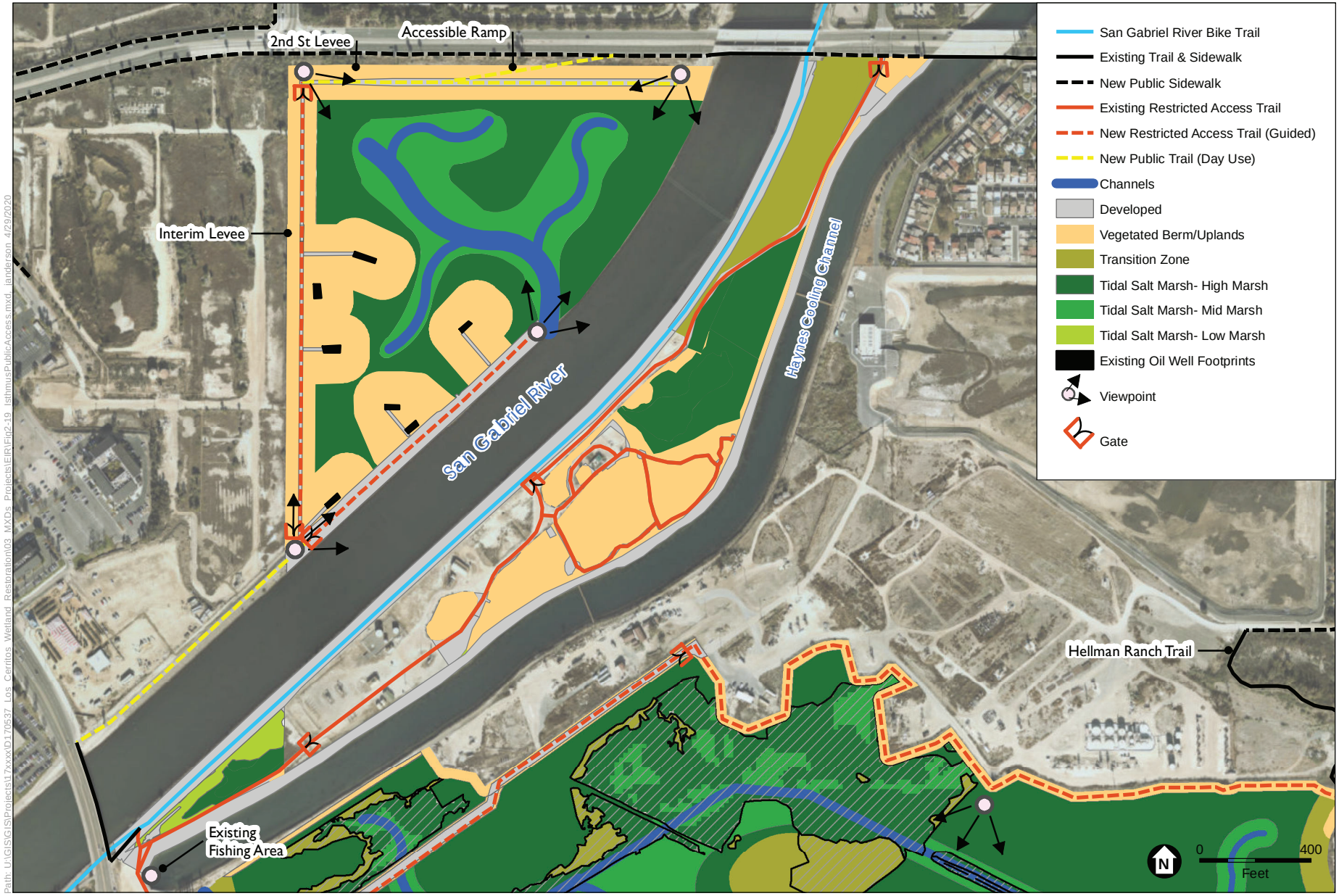
[c] Acreages do not include the Los Alamitos Pump Station site or the Los Alamitos Retarding Basin site. Acreages presented here assume the construction of an earthen berm which has a slightly larger footprint than a flood wall

2.7.3.3 Flood Risk and Stormwater Management

The existing culverts connecting the San Gabriel River to the Zedler and Callaway Marsh sites would be maintained, so no change to the flood risk or stormwater management is anticipated. The increased water levels in Callaway Marsh once the existing gate is removed would require a self-regulating tide gate to limit high water levels or grading to raise the high ground around the site.

2.7.3.4 Public Access and Visitor Facilities

No new public access or visitor facilities are proposed for the Isthmus Area beyond possible installation of additional interpretive signage (**Figure 2-19**, *Proposed Isthmus Area Public Access*). Public access could be improved in the near term by opening the gate along the San Gabriel Trail, and scheduling docent-led tours or walks at Zedler Marsh. Once the Seal Beach Visitor Center and parking lot are constructed as part of restoration of the South Area, the existing road that connects Zedler Marsh to Callaway Marsh and the PCH would provide a new restricted access trail connection between the Seal Beach Visitor Center and Zedler Marsh.



SOURCE: NOAA, ESA, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-19

Proposed Isthmus Area Public Access

ESA

2.7.3.5 Infrastructure and Utility Modification

No new infrastructure or modifications to utilities are proposed for the Isthmus Area in the near- and mid term. In the long term, oil wells and associated oil production infrastructure on the Isthmus LCWA site would need to be decommissioned and removed before restoration can occur. Because there are no agreements in place between the oil operators and LCWA in the Isthmus area, it is expected that overall levels of oil and natural gas production would continue until production decreases to below economically viable levels, after which oil production would stop. When the owner/operators of those oil operations elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The work involved in abandoning oil wells is discussed under the heading Oil Well Abandonment in Section 2.7.6.4, *Implementation Methods*.

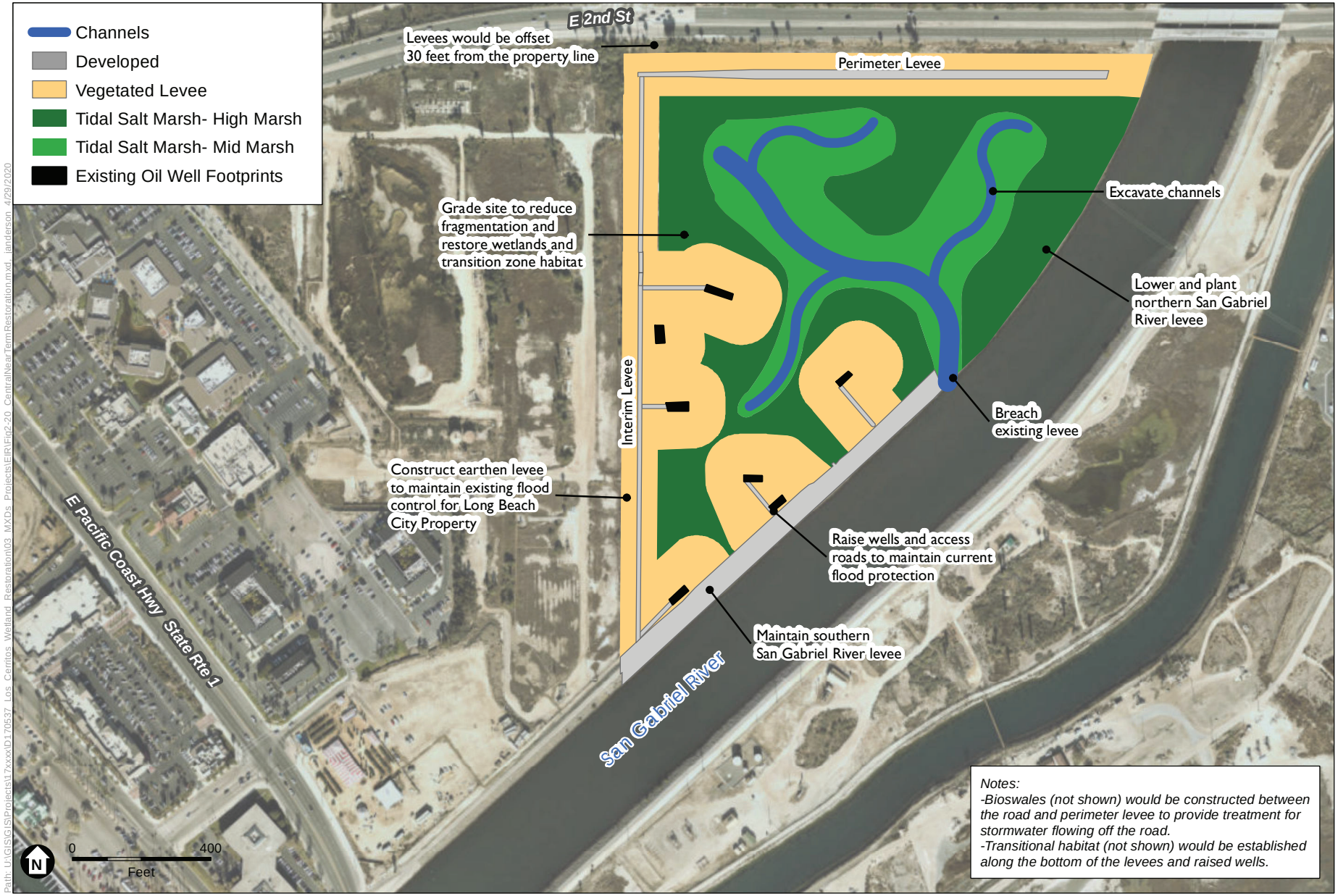
2.7.4 Central Area

2.7.4.1 Phasing

Ecosystem restoration in the Central Area would occur in two phases based on land and oil lease ownership. The Central LCWA site is available for restoration immediately, and discussions between Bryant Dakin, LLC and the LCWA on acquisition of the Central Bryant site for restoration are on-going. The program assumes that both of these properties would be available for restoration in the near term, and the existing oil operations on the Central LCWA site operated by Signal Hill Petroleum, Inc. would be protected in place by proposing to raise the wells out of the floodplain. The Long Beach City Property site and the Pumpkin Patch site are part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (see Section 2.4.4, *Los Cerritos Wetlands Oil Consolidation and Restoration Project*) and would be available for restoration in the long term.

The near-term phase of the program would be focused on the Central LCWA and Central Bryant sites and would provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions (**Figure 2-20**, *Proposed Central Area Near-Term Restoration*). Near-term activities would include:

- Relocating or modifying oil infrastructure and remediation of soils on the Central LCWA site;
- Grading of the sites, including channels, and revegetation of native plants to support a diversity of salt marsh species;
- Removing segments of the existing levee (e.g., breaching the levee and/or lowering a segment) that currently separates the San Gabriel River from non-tidal portions of the Central LCWA and Central Bryant sites;
- Constructing a new earthen levee (Perimeter Levee) along 2nd Street from the San Gabriel River to the intersection with Studebaker Road to protect areas to the north from flooding;
- Constructing a new interim earthen levee (Interim Levee) along the western boundary of the Central LCWA site to protect the areas to the west from flooding and to provide continued access to the wells on the Central LCWA site;
- Providing flood protection for the existing wells on the Central LCWA site by proposing to raise the well pads out of the floodplain; and
- Constructing public trails on levees, including accessible ramps, and viewpoints.



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SOURCE: NOAA, ESA, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-20

Proposed Central Area Near-Term Restoration

ESA

In the long term, the Long Beach City Property site and the Pumpkin Patch site would be restored to tidal salt marsh, including (**Figure 2-21**, *Proposed Central Area Long-Term Restoration*):

- Grading the Long Beach City Property site, including channels, to support a diversity of salt marsh species;
- Removing the northern segment of the Interim Levee on the Central LCWA site to connect the restored habitats on the Central LCWA site to the non-tidal portions of the Long Beach City Property site;
- Constructing a new earthen levee (Perimeter Levee) along 2nd Street between the intersection with Studebaker Road to Shopkeeper Road on the Long Beach City Property site and then along Shopkeeper Road to the existing San Gabriel River levee on the Long Beach City Property and Pumpkin Patch sites to protect areas to the north and west from flooding; and
- Constructing public trails on levees, accessible ramps, stairs, and viewpoints.

Table 2-9, *Central Area Phasing*, summarizes the activities associated with each phase.

Impacts associated with habitat restoration on the Long Beach City Property and Pumpkin Patch sites will be evaluated under this PEIR. See the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) and CCC Staff Report conditions for impacts associated with soil remediation, oil consolidation, and construction of the new pipeline system and utility corridor.

2.7.4.2 Ecosystem Restoration

Restored Habitats

The proposed program would restore connectivity of the San Gabriel River with a broader wetland floodplain across the Central LCWA, Central Bryant, and Long Beach City Property sites by removing segments of the existing levees on the north bank of the river and creating a tidal channel network. Sub-tidal and intertidal channels would extend from the San Gabriel River into the vegetated tidal wetlands, providing habitat diversity and tidal circulation. Grading would occur across the Central Area to lower the elevation of upland roads and pads to wetland elevations, if needed. The San Gabriel River Levee north of the breach would be lowered to create additional habitat.

The Perimeter Levee would slope from upland down through transitional marsh habitat (area not shown in Figure 2-22)[7] to salt marsh at a 3:1 H:V slope (**Figure 2-22**, *Artistic Renderings of Central Area Perimeter Levee*, top cross-section).

In the long term, the area west of the Perimeter Levee would be restored to brackish marsh by focusing local run-off into this location and removing invasive plants.

Restoration habitat targets and acreages by phase and option are presented in **Table 2-10**, *Post-Restoration Habitats and Acreages in Central Area*.

[7] There would be a roughly 6-foot strip of transitional habitat along the Perimeter Levee totaling 0.7 acres

Notes:
-Levee boundary in Pumpkin Patch site will be adjusted to meet specifications of the Los Cerritos Wetlands Oil Consolidation and Restoration Project.
-Bioswales (not shown) would be constructed between the road and perimeter levee to provide treatment for stormwater flowing off the road.
-Transitional habitat (not shown) would be established along the base of the levees and raised wells.

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SOURCE: NOAA, ESA, LCWA

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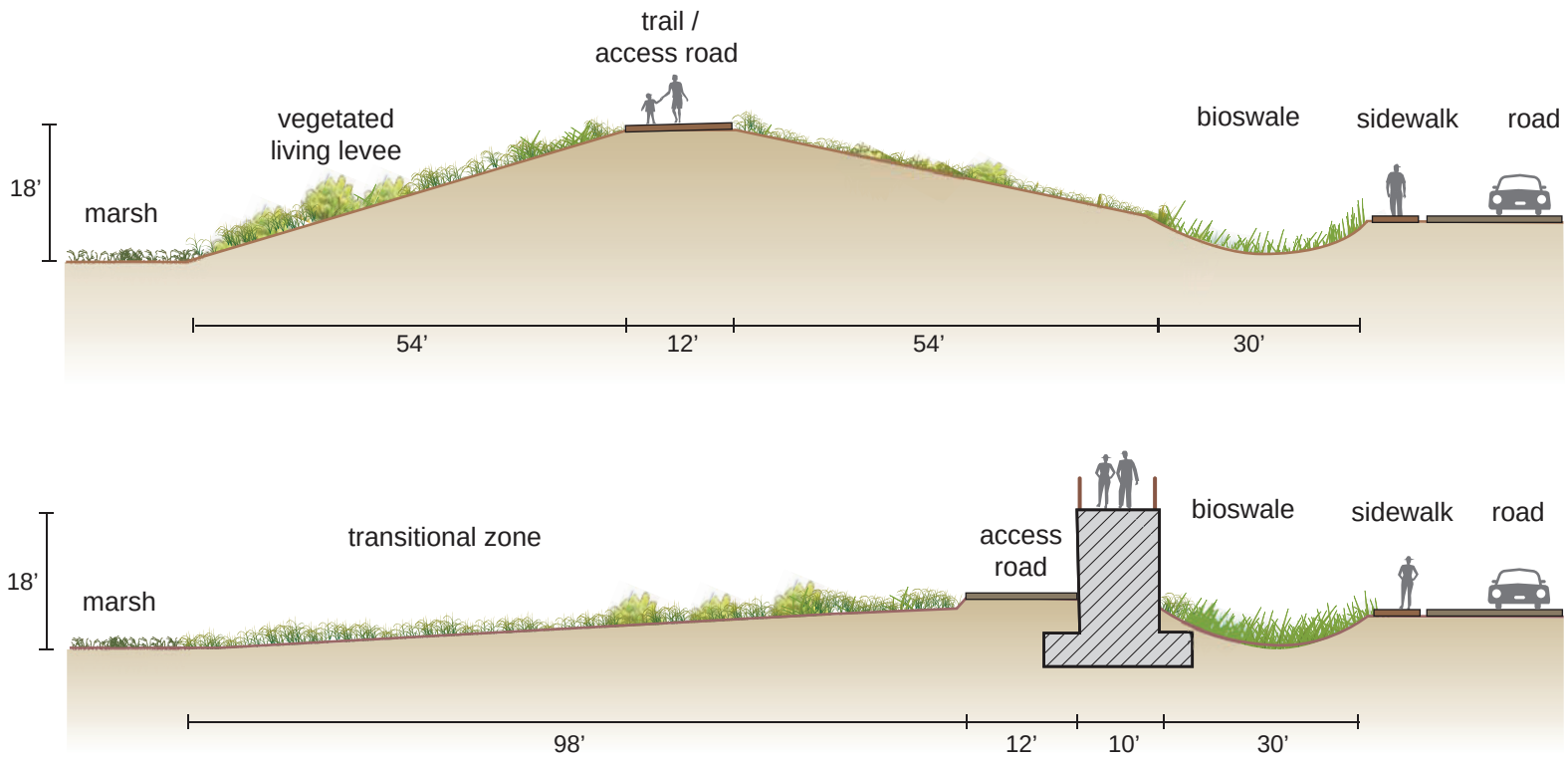
Figure 2-21
Proposed Central Area Long-Term Restoration

ESA

TABLE 2-9
CENTRAL AREA PHASING

	Near Term (0–10 ears)	Mid Term (10–20 years)	Long Term (20+ years)
Central LCWA Site and Central Bryant Site	• Remediation of soils and relocation or modifying oil infrastructure • Grading of site to support habitat restoration • Construction of earthen levee to protect Long Beach City Property site (Interim Levee) and 2nd Street (Perimeter Levee) • Raising existing wells to protect them • Breaching the San Gabriel River Levee and reconnecting the river to the restored marsh • Construction of public trails on levees and accessible ramps • Construction of viewpoints	n/a	• Removal of the Interim Levee and excavation of a tidal channel from the Central LCWA/Central Bryant site to the Long Beach City Property site
Long Beach City Property Site	• Construction of an aboveground pipeline system and underground utility corridor along 2nd Street from Studebaker Road down to and along Shopkeeper Road • Removal of tank farm and 95% of pipelines	n/a	• Removal of oil operations and remediation of soils to allow for restoration • Grading of site to support habitat restoration • Construction of earthen levee to protect 2nd Street and Shopkeeper Road (Perimeter Levee) • Excavation of a tidal channel from the Central LCWA/Central Bryant site to the Long Beach City Property site • Construction of public trails on levees, accessible ramps, and stairs • Construction of viewpoints
Pumpkin Patch Site	n/a	n/a	• Removal of oil operations, including 95% of pipelines and remediation of soils to allow for restoration of the site • Construction of earthen levee to protect the western portion of the Pumpkin Patch site (Perimeter Levee)

Grey text represents project features that interact with this program, but that are evaluated as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR



LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-22
Artistic Rendering Levees

ESA

TABLE 2-10
POST-RESTORATION HABITATS AND ACREAGES IN CENTRAL AREA

Habitat Type	Existing Conditions	Near Term Proposed Restoration	Long Term Proposed Restoration
Wetlands[a]	**68.6**	**63.7**	**64.2**
Transitional zone	0.0	0.7	1.1
Salt flat	3.9	1.0	0.0
Tidal salt marsh	0.0	20.2	42.6
Non-tidal salt marsh	42.1	19.3	0.0
Brackish wetlands	3.7	3.7	2.1
Intermittently flooded brackish pond	0.4	0.4	0.0
Non-Native wetlands	1.4	0.6	0.0
Subtidal	17.2	17.8	18.5
Uplands	**7.4**	**3.2**	**0.0**
Native shrubland	0.2	0.1	0.0
Non-native upland	7.2	3.1	0.0
Managed Habitats	**0.0**	**14.2**	**23.8**
Bioswale	0.0	1.2	3.5
Vegetated levees/berms	0.0	12.9	20.4
Non-Natural	**31.9**	**26.6**	**20.4**
Disturbed habitat	0.1	0.0	0.0
Developed (e.g., impervious surfaces)	31.8	26.6	20.4
Total	**108**	**108**	**108**

[a] These habitat acreages may or may not be jurisdictional wetlands, but they have plants and/or hydrology that is indicative of wetlands. Jurisdictional surveys would be conducted when individual projects move forward.

Hydrology and Grading

Further project design and analysis is needed to determine the exact method for providing tidal connection from the San Gabriel River to the Central LCWA site and the flood management features that would be needed to maintain or reduce the current level of flood risk. To address this uncertainty, this PEIR analyzes the possible range of tidal connections and flood management features in order to provide flexibility for the future design. See Chapter 5, *Alternatives*, for alternatives considered and further evaluated, which includes alternatives with a culvert connection between the Central Area and the San Gabriel River levee instead of a full connection to the river. A culvert connection would limit storm flows and decrease storm water levels, which would result in lower levee heights and result in a smaller overall footprint.

Marshplain Grading

Existing dirt road severely fragment the site ecologically and hydrologically, with elevations ranging from 6 to 10 feet MLLW on the Central LCWA and Central Bryant sites. Grading would be done in the near term to eliminate this fragmentation and establish a broad, natural marshplain, with elevations ranging between 4 to 7 feet MLLW. The excavated material would be used to

construct the new Perimeter Levee, but additional material would be needed, which could come from restoration of the South Area (Section 2.7.2, *South Area*).

Depending on the rate of sea-level rise when the long-term restoration is implemented, some areas on the Long Beach City Property site may need to be filled to raise elevations to create sustainable habitat over time with sea-level rise. Existing elevations range from 2 to 8 feet MLLW, which, depending on the amount of sea-level rise that has occurred when the restoration is implemented, would correspond to subtidal, mudflat, and low salt marsh. Grading or filling could be done to raise elevations to mid or high salt marsh with some areas of low marsh and mudflat along the tidal channels.

Tidal Channels

In the near term, new tidal channels would be excavated between the San Gabriel River and the Interim Levee to create a sinuous and branching network of tidal channels through the wetlands. The largest channels (widest and deepest) would connect up to the breach and be subtidal in elevation. The smaller channels throughout the rest of the salt marsh would be intertidal and would drain at low tide.

Perimeter Levee

The upland perimeter around the restored wetlands would be raised to function as a flood risk management levee. The levee would be constructed with a top width of 12 feet and would be approximately 4,800 feet long, running from the San Gabriel River Levee adjacent to the 2nd Street bridge, west on 2nd Street, and south on Shopkeeper Road to tie into the existing levee. The Perimeter Levee would have a slope of approximately 3:1 horizontal: vertical (H:V) down to restored salt marsh at roughly 6 feet MLLW and the same slope down to the road on the back, which would give it a footprint of 120 feet in width. The levee would be offset from the property boundaries by 30 feet to allow for road drainage to the area between the road and the levee and to limit settlement impacts (e.g., the weight of the levee impacting the surrounding area) to existing utilities along 2nd Street and Shopkeeper Road, which would remain in place. The offset would also provide space for the pipeline and utility corridor proposed as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project. The levee crest elevation is expected to be approximately 24 feet MLLW, or roughly 6 feet (in the east) to 11 feet (in the west) above 2nd Street (since the road slopes down from the river) and roughly 11 feet above Shopkeeper Road, as described in greater detail below in Section 2.7.4.3, *Flood Risk and Stormwater Management*. The levee would include a 12-foot-wide road on the top that would serve the dual purpose of providing access for maintenance of the levee and a public access trail (Figure 2-22).

The first part of the levee along the eastern portion of 2nd Street from the bridge to the intersection with Studebaker Road (roughly 1,500 feet) would be constructed in the near term and would tie into the Interim Levee. Approximately 65,000–72,000 cubic yards of fill would be placed in the near term to construct this portion of the Perimeter Levee. The remaining Perimeter Levee (roughly 3,400 feet) would be constructed in the long term, when the Long Beach City Property site is available for restoration. Approximately 158,000–180,000 cubic yards of fill would be placed in the long term for the construction of the Perimeter Levee along 2nd Street

from the intersection of Studebaker Road to Shopkeeper Road and down along Shopkeeper Road, south to the Pumpkin Patch site.

Interim Levee

During the near-term ecosystem restoration, an Interim Levee would be constructed along the eastern Long Beach City Property boundary on the Central LCWA site. The levee crest elevation is expected to be approximately 21 feet MLLW, or 15 feet above marshplain elevation, as described in greater detail below in Section 2.7.4.3, *Flood Risk and Stormwater Management*.

The Interim Levee would have 3:1 H:V side slopes on both sides. The levee would be constructed with a top width of 12 feet and would include a 12-foot-wide maintenance access road and a public access trail on top. Approximately 62,000–68,000 cubic yards of fill would be placed in the near term to construct the approximately 1,600-foot-long Interim Levee.

In the long term, the northern portion of the Interim Levee (the area north of the existing wells) would be removed to allow tidal connection between the Central LCWA site and the Long Beach City Property site. The material removed from the Interim Levee (17,000–19,000 cubic yards) would be used to construct the Perimeter Levee.

Well Access and Flood Control

The proposed program would grade well pads and access roads up to 19 feet MLLW (13 feet above marshplain elevation) (see below in Section 2.7.4.3, *Flood Risk and Stormwater Management*) with slopes of 3:1 H:V down to the surrounding marshplain. The access roads could be consolidated to reduce the extent in the salt marsh.

2.7.4.3 Flood Risk and Stormwater Management

The restoration and grading descriptions above describe how levee grading would support restoration functions. The sections below detail the flood risk and stormwater management functions of levees and drainage features of the proposed program.

Levees

In the Central Area, the proposed program includes a new levee along 2nd Street and Shopkeeper Road to function as a flood risk management levee, a modified Los Angeles County Drainage Area project feature. This levee would replace the existing west San Gabriel River Levee and maintain or improve the existing level of flood risk protection for 2nd Street and Shopkeeper Road from San Gabriel River flooding. The new levee would tie into the existing San Gabriel River Levee upstream and downstream of the restoration. The levee would be set at approximately 24 feet NAVD (18 feet above marshplain elevation) which includes 5 feet of sea-level rise above the existing level of flood protection (19 feet NAVD). The Interim Levee would include protection for 2 feet of sea-level rise (21 feet NAVD crest elevation), assuming it would only be required until the long-term restoration is implemented.

The Central Area is expected to primarily be a backwater area during flood events, and erosion potential is expected to be limited along most of the levee reach. The new levees may incorporate buried soil cement or rock protection of the levee core with vegetation on the slopes.

Oil Operation Flood Risk Management

Well pads and access roads in the Central LCWA and Central Bryant sites would be graded to 19 feet NAVD (13 feet above marshplain elevation) to match the existing level of flood risk protection provided by the San Gabriel River Levees. The access roads would tie the high-elevation well pads to the existing and Interim Levees.

Water-Control Structures

The existing culvert on the Long Beach City Property site connecting the site to the San Gabriel River during high tides would be left in place. The culvert would continue to allow some minor flow into the site at high tides and would provide some drainage to the site.

Stormwater Management

With the construction of the proposed levees, storage volume for the excess overflow drainage from the roads would be eliminated. Replacement stormwater storage volume would be provided by creating low areas (e.g., basins or swales) between the roads and the proposed levee. These storage basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas.

2.7.4.4 Public Access and Visitor Facilities

The proposed program would develop and improve public access, recreation, and interpretative opportunities within the Central Area in the near term, as shown in **Figure 2-23**, *Proposed Central Area Near-Term Public Access*, and in the long term, as shown in **Figure 2-24**, *Proposed Central Area Long-Term Public Access*.

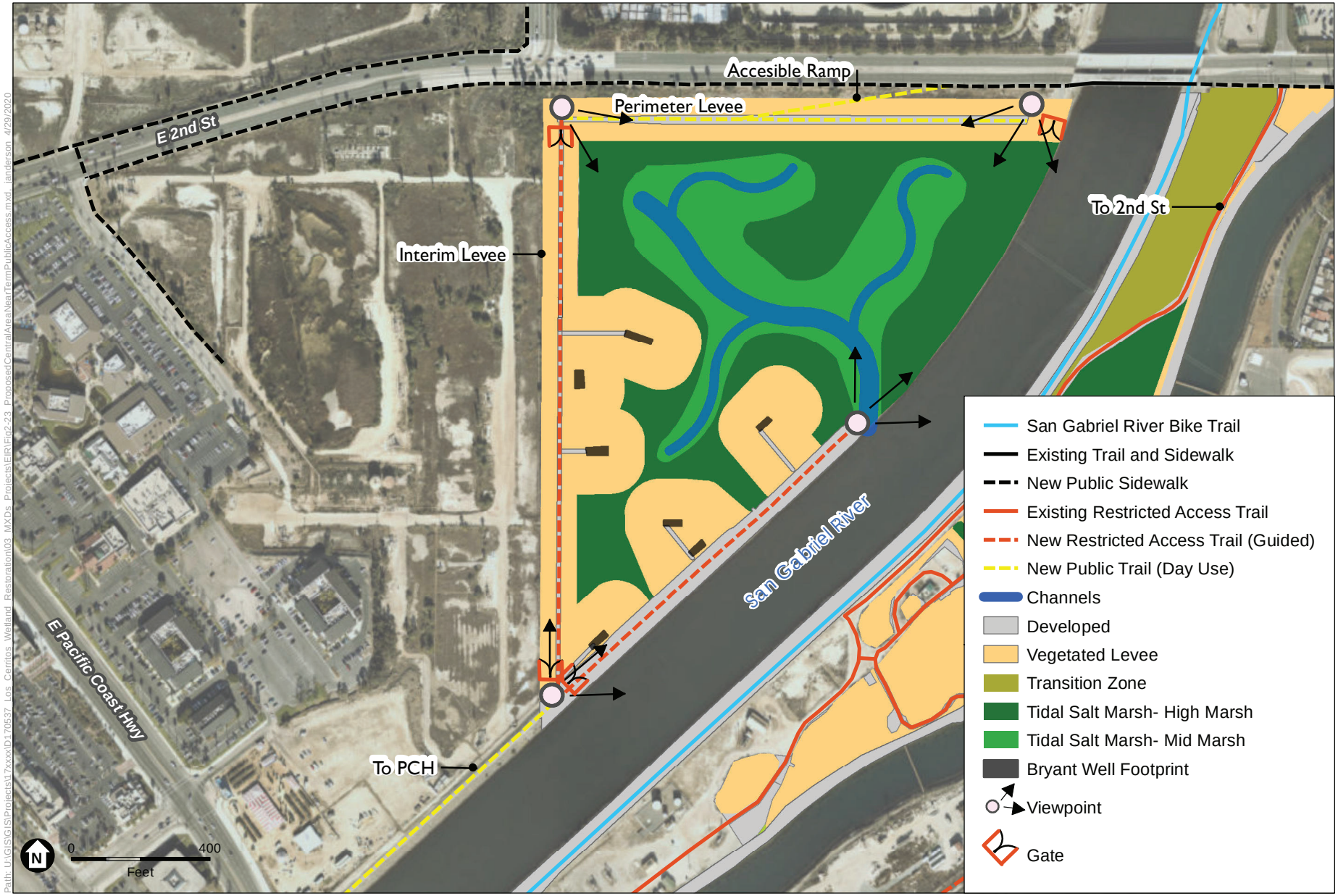
Parking

The main parking for the Central Area would be existing on-street parking along Shopkeeper Road.

Trails and Overlooks

A 12-foot-wide road would be constructed along the top of the near-term Perimeter and Interim Levees. The road on the near-term Perimeter Levee (parallel to 2nd Street) would serve multiple purposes as a maintenance access road and a public trail. It would be open to the public from dawn to dusk and would have an accessible ramp sloping up from the sidewalk along 2nd Street to the top of the levee. There would be two overlooks constructed at either end of the near-term Perimeter Levee (Figure 2-24).

The road on top of the Interim Levee (north-south between 2nd Street and the San Gabriel River Levee) would not be open to the public due to the oil operations but could be restricted to docent-led use only with gates on either end. An additional overlook would be constructed where the Interim Levee ties into the existing San Gabriel River Levee and could be accessed by the public along the existing levee from the PCH. Access would be restricted on the existing levee from the Interim Levee to the breach due to oil operations.



SOURCE: NOAA, ESA, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-23

Proposed Central Area Near-Term Public Access

ESA

SOURCE: NOAA, ESA, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-24

Proposed Central Area Long-Term Public Access

ESA

In the long term, the Central Area restoration would expand to the west, which would change and expand the public access opportunities. The maintenance road and public trail on the eastern portion of the Perimeter Levee along 2nd Street would be extended west after the rest of the Perimeter Levee is constructed (see Section 2.7.4.3, *Flood Risk and Stormwater Management*, under *Levees*). The new trail segment would have an accessible ramp and stairs up from the parking along Shopkeeper Road (Figure 2-24). A set of stairs would also be added at the northwest corner of the Perimeter Levee, near the crosswalk, to facilitate direct access from the North Area and Long Beach Visitor Center (see Section 2.7.5, *North Area*).

Sidewalk Improvements

Sidewalk improvements could be implemented in accordance with the City of Long Beach standards along the south side of 2nd Street, improving public access around the perimeter below the levee. All construction for these improvements could occur within the existing right-of-way. A crosswalk would be added at the intersection of Shopkeeper Road and 2nd Street to improve public access between the North Area, Long Beach Visitor Center, and Central Area.

2.7.4.5 Infrastructure and Utility Modification

As proposed in the Termination of Oil and Gas Lease and Grant of Easement agreement between Signal Hill Petroleum, Inc., and the LCWA, Signal Hill Petroleum, Inc. would relocate or modify aboveground pipelines and utilities on the Central LCWA site and remediate soils that have been impacted by oil operations to accommodate the restoration. Thus, restoration in the near term would include pipeline relocation, but not well relocation. Additionally, outside of this agreement, existing Signal Hill Petroleum, Inc. wells would be protected in place by proposing to raise the wells out of the floodplain to 19 feet NAVD, 13 feet above marshplain elevation. When Signal Hill Petroleum, Inc. elect to modify their oil operations, the changes would be analyzed under a separate CEQA document.

The decommissioning of oil wells and associated oil production infrastructure on the Long Beach City Property site and the Pumpkin Patch site is discussed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083).

Pipeline Removal

Pipelines to be demolished on the Central LCWA site would be identified and marked in the field and permanently isolated from sections of the system that would continue operating. Many of these pipelines occur in wetland areas. The pipelines would be removed in compliance with applicable standards required by CalGEM and Department of Toxic Substances Control (DTSC) Removal of pipelines could involve excavation of contaminated soil. If contaminated soil is encountered, the material would be tested and assessed to determine remediation options in compliance with applicable regulatory standards.

Raising Wells

To raise the oil well pads, the wells would be temporarily taken off production and all equipment would be removed from each well (pumping units, concrete pads, electrical equipment, etc.). A temporary retrievable plug would be placed in each well and a casing riser would be installed. Once the well pad grading and construction are complete, the wells would go back into production.

Well Abandonment

In the long term, the oil wells and associated oil production infrastructure on the Central LCWA site may be decommissioned and removed as part of restoration activities. Because there are no agreements in place between the oil operators and LCWA on the Central LCWA site for oil well abandonment, it is expected that overall levels of oil and natural gas production would continue until production decreases to below economically viable levels, after which oil production would stop. When the owner/operators of those oil operations elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The work involved in abandoning oil wells is discussed under the heading Oil Well Abandonment in Section 2.7.6.4, *Implementation Methods*.

2.7.5 North Area

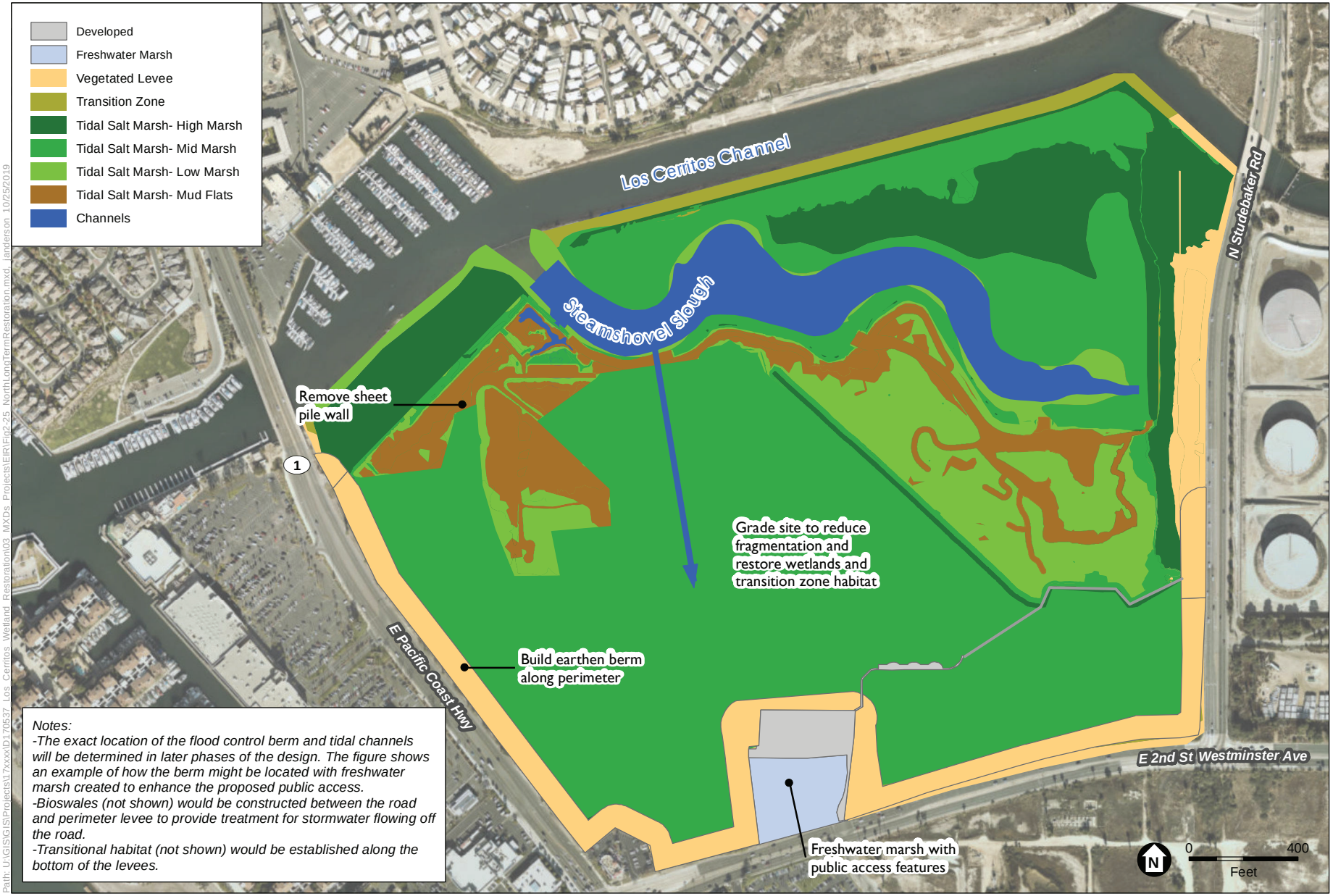
2.7.5.1 Phasing

Ecosystem restoration on the Alamitos Bay Partners site and Southern Synergy Oil Field site would occur in the long-term phase based on land and oil lease ownership (see the description of near-term phase activities in Section 2.4.4, *Los Cerritos Wetlands Oil Consolidation and Restoration Project*). The Northern Synergy Oil Field site is part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project and would be restored in the near-term phase.

Long-term activities would include (**Figure 2-25**, *Proposed North Area Long-Term Restoration*):

- Remediating soils (e.g., on-site treatment, excavation and removal, or cap in place) that have been impacted by oil operations on the Alamitos Bay Partners site;
- Grading the Alamitos Bay Partners site and the Southern Synergy Oil Field site, including excavation to create channels, and revegetation to support a diversity of marsh, transitional, and upland habitats;
- Constructing a new earthen levee or flood wall along the Southern Synergy Oil Field and Alamitos Bay Partners sites to protect 2nd Street and Pacific Coast Highway from flooding;
- Excavating a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site to increase tidal connection in the Southern Synergy Oil Field site; and
- Removing the sheet pile wall along the Alamitos Bay Partners site.

Table 2-11, *North Area Phasing*, summarizes the activities associated with each phase.



SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-25

Proposed North Area Long-Term Restoration

ESA

TABLE 2-11
NORTH AREA PHASING

	Near Term (0–10 years)	Mid Term (10–20 years)	Long Term (20+ years)
Northern Synergy Oil Field Site	• Remediation of soils and relocation of oil infrastructure • Construction of a new berm and sheet pile wall barrier along the southern limits of the site • Grading tidal channels to support habitat restoration • Removal of segments of the existing berm separating Steamshovel Slough from the site	n/a	n/a
Southern Synergy Oil Field Site	• Development of the Long Beach Visitor Center and parking lot from existing office building • Construction of trail, sidewalk enhancements, and bikeway improvements	n/a	• Remediation of soils and relocation oil infrastructure • Removal of the sheet pile wall barrier constructed in the near term • Grading of site to support habitat restoration • Construction of earthen levee or flood wall to protect 2nd Street and Pacific Coast Highway • Excavation of a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site
Alamitos Bay Partners Site	n/a	n/a	• Remediation of soils and relocation oil infrastructure • Grading of site to support habitat restoration

Grey text represents project features that interact with this project, but that were evaluated as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR

2.7.5.2 Ecosystem Restoration

Restored Habitats

Salt marsh and transitional wetland grading would occur across the southern portion of the Southern Synergy Oil Field site and the Alamitos Bay Partners site to lower the elevation of on-site roads and abandoned oil well pads to wetland elevations, where needed. Elevations would be graded to create a mix of habitats, including subtidal, intertidal salt marsh, transitional zones, and upland. Tidal channels would be excavated to connect to the northern portion of the site and bring tidal flows south. The proposed sheetpiling between the northern and southern portions of the site would be removed in the long term.

Restoration habitat targets and acreages are presented in **Table 2-12**, *Post-Restoration Habitats and Acreages in North Area*.

TABLE 2-12
POST-RESTORATION HABITATS AND ACREAGES IN NORTH AREA

Habitat Type	Existing Conditions	Long Term Proposed Restoration
Wetlands[a]	**40.2**	**67.1**
Salt flat	9.8	0.0
Tidal salt marsh	0.0	63.1
Non-tidal salt marsh	30.4	0.0
Freshwater wetland	0.0	2.1
Subtidal	0.0	2.0
Uplands	**10.2**	**0.0**
Native shrubland	1.2	0.0
Non-native upland	9.0	0.0
Managed Habitats	**0.0**	**11.1**
Vegetated berms	0.0	11.1
Non-Natural	**22.8**	**1.7**
Disturbed habitat	1.4	0.0
Developed (e.g., impervious surfaces)	21.4	1.7
Total[b]	**73**	**80**

[a] These habitat acreages may or may not be jurisdictional wetlands, but they have plants and/or hydrology that is indicative of wetlands. Jurisdictional surveys would be conducted when individual projects move forward.

[b] Acreages do not include the Northern Synergy Oil Field site.

Hydrology and Grading

Marshplain Grading

Existing on-site road and oil well pad elevations range from 6 to 8 feet MLLW and severely fragment the site ecologically and hydrologically. Grading would be done to eliminate this fragmentation and establish a broad, natural marshplain. At current sea level, the elevations of the rest of the site (3 to 6 feet MLLW) would generally support mudflat, low marsh, and mid marsh habitats. Depending on the amount of sea-level rise that has occurred when the restoration is implemented, these lower areas of the site may support different habitats (e.g., mudflat or subtidal). The soil generated by removing roads, pads, and berms and excavating new tidal channels could be used beneficially on site to create more mid and high marsh and/or gently sloping transition and upland habitats. Conversely, additional material could be brought in from off site to raise elevations.

Establish Tidal Channels

Tidal channels would be excavated between the northern and southern area in order to increase tidal exchange in the latter. The tidal channels would expand tidal influence and convert areas from non-tidal to tidal wetlands.

Construction of a Flood Control Berm

A new earthen berm or flood wall would be constructed in the long term along the perimeter of the southern edge of the Southern Synergy Oil Field Site and Alamitos Bay Partners site. An example berm location is depicted in Figure 2-25, but would be refined as part of the design process. A berm would support some upland habitat while a flood wall would allow for more wetland area.

2.7.5.3 Flood Risk and Stormwater Management

The restoration and grading descriptions above describe how grading would support restoration functions. The sections below detail the flood risk and stormwater management functions of berms and drainage features of the proposed program for the North Area.

Berms/Flood Walls

In the long term, the proposed program would require a berm or flood wall to protect roadways and adjacent infrastructure from flooding. The new berm or flood wall would tie into high ground along Studebaker Road in the east, and the PCH bridge in the west. The exact location of this program component will be determined in later phases of the design, subsequent to the preparation of this PEIR, but an example berm location is depicted in Figure 2-25. The elevation of the berm crest or flood wall would be set based on the existing level of flood protection plus an allowance for sea-level rise, as is appropriate at the time of implementation.

Stormwater Management

With the construction of the proposed berm or flood wall, storage for the overflow of stormwater draining from the roads would be reduced. Room for stormwater storage between the road and berm or flood wall would be provided by creating low areas (basins or swales) between the roads and the proposed levee. These storage basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas.

2.7.5.4 Public Access and Visitor Facilities

No public access improvements would be constructed within the North Area as part of this program. The Los Cerritos Wetlands Oil Consolidation and Restoration project would include new public access opportunities (see Section 2.4.4, *Los Cerritos Wetlands Oil Consolidation and Restoration Project*, for further information). The Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse No. 2016041083) includes the development of a parking lot at the Long Beach Visitor Center.

2.7.5.5 Infrastructure and Utility Modification

In the long term, the oil wells and associated oil production infrastructure on the Alamitos Bay Partners site would need to be decommissioned and removed before restoration can occur. Because there are no agreements in place between the oil operators and LCWA on the Alamitos Bay Partners site, it is expected that overall levels of oil and natural gas production would continue until production decreases to below economically viable levels, after which oil

production would stop. When the owner/operators of those oil operations elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The work would involve plugging and abandoning oil wells. and is discussed under the heading Oil Well Abandonment in Section 2.7.6.4, *Implementation Methods*. Infrastructure on the Southern Synergy Oil Field Site would be removed as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse No. 2016041083).

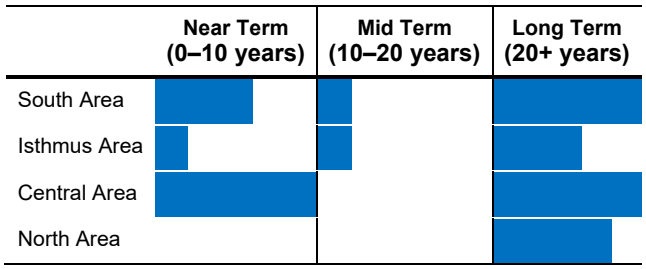
2.7.6 Implementation and Restoration Process

Implementation would include: clearing and grubbing, grading and soil transport across and off-site, soil remediation, levee lowering and breaching, revegetation, construction of flood risk and stormwater management facilities, access roads/trails, the visitor center and utility modifications.

2.7.6.1 Schedule

Table 2-13, *Restoration Schedule*, shows the proposed construction schedule for the program. Each phase of the proposed program will take multiple years to complete construction activities and with multiple years anticipated between each phase.

TABLE 2-13
RESTORATION SCHEDULE



2.7.6.2 Earthwork Quantity Estimates

Table 2-14, *Approximate Earthwork Soil Volume for Near Term*, summarizes the earthwork quantity estimates for the program in the near term. **Table 2-15**, *Approximate Earthwork Soil Volume for Long Term*, summarizes the earthwork quantity estimates for the program in the long term, by area. Levee dimensions would be refined during final design as needed to meet Corps requirements, including Section 14 of the Rivers and Harbors Act and Section 408 requirements for modifications to Corps-approved flood risk management systems. The final volume of fill placement for levee construction would depend on the final design and the actual conditions during restoration (e.g., the compatibility of excavated soils). High estimates of potential fill volumes are analyzed in this document; actual fill volumes may be less.

TABLE 2-14
APPROXIMATE EARTHWORK SOIL VOLUME FOR NEAR TERM

Feature/Action	Cut Quantity (cy)	Fill Quantity (cy)
Central Area		
Central Area Perimeter Levee, near term	0	78,000–86,000
Interim Levee	0	74,000–82,000
Raising Wells and Access Roads	0	108,000
Central LCWA and Central Bryant Marsh Grading	44,000–82,000	0
Total	**44,000–82,000**	**260,000–276,000**
South LCWA Perimeter Berm	0	18,000
South LCWA Marsh Grading (avoiding high-functioning marsh habitat)	315,000–412,000	assume no fill needed
Total	**358,000–494,000**	**278,000–294,000**
Total cut/fill balance	**64,000–216,000 cy excess material**	

TABLE 2-15
APPROXIMATE EARTHWORK SOIL VOLUME FOR LONG TERM

Feature/Action	Cut Quantity (cy)	Fill Quantity (cy)
North Area		
North Area Berm	0	155,000
Southern Synergy Oil Field and Alamitos Bay Partners Sites Marsh Grading		100–135,000
Total	**0**	**155,000–290,000**
Total cut/fill balance	**155,000–290,000 cy material needed**	
Central Area		
Central Area Perimeter Levee, long term		190,000–216,000
Interim Levee Removal (northern portion)	17,000–19,000	
Long Beach City Property Site Marsh Grading		1,000–47,000
Total	**17,000–19,000**	**191,000–263,000**
Total cut/fill balance	**172,000–246,000 cy material needed**	
South Area		
Hellman Retained Site Marsh Grading	0–88,000	0–2,000
Total cut/fill balance	**2,000 cy material needed–88,000 cy material cut**	

This table does not include the excess fill from Table 2-14, which could be used to offset the needed material in the long term.

Excavation in the South LCWA site to lower the area to marshplain is expected to generate between 315,000 and 412,000 cubic yards of soil, depending on final marshplain grading. In the near term, approximately 178,000 to 232,000 cubic yards of soil would be needed in the Central LCWA site, depending on final levee design, levee compaction, and final marshplain grading. The extra material generated from the South LCWA site could be stockpiled for the long term, when the Central Area would need 172,000 to 246,000 cubic yards of material. Based on these estimate ranges, there could be 62,000 cubic yards of excess material to export or a need to import 163,000 cubic yards of material. The future design should seek to balance cut and fill as much as possible on site.

In the long term, approximately 155,000 to 290,000 cubic yards of material would be needed to raise the Southern Synergy Oil Field and Alamitos Bay Partners sites and to construct the North Area berm. Based on the final marshplain grading design, the Hellman Retained site could generate 88,000 cubic yards of material or require 2,000 cubic yards of fill. The future designs of these sites should seek to balance cut and fill as much as possible on site.

Although quantities for cut and fill have been estimated for the conceptual design, exact calculations of how much excess fill would be generated by the excavation of wetlands areas will be determined in the final levee design process in cooperation with LACFCD and the Corps.

2.7.6.3 Stockpiling and Excess Fill Placement

In the near term, soil excavated from the South LCWA site could be stockpiled on the Long Beach City Property site, in order to stockpile the soils for long-term construction of the perimeter levee as discussed in Section 2.7.4, *Central Area*. In the near term, soil not needed for levee construction would be placed in upland areas or exported (see *Off-Site Soil Export* under Section 2.7.6.4, *Implementation Methods*, on the following pages).

2.7.6.4 Implementation Methods

Earthwork and Soil Transport

Much of the proposed program's earthwork would be accomplished by traditional land-based equipment (e.g., scrapers and excavators); however, marine construction equipment may also be used. Wetland restoration earthwork also would require some special equipment and implementation methods, as high groundwater and weak soils can preclude use of traditional land equipment. Specialized equipment and construction methods that may be needed, along with more typical techniques, are described in **Table 2-16**, *Equipment and Earthwork Methods for Wetland Restoration*.

Soil transport would be accomplished using scrapers and loaders, haul and dump trucks, track excavators and dozers, trucks or other low ground pressure equipment, or by hydraulic dredge. **Table 2-17**, *Soil Transport Methods between Sites*, summarizes possible methods for transporting soil between the South, Isthmus, Central and North Areas that the restoration contractor could use to cross the San Gabriel River, including a temporary floating crossing or using existing roadways.

Levee and Berm Lowering and Breaching

Levee and berm lowering would involve a phased removal of earth to maximize the quantity that is moved prior to breaching and to limit the risk of uncontrolled breaching. The restoration contractor would be required to sequence work to prevent site inundation, and typically would do this by leaving a small raised area (e.g., a "check berm") until final earthwork. Final earthwork often consists of dozer operation to quickly remove the check berm and side cast earth into the site. This last work may be timed for a neap tide (i.e., least difference between low and high tides) and staged to maintain access and egress along portions of the berm. Alternatively, the contractor could use steel sheet pile coffer dams along the levee to allow for levee lowering during all tide levels.

TABLE 2-16
EQUIPMENT AND EARTHWORK METHODS FOR WETLAND RESTORATION

Equipment	Earthwork Methods
Special Equipment and Methods for Wetland Restoration	
Low ground pressure equipment	Smaller, lighter equipment with large surface area tires or treads that reduces bearing pressure.
Mats	Timber planks (thick) lashed together and moved by bucket-type equipment.
Long-reach excavator	Track or wheel mounted excavator with a long arm and small bucket to allow extended reach to over 40 feet.
Clamshell and dragline crane	Usually track mounted, can reach 60 feet or more.
Amphibious excavator	Can float and can excavate in shallow standing water.
Rotary ditcher	Excavates with rotating wheels that spray sediment across adjacent areas, resulting in a narrow ditch. Typically pulled behind other equipment but can be self-propelled.
Floating equipment	Cranes and excavators can be floated on barges for both transport and operation. Equipment can be trucked in and assembled to work in land-locked water bodies.
Hydraulic dredge	A water and sediment mixture can be excavated and pumped.
More Common Construction Equipment	
Grader	
Truck	
Loader	
Backhoe	
Generator Set	
Drill Rig	
Forklift	

TABLE 2-17
SOIL TRANSPORT METHODS BETWEEN SITES

Method	Application
Barge/floating crossing	Straight between the South Area and the Isthmus Area (across the Haynes Cooling Channel) or between the Isthmus Area and the Central Area (across the San Gabriel River)
Existing roadways	From the South Area along the PCH to 2nd Street to reach either the Southern Synergy Oil Field site or the Long Beach City Property site; through the Long Beach City Property site to reach the Central LCWA and Central Bryant sites.
Temporary bridge	Between the Isthmus Area and the Central Area (across the San Gabriel River)

Breaching would also be phased, similar to levee and berm lowering. Breaching usually is accomplished by two long-reach excavators working on the lowered berm on either side of the breach to be excavated. At first, earth would be loaded onto trucks and taken elsewhere. Once the berm section is reduced to the point of incipient breaching at the next high tide, the operation usually shifts into a high production rate mode with excavated material sidecast. Often, other excavators and low-ground pressure dozers rehandle the sidecast earth and displace it farther away from the breach, thereby limiting the height of the side cast and maximizing the excavation rate. The work continues until the breach is excavated or the tides approach the levee surface.

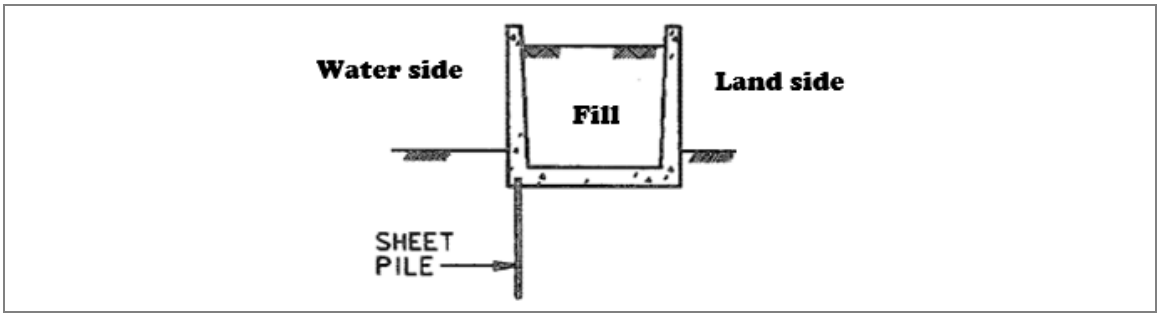
Construction Period Levee Stability

Levee stability would be addressed by staged construction with geotechnical recommendations. Levee construction often requires a phased construction to compensate for settlement and to avoid overloading the subgrade and causing shear failure (e.g., sliding failure) and mass movements. The increased weight of an earth levee typically would result in consolidation of underlying soils and settlement. The increased weight also would increase the shear stresses in the foundation soils, and can cause shear failure and deformation, and compromise the levee construction. Consequently, levee construction often requires a second construction phase one or more years later to compensate for settlement.

Flood Wall Construction

To construct a flood wall, existing soil would be excavated and backfilled with selected native or imported earth. The backfill would be placed in thin, uniform lifts (e.g., 6-inch vertical thickness) and compacted under controlled moisture conditions to achieve a dense mat with adequate strength and limited permeability to groundwater flow. This construction would require temporary construction shoring and dewatering. Alternatively, or in addition to over-excavation and engineered backfill, in-situ earth densification techniques could be employed, such as deep-soil-mixing, where grout is injected and mixed with the soil.

Next, the gravity structure foundation would be constructed. The foundation would include a cut-off wall to control seepage. This could be a steel-sheet pile wall driven into the ground a distance approximately equal to the height of the wall (**Figure 2-26**, *Example of Sheet Pile Cut-off Wall*), although deeper embedment may be needed, depending on the engineering properties of the soils and the structural scheme. The cut-off wall would need to connect to the flood wall and, hence, would be part of the wall or embedded into cast-in-place concrete wall. A deep-pile foundation might be selected due to weak soils and seismic design criteria (earthquake loads). The precast piles would be driven into the ground by impact or vibratory hammer and crane, or cast-in-drilled-hole (CIDH) piles would be employed. The CIDH piles avoid impact driving, but drilling mud and water control would be required. The required pile length would be determined through further analysis, but lengths of at least 40 feet are assumed. The number of piles would be related to the mass and geometry of the structure and therefore, the height of the wall, engineering properties of the soils, and the seismic design criteria, which would be determined during design.

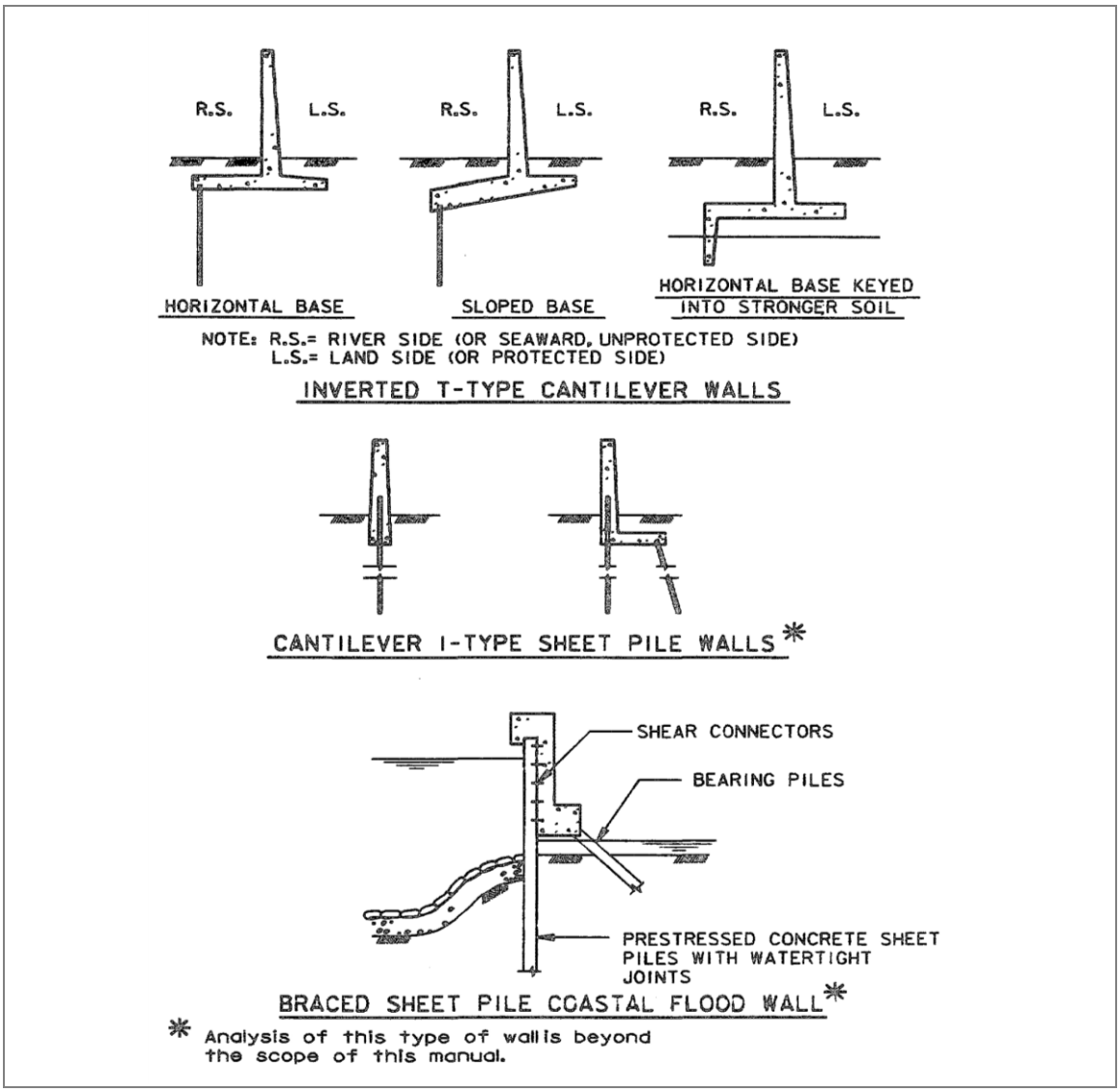


SOURCE: USACE, 1989

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-26
Example of Sheet Pile Cut-Off Wall

Finally, the wall structure itself would be constructed. For short wall heights (e.g., 5 feet tall), the wall configuration would consist primarily of a single vertical element, connected to the below-grade cutoff wall via a cantilever (single vertical member), or an "I-wall" or "T-wall" geometry (**Figure 2-27**, *Example of "I" and "T" Type Flood Walls*). As shown in **Figure 2-28**, *Example of "I" and "T" Type Flood Walls on Earth Levees*, these "short" flood walls are also used in concert with earthen levees (USACE, 2000). A cellular or other more massive structure would be used for taller wall heights. If a cellular sheet pile structure is employed (**Figure 2-29**, *Example of Cellular Sheet Pile Flood Wall*), steel sheets would be used and horizontal steel beams (typically called "wales") and or caps (typically cast-in-place concrete) could be added to brace the sheet piles. King-piles of greater size and strength could be arrayed within the cell walls. Earth or other fill would be placed in the cells. Architectural treatments would be employed for aesthetics and public access.



SOURCE: USACE, 1989

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-27
Example of "I" and "T" Type Flood Walls

EM 1110-2-1913
30 Apr 2000

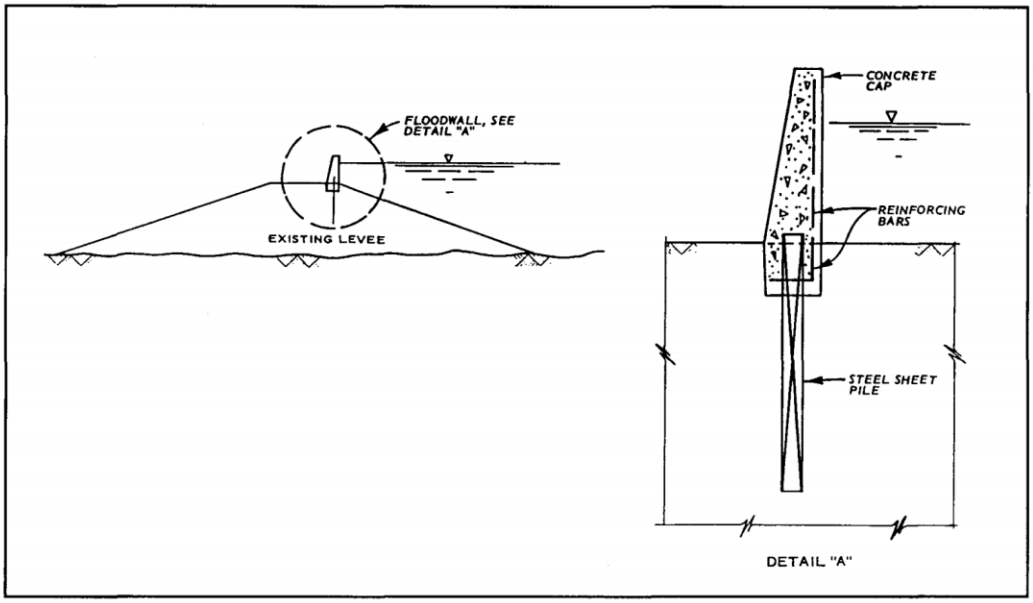


Figure 8-7. I-type floodwall-levee enlargement

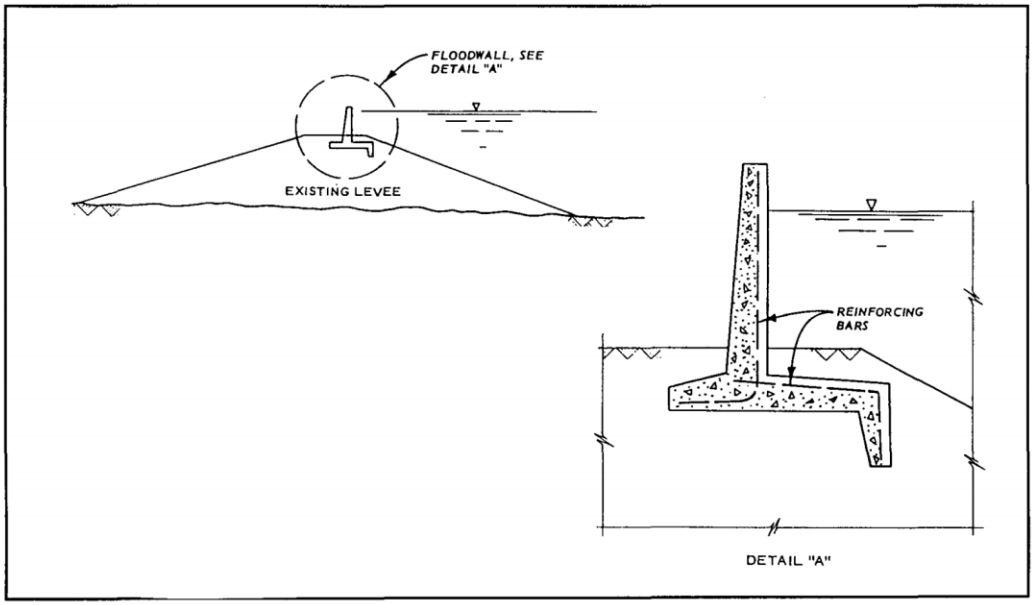


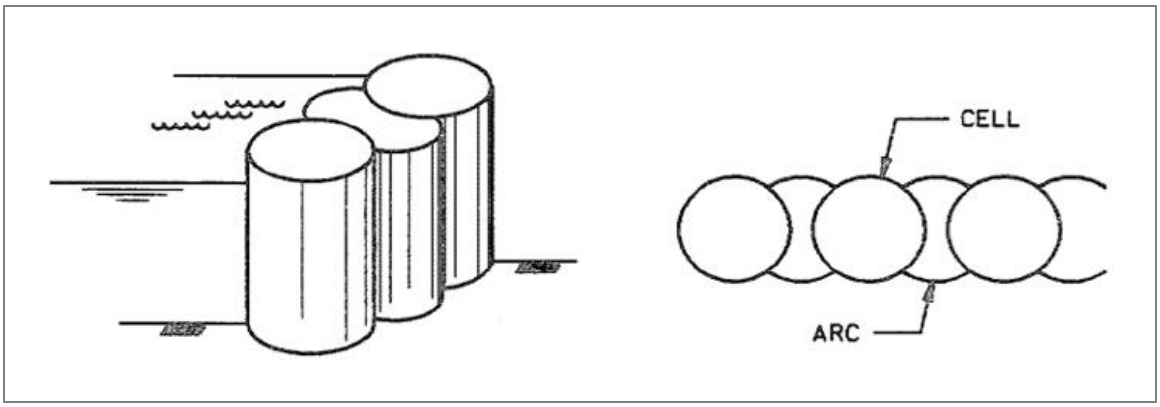
Figure 8-8. Inverted T-type floodwall-levee enlargement

8-15

SOURCE: USACE, 2000

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-28
Example of “I” and “T” Type Flood Walls on Earth Levees



SOURCE: USACE, 1989

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 2-29
Example of Cellular Sheet Pile Flood Wall

Off-Site Soil Export

In the proposed program, some excavated soil could be exported from the site. There are three options for off-site soil export and disposal:

1. Export via trucks with disposal at local landfills, the most likely of which could include Scholl Canyon Landfill in the City of Glendale, Frank R Bowerman Landfill in Irvine, and/or Olinda Alpha Landfill in Brea;
2. Export via barge to the Port of Long Beach or Port of Los Angeles, transfer to trucks for upland disposal at local landfills; or
3. Export via barge to an off-shore disposal location, potentially including the Los Angeles ocean disposal site off the coast from San Pedro (LA-2) or the Newport Bay ocean disposal site off the coast from Newport Beach (LA-3), each of which is managed by the United States Environmental Protection Agency (USEPA).

Clearing and Grubbing

Vegetation would be biologically monitored, cleared, and grubbed prior to grading. Native plants and seeds/cuttings may be salvaged and reused for revegetation of restored areas. Invasive-nonnative plants would be stockpiled on site and treated (e.g., composted). If possible, the preferred approach would be to bury non-native plant material in upland fill areas at a depth below which the nonnative vegetation or seedbank could reestablish. Non-native plant material may also be exported and disposed of off-site as described above (e.g., Options 1 and 2).

Non-native Plant Material Treatment

After grading, non-native plants would be removed prior to and concurrent with revegetation to ensure native habitat enhancement. Specifically, invasive non-native species populations designated as High by California Invasive Plant Council would be targeted for removal. If other invasive non-native plant species listed as having a moderate or limited impact by the California Invasive Plant Council are present, they would be removed if, based on the CDFW's review, they are negatively affecting habitat and/or restoration efforts at the site.

Recommendations contained in the California Invasive Plant Council Weed Workers Handbook and website (2014) and at the U.S. Department of Agriculture (http://plants.usda.gov/java/noxiousDriver) would be followed. Mechanical removal is the preferred method of removing invasive species; accordingly, invasive plant species removal would occur using mechanical methods to the maximum extent possible. This method of removal would be used in areas where the associated ground disturbance would not adversely affect sensitive wildlife species. Plant materials that are removed would be removed entirely and disposed of carefully, including stems and all root fragments, to prevent regeneration or spread. In general, removal would be performed during the late winter or early spring when soils are moist enough to remove entire plants without breaking the roots. Invasive species would be removed before the species set seed. When this is not feasible, seed heads would be removed from plants prior to removing the stems and roots. Seed heads of invasive species would be placed in plastic trash bags and removed from the site for proper disposal.

If mechanical or hand removal methods are tried and found to be ineffective after two years of repeated treatment, or the problem is too widespread for hand removal to be practical, then chemical controls would be implemented as described below. For some species, particularly woody species or large-biomass species (e.g., pampas grass), mowers, chainsaws, or other handheld equipment may be used if the eradication method would not adversely affect sensitive wildlife species.

Invasive plant materials that are removed would be disposed of carefully to prevent regeneration or spread. For plants that are not in seed, the material could be left on site to decompose. For any plants with seed, they would be removed from the site in a manner that does not disperse seed (in plastic bags for example) and disposed of at an off-site disposal area.

Herbicides would be used in accordance with manufacturers' application guidelines for specific species when manual and mechanical removal methods are not effective, and may be used in conjunction with physical removal methods for species that are known to be difficult to control. The program's restoration contractor would prepare an herbicide treatment plan for each treated invasive species, including such information as the type of herbicide to be used, application rates, and timing of treatment. Herbicides would be applied using a localized spot-treatment method and applied in a manner that would eliminate or reduce drift onto native plants. Herbicides would be applied to cut stumps for larger plants or large clumps of herbaceous non-native species that cannot effectively be removed. In all such cases, they would be used only to the extent necessary to support native plant establishment and limit adverse impacts to sensitive species and habitats. For sites within 100 feet of a wetland or stream, herbicides approved by USEPA for use near wetlands and streams, such as the glyphosate-based Rodeo® or the imazapyr-based Habitat® would be used. Herbicides would not be used when rain is predicted within 24 hours after application or if wind conditions are not appropriate for application, and herbicide application would not resume again until 72 hours after rain. Herbicide rates would vary depending on the size of the plants treated. Any use of herbicides would also be in full accordance with any applicable rules and restrictions, including any restrictions in the Local Coastal Program.

Revegetation of Graded and Disturbed Areas

Restoration of target habitats will require active revegetation, including irrigation, soil conditioning and amendments, and weed control. Topsoil management during grading will be important to monitor for the suitability of target vegetation. For instance, upland habitats (coastal sage scrub, grassland, levee plantings) will require soils with a low salt content. Soils could be amended or leached of salts through irrigation. High-clay soils that are not compacted will be used for salt marsh and other wetland habitats.

Soils would be prepared before plant establishment. Soil preparation would include proper drainage, nutrient and mycorrhizae content, and erosion control. Top soils in all areas to be planted could be tested prior to being placed to assess whether they would support the target plant community. Soils that are not appropriate for vegetation establishment could then be placed elsewhere, buried, or amended, as feasible. Typical soil amendments may include compost, mycorrhizae, and fertilizer. Excess fertilizer application can favor the establishment of generalist non-native plant species over locally adapted native plant species; however, a minimal amount of fertilizer may be necessary to establish native plants if soil quality is found to be particularly poor and low in nutrients. If found to be necessary, amendments would be tilled into the upper 8 to 12 inches of soil.

All seed and plant material will be collected from local sources, preferably from Los Cerritos Wetlands when possible. Seeds will not be collected from other restoration sites, only natural populations. Potential sites for seed collection could include, but are not limited to: El Segundo Dunes Preserve, Bolsa Chica Ecological Reserve, Upper Newport Bay Ecological Reserve, Ballona Wetlands, Mugu Lagoon, and Seal Beach National Wildlife Refuge. Seeds would be collected by hand during the appropriate season for each species and would be propagated at a local native plant nursery and/or the on-site nursery adjacent to Zedler Marsh.

A temporary drip or spray irrigation system would be installed to provide water to the plantings during the establishment period following plant or seed installation.

Wetland and Transitional Areas

The restored salt marsh would be re-vegetated through a combination of seeding and installation of nursery stock. Restoration would include soil amendments (to alter soil texture and nutrients), irrigation, and weed control, under an adaptive management approach.

Revegetation activities in non-tidal wetlands and transitional areas would include removing or controlling invasive plant species and seeding/planting native plant species. Invasive-nonnative plant species would be removed or treated according to the protocols described in Section 2.7.6.4, *Implementation Methods*, under *Nonnative Plant Material Treatment*.

In tidal wetlands, irrigation would be used to lower soil salinity and aid establishment. Regular irrigation would be required during the first spring and first summer after planting. After the plants are established, irrigation would no longer be required. Irrigation water sources are described below.

Upland Areas

Upland and transition zone plants would be irrigated in the wet season as needed to supplement natural rainfall. Irrigation in uplands should last only for the first one or two years with the precise duration, frequency, and amount of water used dependent upon annual precipitation, temperatures, and vegetation type.

Water Sources for Restoration and Irrigation

Domestic Water Meters

Water meters can be installed by the utility providers from the existing domestic water mains surrounding the program boundary. These mains are relatively large for irrigation use and available for new water meter services. Construction impacts would be limited to the one to two days required for each meter and lateral installation.

In addition to water meters installed by utility providers, existing fire hydrants can provide domestic water service to the program site. A temporary utility company provided meter would be attached onto one of the hydrant outlets for access to potable water. If the hydrants are on the side of the street opposite the program boundary, either a temporary pipeline crossing of the street or filling of water trucks at the meter and transfer by vehicle would be required.

Recycled Water Meters

A meter service connection to existing recycled water mains could be provided. The quality of the recycled water is intended for irrigation use and meets California Title 22 standards. Depending on the tolerance of the proposed plant palette for the quality of recycled water available, the water service lifespan could be continued during the plant establishment period.

Oil Well Abandonment

When the owner/operators of oil operations in the program area elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The closure procedures and impacts analysis would be similar to those described and analyzed within this PEIR.

Well Abandonment

The process of abandoning a well would include bringing in a workover rig to remove downhole piping and setting cement plugs to isolate the producing zones. The wellhead would then be removed and the well casing cut and capped approximately 5 feet below grade. All concrete cellar material and piping would be removed. The well abandonment process would take between 30 and 45 workdays to complete.

Investigate and Remediate Contamination Associated with Oil Wells

During well abandonment, heavy petroleum hydrocarbons (e.g., crude oil) may be present in near-surface soil. This represents incidental contamination from normal oil field activities, such as spills of work-over fluid, small oil spills, or leaks, or from contamination left in sumps commonly placed next to oil wells to collect and circulate drilling muds. Before the wells are drilled and after well abandonment, the appropriate oil company and its consultants would investigate potential oil contamination in near-surface soils (down to 15 feet below ground surface). If significant amounts of petroleum are found, the oil company and its contractor would

remediate or remove the contamination for off-site disposal. Each investigation would take up to 2 weeks to complete; remediation work at each site may continue for up to 2 months.

Soil Remediation

Based on the Phase I[8] findings, there is likely potential that the program sites have been impacted from past oil operations. These include the presence of petroleum hydrocarbons and bi-products in on-site soils and sediment. Impacted soils may therefore require management and potential remediation depending on constituent concentrations and regulatory action levels. The concentration and extent of impacted soils will be better defined as part of a Phase 2 investigation. Potential remediation activities may include in-situ treatment/remediation, removal and disposal at a permitted facility, and/or stabilization and containment. The remediation approaches will be developed following the investigation to further define the levels and extent of contamination that will inform the project design and remediation approach.

2.7.7 Monitoring and Adaptive Management

The complexity of a large-scale restoration, with ecological and funding objectives, constraints, and the presence of sensitive habitats and species, necessitates careful implementation of restoration within a monitoring and adaptive management program.

Adaptive management is an iterative process of decision making in the face of uncertainty, with the aim of reducing uncertainty over time through monitoring. Since ecological restoration involves many variables, especially in systems as large and complex as the Los Cerritos Wetlands, there is uncertainty in how the project would perform. Designing and implementing this project using an adaptive management approach would lead to better outcomes and help the project meet its goals.

The adaptive management approach relies on monitoring data to regularly assess progress of the site towards achieving the project goals. If the data shows the project is off-track, certain actions are taken (e.g., tweaking techniques and/or later designs) to achieve the project goals.

Small-scale experiments and pilot projects will be implemented that seek to address gaps in scientific knowledge regarding habitat, wildlife, and restoration and enhancement activities. Results of these experiments will be used to inform adaptive management for the proposed program and potentially for other restoration sites in the region and beyond.

2.7.7.1 Monitoring Program

The goal of monitoring is to inform the adaptive management process and assess progress toward meeting performance criteria. Careful restoration planning, including identification of important data gaps and collection of pre-project data, would help in setting appropriate performance criteria. Performance criteria for the project may be set in a variety of ways, but typically include input from regulatory and permitting agencies. Suitable reference sites, such as Seal Beach National Wildlife Refuge, may also be appropriate for informing performance criteria.

[8] Environmental assessments of soils are conducted in two phases.

Restoration sites evolve and mature over timelines that are longer than typical monitoring periods. Monitoring of the site into the future would inform adaptive management, provide important data for informing future phases of restoration at the site, and contribute to a better understanding of restoration trajectories for practitioners throughout southern California. Furthermore, opportunities to partner with local universities and other research institutions will be identified to implement research activities in suitable areas of the program.

Monitoring would focus on the major biotic and abiotic factors that drive habitat development and ecosystem function—in particular, those factors that can be manipulated and managed or those parameters that can be used to gauge habitat development and ecosystem function (Thom et al. 2010). Protocols for collection and analyses of monitoring data would be developed for the level of accuracy necessary to assess achievement of performance criteria and inform adaptive management.

2.7.7.2 Adaptive Management

Successful adaptive management would first require baseline monitoring in order to fill data gaps and refine the restoration design. Consistent with the U.S. Department of Interior Technical Guide for Adaptive Management (2009), an adaptive management plan would be prepared prior to program implementation to track restoration success relative to performance criteria and determine when criteria have been met, and then restoration would proceed to its next phase. Performance criteria would be set for both biotic (e.g., native and non-native plant cover, wildlife use, etc.) and abiotic (e.g., hydrology, soil conditions, etc.) factors, and monitoring data related to these factors would inform adaptive management.

Triggers for any remedial adaptive management actions would be based on significant deviation from, or a lack of progress toward, achieving the performance criteria outlined for each monitoring parameter, coupled with an evaluation of the trajectories of habitat development or directions of change. For many aspects of biotic community development, it may take several years for trends to become apparent, and changes in management should allow for sufficient time for trends to become apparent. If it is determined that progress toward performance criteria is not measurable, or that the habitat appears to be progressing toward an alternative state, the project team would evaluate the cause of the problem and the trajectory of habitat development, and determine whether intervention would be desirable.

In some cases, habitat development would be on track to meet long-term performance criteria and no remedial actions would be warranted. In other cases, it may be determined that additional monitoring parameters are necessary to determine the cause of poor performance. Once the causes of poor performance are identified, appropriate changes in management would be investigated and implemented. Any modifications implemented as a result of this process would be subject to quantitative monitoring and analysis specifically designed to evaluate the effectiveness of such modifications or changes in management.

2.7.8 Operation and Maintenance Activities

2.7.8.1 Habitats and Vegetation

The restored areas would be planted or seeded after earthmoving finishes. Vegetation maintenance, irrigation, and weeding would be required for all habitats after restoration. Removal of invasive species would occur on site in perpetuity through the combination of a volunteer program and long-term management of the site using methods similar to those used during implementation.

2.7.8.2 Trash Removal Efforts

Trash removal would occur as needed within the restored wetlands by hand. LACFCD operates and maintains trash booms and nets in other flood control channels and a similar boom/net could be installed upstream of the Central Area across the San Gabriel River. If a trash boom/net was installed, it is anticipated that LACFCD or LCWA would inspect the trash net weekly and remove trash from the boom/net as necessary. Alternatively, a trash net could be installed across the breach into the Central Area.

2.7.8.3 Perimeter Levees and Berms

The Perimeter Levee and berms would require limited maintenance, such as inspections annually and after significant storm events (i.e., 10-year event or greater). The levees would also require periodic repaving of the access road and trail, replacement or repair of installed fencing, replacement or repair of any overlook or educational equipment placed along the walking trail, trash collection and graffiti removal, and any other vandalism repair. Minor erosion prevention measures may be needed for both the levees and berms, periodically. It is anticipated that responsibility for operation and maintenance activities would be allocated between LACFCD and LCWA.

2.7.8.4 Flood Walls

Operations and maintenance of flood walls would be determined along with the structure design and approval process. As part of this process, the entity responsible for the flood control facility and its function would be identified. Monitoring of the flood wall for deterioration would consist of regular and post-flood condition assessments. The condition assessments would also consider the ground in the vicinity of the flood wall, and identify any signs of instability, cracking, seepage, erosion, etc. Regular surveys could be desired to confirm that the structure settlement is within expectations and rotations and deflections are within tolerances. Exposed steel would require painting, and concrete cracks and spalls would be repaired.

Monitoring and maintenance of levees and flood walls is required, and hence access for construction equipment is an important design consideration. Also, dryside (e.g., the side of the wall closest to the roads) groundwater and drainage control are required. These elements are represented by the access road and bioswale components in Figure 2-24.

Access from the dryside to the wetside (e.g., the side of the wall closest to the marsh) by vehicles including construction equipment would require gates or an embankment or bridge.

2.7.8.5 Water-Control Structures

The existing culverts from the San Gabriel River are operated and maintained by LACFCD (USACE 1999). Operation and maintenance of the existing culverts would continue after restoration.

The existing siphon from Alamitos Bay to the Haynes Cooling Channel is owned and operated by LADWP. Once the Haynes Cooling Channel is decommissioned, it could be transferred to the LCWA, in which case, the LCWA would be responsible for operation and maintenance. This would likely include regular inspections and general maintenance. Long-term management of sediment and fouling organisms may also be required to maintain tidal flow.

For new water-control structures, annual maintenance would be needed to ensure proper operation, similar to current operation and maintenance of the existing structures. Gates and weirs may be adjusted seasonally for habitat management. Obstructions would be removed when necessary. If sedimentation in the channel limits the functionality of the water-control structures, a low ground pressure excavator would be used to remove the sediment. A temporary access route, 35-feet wide, would be created using mats to provide equipment access.

2.7.8.6 Stormwater Management Features

Maintenance of bioswales is expected to be limited to non-native vegetation removal and pruning, as needed. Non-native plant removal would include work with hand tools such as shovels, rakes, hatchets, wheel barrows, and small trucks for hauling of equipment and spoils. It is expected that these efforts would occur once a year for the lifespan of the program.

2.7.8.7 Parking Lots

Hours of operation for public use of the new parking lots, trails, and visitor center would be from sunrise to sunset and may be limited in duration. Parking areas would be locked after hours.

2.8 Required Approvals

LCWA intends to use this PEIR to consider implementation of the proposed Los Cerritos Wetlands Restoration Plan. As the Lead Agency, LCWA may use this PEIR to adopt the proposed Los Cerritos Wetlands Optimized Restoration Plan, make Findings regarding identified impacts, and, if necessary, adopt a Statement of Overriding Considerations regarding these impacts. Subsequent to the preparation of this PEIR, LCWA may develop more detailed designs that would serve to implement the proposed program activities described in Section 2.7, *Program Characteristics*. As individual restoration projects are fully developed, LCWA would conduct CEQA analysis for individual projects as appropriate or may determine that no additional CEQA analysis is required. Oil operators would prepare separate CEQA analysis once they elect to change or close their operations.

Restoration activities associated with the more detailed design would require discretionary approval from multiple agencies. These agencies and their permits/approvals are described in **Table 2-18**, *Required Permits and Approvals*. The specific permits/approvals necessary for each project activity will vary depending on the nature and location of the activity.

TABLE 2-18
REQUIRED PERMITS AND APPROVALS

Approving Agency	Approval
Los Cerritos Wetlands Authority	Certification of the Final PEIR, adoption of the Mitigation Monitoring and Reporting Plan, easements, land exchange agreements, purchase and sale agreements
City of Seal Beach	Site plan review, grading permits, building permits, encroachment permits
City of Long Beach	Site plan review, grading permits, building permits, local coastal development permits, encroachment permits
City of Los Angeles Department of Water and Power	Encroachment permits
Los Angeles County Department of Public Works and Flood Control District	Encroachment permits
Sanitation Districts of Los Angeles County	Construction permit
Orange County Public Works	Encroachment permits
South Coast Air Quality Management District	Permits to construct and operate
Santa Ana Regional Water Quality Control Board	Permits to construct and operate
Los Angeles Regional Water Quality Control Board	Section 401 Permit, National Pollution Discharge Elimination System, Storm Water Pollution Prevention Plan
California Department of Fish and Wildlife (CDFW)	Section 1602 Streambed Alteration Agreement
California State Lands Commission	Encroachment permits
Caltrans	Encroachment permits
California Coastal Commission	Coastal Development Permit in City Seal Beach Consolidated Coastal Development Permit in City of Long Beach
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit, Rivers and Harbors Act Sections 9 and 10 Permits, Clean Water Act Section 408 Permit
U.S. Fish and Wildlife Service and National Marine Fisheries Service	Endangered Species Act Section 7 Consultation

Discretionary permits, reviews, and approvals are potentially required for proposed program implementation. This does not necessarily represent a comprehensive list of all possible discretionary permits/approvals required. Other additional permits, reviews, or approvals may be required for the proposed program. LCWA will work closely with all of the approving agencies to maintain communication and coordination throughout the implementation of program activities and receipt of the various permits/approvals.

CHAPTER 3

Environmental Setting, Impacts, and Mitigation Measures

3.0 Introduction to the Environmental Analysis

This chapter of the Los Cerritos Wetlands Restoration Plan Program Environmental Impact Report (PEIR) informs decision makers and the public of the type and magnitude of the change to the existing environment that could result from implementation of the Los Cerritos Wetlands Restoration Plan (proposed program). Environmental topics addressed in this PEIR were identified in the Notice of Preparation/Initial Study (NOP/IS) prepared by the Los Cerritos Wetlands Authority for the proposed program. The NOP/IS was circulated for 30 days, from March 8, 2019, through April 8, 2019, as required by *CEQA Guidelines* Sections 15082 and 15063.

This PEIR addresses the environmental impacts determined to be potentially significant pursuant to the NOP/IS, input from the public, and responses to the NOP/IS, including input at the NOP/IS scoping meeting and from the public and agency comments. This PEIR addresses these environmental impacts as well as impacts that could result from implementation of the proposed program in combination with other cumulative projects in the City of Seal Beach and the City of Long Beach in accordance with requirements of the California Environmental Quality Act (CEQA) and the provisions set forth in the *CEQA Guidelines*. This PEIR also recommends feasible mitigation measures, where possible, that would reduce or eliminate significant environmental effects. Through this process, the Lead Agency has determined that this PEIR analysis should focus on the following environmental issues:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning

- Mineral Resources
- Noise
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

Through the NOP/IS, it was determined that implementation of the proposed program would have "no impact" on the following environmental issues: agricultural and forest resources, population and housing, and wildfire. These issues are, therefore, not discussed in this PEIR.

3.0.1 Format of the Environmental Analysis

Each section of Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, in this PEIR includes a program-level analysis of the proposed program's direct and indirect environmental impacts. Each section includes an introduction, the environmental setting, the regulatory framework, program-level impacts and proposed mitigation measures, and cumulative impacts. The following provides a brief description and overview of the six components of each section.

3.0.1.1 Introduction

This subsection provides a brief description of the environmental issue along with an overview of the individual analyses that are provided in the sections and key reference and source documents.

3.0.1.2 Environmental Setting

This subsection provides a description of existing (pre-program) conditions in terms of the physical environment that pertains to each respective environmental issue. This section also describes the baseline condition against which program-related impacts are compared.

3.0.1.3 Regulatory Framework

This subsection provides a discussion of federal, state, and local laws, regulations, plans, and/or policies that pertain to the environmental topic being analyzed.

3.0.1.4 Analysis of Impacts

The analysis of impacts evaluates both the program-specific direct and indirect environmental impacts and the potential environmental effects associated with cumulative development. To provide LCWA with the broadest of foundations as a first-tier environmental document, assumptions have been made, where appropriate, in describing the program features that would potentially result in the worst-case impacts[1]. This ensures that the analysis in the PEIR documents

[1] For example, detailed data on soil contamination is not available for all of the sites within the program boundary, so this PEIR assumes a worst-case scenario that a large area of soil would need to be remediated. However, during

the potential for environmental impact from all the projects under this proposed program. Once LCWA begins the process of designing specific restoration projects, they will seek to minimize impactful aspects of the project, wherever feasible.

Significance Criteria: Significance criteria are thresholds applied by the Lead Agency to identify significant adverse environmental impacts. A threshold is defined by a Lead Agency based on scientific and factual data relative to the Lead Agency jurisdiction, views of the public in affected areas, the policy/regulatory environment of affected jurisdictions, and other factors.

Methodology: This subsection starts with a description of the methodology, including the key assumptions, used in the analysis. Environmental issues that have been scoped out during the scoping process (i.e., that have been reviewed and determined to not relate to a significant environmental impact) are identified following the significance thresholds.

Impact Evaluation: Each impact is summarized in an "impact statement" that is separately numbered, corresponds with a significance threshold, and is followed by a detailed discussion. Where the impact analysis identifies potential significant adverse environmental effects that could be reduced or avoided through implementation of a mitigation measure or measures, the measure(s) are presented after the relevant impact discussion. Mitigation measures identify the parties responsible for implementation, a timeframe for implementation, and any applicable public agency approval, oversight, or monitoring that may be required. Mitigation measures would usually be implemented by the project sponsor or applicant, with oversight by one or more public agencies, unless indicated otherwise.

This subsection concludes with a statement regarding whether the impact, after implementation of any identified mitigation measures and/or compliance with existing local, state, and federal laws and regulations, would remain significant or be reduced to a less-than-significant level.

A "significant effect" is defined by *CEQA Guidelines* Section 15382 as

> *a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment … [but] may be considered in determining whether the physical change is significant.*

This PEIR uses the following terms to describe the level of significance of impacts identified during the course of the environmental analysis:

- **No Impact**—No adverse impact on the environment would occur, and mitigation is not required.
- **Less-than-Significant Impact**—A less-than-significant impact does not result in a substantial, or potentially substantial, adverse change in any of the physical conditions within the area

future phases of the restoration design process, more data on soil contamination will be collected which in turn will be used to refine the restoration design so that a smaller area of soil requires remediation, thereby reducing impacts associated with larger-scale remediation.

affected by the proposed program, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (see *CEQA Guidelines* Section 15382). Impacts determined to be less than significant do not require mitigation measures.

- **Significant Impact**—Public Resources Code Section 21068 defines a significant impact as "a substantial, or potentially substantial, adverse change in the environment." The thresholds identified in each section of this EIR and the CEQA definition of "significant impact" are applied to reach this conclusion. Feasible mitigation measures or alternatives to the project must be identified and adopted if they would avoid or substantially reduce the significant impact.
- **Significant and Unavoidable Impact**—A significant and unavoidable impact is a substantial adverse effect on the environment that cannot be mitigated to a less-than-significant level. A project with significant and unavoidable impacts could still proceed, but the Lead Agency would be required to adopt a statement of overriding considerations, pursuant to *CEQA Guidelines* Section 15093, explaining why the Lead Agency would proceed with the project in spite of the potential for significant environmental impacts.

Cumulative Impacts: CEQA requires that EIRs discuss a project's potential contribution to cumulative impacts, in addition to project-specific impacts. In accordance with CEQA, the discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. According to *CEQA Guidelines* Section 15355:

> *"Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

CEQA Guidelines Section 15130(a)(l) further states, "A cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." Other projects include past projects (existing conditions), present projects (projects under construction), and reasonably foreseeable future projects (proposed, approved, or reasonably expected).

CEQA Guidelines Section 15130(a) also requires that EIRs discuss the cumulative impacts of a project when the proposed project's incremental effect is "cumulatively considerable." Under *CEQA Guidelines* Section 15065(a)(3), "cumulatively considerable" means that "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Where a Lead Agency is examining a project with an incremental effect that is not cumulatively considerable, it need not consider the effect significant but must briefly describe the basis for its conclusion. If the combined cumulative impact associated with a project's incremental effect and

the effects of other projects is not significant, *CEQA Guidelines* Section 15130(a)(2) requires a brief discussion in the EIR of why a cumulative impact is not significant and why it is not discussed in further detail. *CEQA Guidelines* Section 15130(a)(3) requires supporting analysis in the EIR if a determination is made that a project's contribution to a significant cumulative impact is rendered less than cumulatively considerable and, therefore, is not significant. CEQA recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-related impacts, but instead should "be guided by the standards of practicality and reasonableness." (*CEQA Guidelines* Section 15130(b)). The discussion of cumulative impacts in this PEIR focuses on whether the impacts of the proposed program are cumulatively considerable.

The fact that a cumulative impact is significant does not necessarily mean that project-related contribution to the cumulative impact analysis is significant, as well. Instead, under CEQA, a project-related contribution to a significant cumulative impact is only significant if the contribution is "cumulatively considerable." To support each significance conclusion, this PEIR provides a cumulative impact analysis. These potential impacts are documented where program-specific impacts have been identified that, together with the effects of other cumulative projects, could result in cumulatively significant impacts.

CEQA Guidelines Section 15130(b) defines consideration of the following two elements as necessary to provide an adequate discussion of cumulative impacts: "(A) a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." In this EIR, each environmental impact area looks at a list of past, present, and probable future projects, and in some cases, a combination of the cumulative projects list and the summary of projections is used. Cumulative study areas are defined based on an analysis of the geographical scope relevant to each particular environmental issue. Therefore, the cumulative study area for each individual environmental impact issue may vary and will be defined in each section. For example, cumulative aesthetic considerations encompass only the surrounding areas with direct views of the proposed program, while air quality is a regional issue that is analyzed on a broader scale.

Additionally, to determine which cumulative projects may contribute to cumulative impacts, the LCWA considered known projects within a 3-mile radius of the program boundaries, which were obtained from the City of Seal Beach and City of Long Beach. To address regional growth, adopted plans (such as the SCAG 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy Growth Forecast, the City of Seal Beach General Plan, and the City of Long Beach General Plan) are used in the cumulative impact analysis. The Seal Beach and Long Beach sections of the *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy Growth Forecast* (SCAG 2016) was reviewed.

Established databases (such as www.CEQAnet.ca.gov) were used to identify projects that were being evaluated by agencies within southern/coastal Los Angeles County. This information was then sent to the cities of Seal Beach and Long Beach with a request for confirmation that the list

was comprehensive or, if it was found not to be comprehensive, with a request to identify projects that had not been included on the list. The jurisdictions contacted in August 2019 are as follows:

- City of Seal Beach
- City of Long Beach Planning Bureau
- Long Beach Department of Public Works

Table 3-1, *List of Cumulative Projects*, lists the cumulative projects.

TABLE 3-1
LIST OF CUMULATIVE PROJECTS

Project No.	Project Name	Location	Distance from Program Area	Description	Size	Status
City of Seal Beach						
1	Ocean Place Residential Project	1st Street and Marina Drive	0.6 miles from the program area	The project includes a single-family home project and a neighborhood park.	6.4 acres	n/a
2	Main and PCH Mixed-Use Center Project	350 Main Street	0.6 miles from the program area	The project includes retail, office, a coffee shop, and a dojo.	6,808 sf 5,593 sf 999 sf 1,600 sf	Complete
3	Seal Beach Residential Project	Southwest of 1st Street and PCH	0.25 miles from the program area	The project includes a 28-home residential subdivision.	n/a	Approved
4	LA Fitness Health Club	12411 Seal Beach Boulevard	1.9 miles northeast of the program area	The project includes a single-story, 37,000-square-foot private health club within the existing Shops at Rossmoor retail development in the City of Seal Beach, as well as improvements to the left-turn pocket on northbound Seal Beach Boulevard onto Rossmoor Center Way and the widening of Rossmoor Center Way.	37,000 sf	Final EIR
5	Bay Theater Restoration Mixed Use Project	340 Main Street	0.3 miles south of the program area	The project involves restoration of the theater into a luxury entertainment and renovate a combined 2,200 sf of office and apartment space on the second and third floors of the building.	2,200 sf	Negative Declaration
6	Seal Beach Water Infrastructure Capital Improvement Projects	Community Swimming Pool Facility Westminster Boulevard Seal Beach Pier Repair (including Pier Utility Upgrade Project, Zero Tower Safety Improvements, Pier Base Structural Evaluation, 8th and 10th Street Beach Lot Asphalt Replacement)	0.1 miles southeast of the program area 0.3 miles east of the program area 0.7 miles south of the program area	Capital Improvement Projects closest to the program area include constructing a new community swimming pool, replacement of a transmission line within Westminster Boulevard, several Seal Beach Pier improvements, perimeter improvements for the City of Seal Beach Maintenance Yard, and Community Swimming Pool Facility.	multiple	Mitigated Negative Declaration

TABLE 3-1
LIST OF CUMULATIVE PROJECTS

Project No.	Project Name	Location	Distance from Program Area	Description	Size	Status
		Beach Yard Perimeter Wall Improvements	0.7 miles west of the program area			
		15 1st Street Renovation	0.7 miles west of the program area			
7	17th Street Properties	232 through 244 17th Street	0.7 miles south of the program area	The project would include four single-family residential structures and demolish an existing duplex of 1,696 square feet.	0.52 acres	Mitigated Negative Declaration
8	Local Coastal Plan	Seal Beach Coastal Zone	—	The City of Seal Beach will work with the California Coastal Commission to prepare and obtain certification for a Local Coastal Plan for the City of Seal Beach	—	Ongoing
9	Naval Weapons Station Seal Beach Ammunition Pier and Turning Basin Project	800 Seal Beach Blvd, Seal Beach, CA 90740	0.81 miles south of the program area	The project would including improvements to the Naval Weapons Station, including increasing the number of concrete piles, widening the south mole, increase the size of truck turnaround, widening the causeway, and changing the width of the public negation channel.	—	Construction began December 2019
City of Long Beach						
9	Pacific Coast Highway (PCH) & 2nd Street	6400 PCH	0.14 miles from the program area	The project would demolish the existing Seaport Marina Hotel and construct a commercial center totaling 245,000 square feet, which would include approximately 95,000 square feet of retail uses, a 55,000-square-foot grocery store, a 25,000-square-foot fitness/health club, and approximately 70,000 square feet of restaurant uses, as well as 1,150 parking spaces. The proposed commercial structures would be one- and two-story buildings with a maximum height of 35 feet.	10.93 acres	Final public hearing fall 2017
10	Southeast Area Specific Plan	Southeast edge of the City of Long Beach	0.3 miles northwest of program area	The project would replace the current 1,475-acre PD-1 zoning district with a new Specific Plan covering 1,466 acres and remove 9 acres from the PD-1 boundaries to convert to conventional zoning. Therefore, the project would change the boundaries of PD-1 so that the project would consist of two separate areas: (1) 1,466 acres within the boundaries of the current 1,475-acre PD-1, and (2) 9 acres within the current PD-1 directly west of the Marina Vista Park (or "Conventional Zoning Area"). Both of these areas combined constitute the project area.	1,466 acres	Approved and Final EIR certified by City of Long Beach on Sept. 19, 2017. Pending approval by Coastal Commission.

TABLE 3-1
LIST OF CUMULATIVE PROJECTS

Project No.	Project Name	Location	Distance from Program Area	Description	Size	Status
11	Alamitos Generating Station Battery Energy Storage System (BESS) Project	690 Studebaker Road	0.82 miles northwest of program area	The project would construct 300 megawatts of battery energy storage at the existing Alamitos Generating Station. The proposed BESS facility is an energy storage warehouse utilizing advanced technology batteries and control systems to provide electrical service to Southern California Edison. This storage facility would consist of three 100-megawatt containment buildings, similar in appearance to server farms, located within the existing surface parking lot between existing Units 1 through 4 and the switchyard. Each building would be 65 feet in height, 270 feet in length, and 165 feet in width, comprising three levels: two battery storage levels separated by a mezzanine level. The mezzanine level would contain mechanical equipment such as electrical controls and heating, ventilation, and air conditioning units.	71.2 acres	Approved public hearing summer 2017
12	AES Alamitos Energy Center	South of State Route 22 (7th Street), west of the San Gabriel River, north of 2nd Street, and east of Studebaker Road	1.10 miles northwest of program area	The project, which involves modernizing the existing Alamitos Generating Station, consists of two gas turbine power blocks. Power Block 1 would provide two natural-gas-fired combustion turbine generators in a combined cycle configuration, two unfired heat recovery steam generators, one steam turbine generator, an air-cooled condenser, an auxiliary boiler, and related ancillary equipment. Power Block 2 would consist of four simple cycle combustion turbine generators with fin-fan coolers and ancillary facilities.	21 acres	Under environmental review
13	Alamitos Bay Bridge Replacements	The Alamitos Bay Bridge, over the Los Cerritos Channel	0.2 miles south of program area	The Alamitos Bay Bridge is located on State Route 1, in the City of Long Beach a north-south arterial that provides interregional, recreational, commuter, and truck access and local travel through an urban corridor. The bridge was built in 1959 and has been subjected to harsh wear and tear. It is seismically vulnerable at the joints and columns. In addition, it has substructure vulnerabilities which include scour, differential settlement and erosion of the channel banks. Considering all of the above, the bridge is identified as seismically deficient and is highly likely to fail during a maximum credible earthquake. Improvements to the bridge are needed to enhance the safety of the structure and to maintain the level of service. The Bridge Replacement Project would replace the bridge with a new, wider bridge that meets current AASHTO standards and CALTRANS seismic standards.	Not available (n/a)	Planning phase

TABLE 3-1
LIST OF CUMULATIVE PROJECTS

Project No.	Project Name	Location	Distance from Program Area	Description	Size	Status
14	Bridge Preventive Maintenance Program—Group 4	2nd Street bridges over the San Gabriel River and Hanes Steam Plant Channel	0.2 miles east of program area	The Bridge Preventive Maintenance Program-Group 4 project includes the improvements of the 2nd St bridges over the San Gabriel River and Hanes Steam Plant Channel.	n/a	In approval process
15	7th Street Gateway Landscaping	7th Street	0.53 miles north of program area	The project includes landscaping of the 7th Street Gateway.	n/a	Estimated construction winter/spring 2017
16	AES Southland Sewer Interconnect Alignment	Loynes Drive Bridge spanning over the Los Cerritos Channel	0.05 miles north of program area	The project is a proposed Sewer Interconnect Alignment impacting Loynes Drive Bridge spanning over the Los Cerritos Channel.	n/a	Planning phase
17	Major & Secondary Highway Program	Atherton Street between Outer Traffic Circle and Clark Avenue	2.1 miles northwest of program area	The project would reconstruct and resurface City streets to extend their useful life, provide incidental curb, gutter and sidewalk improvements, construct curb ramps and bus pads, and replace pavement markings.	n/a	Estimated construction Jan 2017–Sep 2017
		Broadway between Alamitos Avenue and Junipero Avenue	2.9 miles west of program area			
		Junipero Avenue between Ocean Boulevard and Broadway	3 miles west of program area			
18	Citywide Slurry Seal Program	Various locations including Peralta Avenue	0.4 miles north of program area	The project would repair residential streets through pavement sealing and slurry sealing. Repair work would also include patching the street pavement and installation of traffic striping and marking.	n/a	
19	Bridge Deck Repair	Studebaker	0.02 miles east of program area	In conjunction with the County of Los Angeles and CALTRANS, the project would inspect, repair, upgrade, and retrofit City of Long Beach owned bridges.	n/a	Estimated construction in 2017
20	Belmont Pool Revitalization Project	4000 East Olympic Plaza	1.8 miles from the program area	The project would revitalize a pool complex.	125,000 square feet (sf)	Estimated construction beginning 2017 (for 18 months)
21	5744 East 2nd Street	5744 East 2nd Street	1.3 miles from the program area	The project includes commercial retail.	1,122 sf	n/a

TABLE 3-1
LIST OF CUMULATIVE PROJECTS

Project No.	Project Name	Location	Distance from Program Area	Description	Size	Status
22	Haynes Generating Station Intake Channel Infill Project	6801 Second Street	Adjacent to program area	The project would include decommissioning of the generation units at the Haynes Generating Station as well as demolition to provide for energy storage solutions and other clean grid initiatives. As part of this Project the Haynes Generating Station Intake Channel would be filled.	n/a	Mitigated Negative Declaration
23	300 Studebaker Road Industrial Park Project	300 Studebaker Road	170 feet north of the program area	The project would demolish 400 feet of existing concrete, on-site pipeline structures, and asphalt paving, and would develop two concrete tilt-up industrial buildings.		Mitigated Negative Declaration
24	Los Cerritos Wetlands Oil Consolidation and Restoration Project	6433 E. 2nd Street, 6701 E. Pacific Coast Highway, and the northeast corner of Studebaker Road and 2nd Street	Within the program area	The proposed project would consolidate existing oil operations and implement a wetlands habitat restoration project that would provide new public access opportunities to this portion of the Los Cerritos wetlands.	n/a	Approved April 2018

SOURCE: City of Seal Beach; City of Seal Beach Proposed 5 Year Capital Improvement Program FY 2019/2020–2023/2024; City of Long Beach.

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SECTION 3.1
Aesthetics

3.1.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts related to aesthetics. This section includes a description of existing visual resources and aesthetic conditions in the program areas, specifically the physical environment in the vicinity of proposed program's components and facilities. This section also evaluates potential effects to scenic vistas, scenic resources, the visual character of the program area, and potential effects associated with light and glare.

The analysis is based on review of available photos and visual simulations of the program area, the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section analyzes the potential for both program-level and cumulative environmental impacts.

Data used in this section includes photographs of existing and future with program conditions from key viewpoints. The selected viewpoints represent a range of publicly accessible locations from which the visual changes that would result from the proposed program during construction and over time would be visible. All information sources used are included as citations within the text; sources are listed in Section 3.1.7, *References*.

3.1.1.1 Visual Concepts and Terminology

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual character and quality of the environment, a visual or aesthetic impact may occur.

Residents and recreational users are expected to be highly concerned with scenery and landscape character. Local motorists who commute daily through the same landscape may have a moderate concern for scenery, while people who work within highly urbanized areas may generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances at which it is seen and by the travel speed at which a person is viewing the landscape (i.e., stationary at a viewpoint, low speeds on a hiking or biking trail, or high speeds in a vehicle on a highway).

The same feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the

landscape, more detail can be seen, and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same viewed object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middle ground, some detail is evident in the foreground and landscape elements are seen in context with landforms and vegetation patterns in the background. The same levels of sensitivity apply in this case as with close-up and further away views—views from cars at high speeds would be less sensitive to changes than views at low speeds because more details can be drawn from the landscape at lower speeds.

The following terms and concepts are used in the discussion below to describe and assess the aesthetic setting and impacts from the project:

- **Viewshed**—The viewshed for a project is defined as the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations. "Project viewshed" is used to describe the area surrounding a project site where a person standing on the ground or driving a vehicle can view the project site. In an urban setting, viewsheds also include gateways, visual features, and destinations that reinforce the character of the project area.
- **Scenic views**—Are views that provide visual access to valued resources, such as striking or unusual natural terrain, or unique urban or historic features.
- **Scenic vista**—A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape feature (e.g., a mountain range, lake, or coastline) or a significant historic or architectural feature (e.g., views of a historic structure). Scenic vistas may be designated by a federal, state, or local agency. Scenic vistas can also include an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing.
- **Scenic highway**—Any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency. Scenic corridors consist of land that is visible from the highway right of way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries.
- **Viewing distance zones**—Views might be discussed in terms of foreground, middleground, and background views. Foreground views are those immediately presented to the viewer and include objects at close range that tend to dominate the view. Middleground views occupy the center of the viewshed and tend to include objects that are the center of attention if they are sufficiently large or visually different from adjacent visual features. Background views include distant objects and other objects that constitute the horizon. Objects in the background fade to obscurity with increasing distance as they approach the skyline. In a photograph, the foreground generally may be seen as the bottom third of the frame, the middleground as the middle third of the frame, and the background as the top third of the frame.
- **Visual character**—Broadly describes the unique combination of aesthetic elements that characterize a particular landscape, neighborhood, or city. In urban settings, the visual character is influenced primarily by the land use type and density, urban landscaping and design, topography, and background setting.

3.1.2 Environmental Setting

3.1.2.1 Regional and Local Visual Character

Scenic Vistas

City of Seal Beach

The City of Seal Beach encompasses 11.5 square miles along the Pacific Ocean coastline in northern Orange County between the cities of Huntington Beach and Long Beach. The City of Seal Beach's boundaries extend from the Pacific Ocean to approximately 5 miles inland, where the Coastal Zone comprises a large portion of the City of Seal Beach's jurisdiction (City of Seal Beach 2003). The Coastal Zone in the City of Seal Beach include a variety of land uses, which vary from residential, commercial, industrial, military, and open space uses (City of Seal Beach 2003). The City of Seal Beach's Coastal Zone has a relatively flat topography, where long-range views are obscured by existing development and vegetation.

As previously defined, scenic vistas are viewpoints that provide expansive views of a highly valued landscape feature (e.g., a mountain range, lake, or coastline) or a significant historic or architectural feature (e.g., views of a historic structure). While the City of Seal Beach General Plan does not formally designate scenic vistas or visual resources in the city, the City of Seal Beach General Plan does state that ocean and bay views are considered significant views within the city (City of Seal Beach 2003). In the portion of the program area located in the City of Seal Beach, views of the Pacific Ocean and coastline are not visible; however, there are views of the San Gabriel River and Haynes Cooling Channel, which runs adjacent to the portion of the South Area of the program area.

City of Long Beach

The City of Long Beach encompasses approximately 52 square miles along the Pacific Ocean coastline in southern Los Angeles County roughly between the cities of Seal Beach and Carson. The Coastal Zone of the city extends over 3,100 acres and is the most intensely developed part of the city (City of Long Beach, 1980). The Coastal Zone in Long Beach includes a range of land uses from industrial to residential to commercial/retail uses among other uses (Los Angeles County, 2017). The City of Long Beach's Coastal Zone has a relatively flat topography, where long-range views are obscured by existing development and vegetation.

Scenic vistas within the northern portion of the program area and vicinity include the Los Cerritos Channel, Steamshovel Slough, the Los Cerritos Wetlands Complex, San Gabriel River, and distant views of the San Gabriel Mountains. Scenic vistas, which encompass portions of the northern portion of the program area, are available to: motorists, bicyclists, and pedestrians traveling along 2nd Street, Studebaker Road, and Pacific Coast Highway (PCH); bicyclists and pedestrians traveling along the San Gabriel River Bike Trail; and kayakers in the Los Cerritos Channel.

On-site Visual Setting

The proposed program is located within the cities of Seal Beach and Long Beach. The City of Seal Beach is within the northwestern portion of Orange County, California. The City of Long Beach is within the southeastern portion of Los Angeles County, California. The proposed program is located within the California Coastal Zone and the portions of the program area located in the City of Long Beach subject to the adopted Southeast Area Development and Improvement Plan (SEADIP) are zoned as Planned Development District 1 (PD-1). The portions of the program area located within the City of Long Beach subject to the Southeast Area Specific Plan (SEASP) 2060, once adopted, would be zoned as Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right of Way (not built).

As shown in Figure 2-2, *Project Site and Local Vicinity*, in Chapter 2, *Project Description*, of this PEIR, the program area is approximately 503 acres and extends from the Los Cerritos Channel in the City of Long Beach in the north to the southern boundaries of the Los Cerritos Wetlands in the City of Seal Beach in the south. The program area is relatively flat with the San Gabriel River and Haynes Cooling Channel traversing the program area and surrounding urban and industrial land uses and the Alamitos Bay Marina to the west.

The program area is comprised of four areas, South, Isthmus, Central, and North, and 17 individual sites within those areas. Generally, the program area is primarily undeveloped open space and waterways with various existing oil wells scattered throughout. In general, undeveloped areas of the Los Cerritos Wetlands Complex offer a natural visual character; however, the program area's appearance is marked by the presence of past and present industrial land uses, including the presence of power lines and oil extraction facilities (including oil extraction pumps, oil tank farms, and small buildings). The location and existing use of the four areas that comprise the program area are described below.

South Area

The South Area is comprised of six individual sites, which include the Haynes Cooling Channel, State Lands Parcel, South Los Cerritos Wetlands Authority (LCWA), Hellman Retained, Los Alamitos Pump Station, and Los Alamitos Retarding Basin. The South Area is within the City of Seal Beach with the exception of the Haynes Cooling Channel and Los Alamitos Retarding Basin site which are within both the cities of Seal Beach and Long Beach, and Los Alamitos Pump Station site which is located entirely within the City of Long Beach. The South Area is bounded by the Isthmus Area and Island Village to the north, industrial and residential development to the east, residential development to the south, and the Pacific Coast Highway (PCH) to the west (refer to Figure 2-4, *South Area*, in Chapter 2, *Project Description*).

Under existing conditions, the South Area is primarily open space with dirt roads and/or trails that transect the overall area. The South Area also includes buildings and structures associated with past and ongoing oil operations and basin operations. The Haynes Cooling Channel is a waterway used by the Haynes Generating Station located north of the program area to bring in water from the Pacific Ocean via 7 culverts in the Alamitos Bay Marina to cool the power plant through a method called once-through cooling. The State Lands Parcel site contains the remnant building

foundation of what was once a music venue called the Airport Club and Marina Palace. The South LCWA site contains multiple former sumps, landfills, and contaminated areas from prior oil operations, and is currently owned and maintained by the LCWA. The Hellman Channel runs through the South LCWA site. The Hellman Retained site is an active oil field with substantial oil operation infrastructure (pipelines, pumps, tanks, and roadways). There are 43 active oil wells and 11 idle oil wells on-site. The Los Alamitos Retarding Basin site is a 30-acre depressed basin surrounded by an earthen berm and access road that receives stormwater runoff and other drainage from a 3,600-acre area in Seal Beach. The Los Alamitos Pump Station site includes a pump station, which moves the stormwater runoff from the Los Alamitos Retarding Basin, under the San Gabriel River Levee, and into the San Gabriel River.

Generally, long-range views across the South Area show an expansive open space area with sparse low-lying vegetation and scattered industrial and ancillary structures. Thicker vegetation exists along the south border of the South Area adjacent to Gum Grove Park and residential uses.

Isthmus Area

The Isthmus Area is comprised of five individual sites, which include the Callaway Marsh, DWP, Zedler Marsh, Isthmus LCWA, and Isthmus Bryant. The Isthmus Area is located in the City of Long Beach and is bound by the San Gabriel River and 2nd Street to the north, Haynes Cooling Channel to the east and south, and Pacific Coast Highway to the west.

In current conditions, the Isthmus Area contains buildings/structures and infrastructure associated with current oil operations. The Callaway Marsh site is a vacant site with a heavily degraded perched salt marsh, tidally connected to the San Gabriel River by a three-foot-wide culvert, which mutes the water levels reaching the site. The Zedler Marsh site is a 12-acre restoration site operated and managed by the LCWA, and is currently being enhanced and restored as part of the LCWA Stewardship Program. The Callaway Marsh site and Zedler Marsh site have been restored/maintained as natural marsh sites, where these parcels are heavily vegetated with a relatively low profile. The DWP site is a vacant site. The Isthmus Bryant site is a vacant site and the surface is not currently in use by oil operators. The DWP site and Isthmus Bryant site are primarily dirt lots with scattered vegetation, with a few pockets of heavier vegetation cover. The Isthmus LCWA site is an active oil field with oil operation infrastructure, including 4 active oil wells and 1 idle oil well. The San Gabriel River Trail runs through the entire Isthmus Area along the western boundary along the San Gabriel River.

Generally, long-range views across the Isthmus Area show low-lying vegetation with clusters of buildings in the middle ground and surrounding industrial and residential uses in the background.

Central Area

The Central Area includes the following individual sites: Pumpkin Patch, Long Beach City Property, Central LCWA, Central Bryant, and the San Gabriel River. The Central Area is located in the City of Long Beach and is bound by the San Gabriel River to the east and south, PCH and Shopkeeper Road to the west, East 2nd Street to the north.

In existing conditions, the Central Area is vegetated, ranging from sparsely towards the middle of the Central Area to heavily along the East 2nd Street boundary, with an informal network of dirt roads transecting throughout the area. The Pumpkin Patch site is an active oil field with one active oil well and one plugged oil well on site. The Long Beach City Property site is an active oil field with oil storage tanks and associated oil production infrastructure, such as pipelines and tanks. There are 11 active oil wells and 2 idle oil wells on-site. Aboveground pipelines and dirt access roads traverse the site. The Central LCWA site is an active oil field with oil operation infrastructure (roadways, wells, power lines, pipelines, and pumps). There are 7 active oil wells on-site. The Central Bryant site is a vacant site not currently in use by oil operators on the surface. A raised levee runs along the San Gabriel River, which constitutes the southeastern boundary of the Central Area. Telephone poles with overhead lines are also visible along the southeastern boundary.

Generally, long-range views across the Central Area show low-lying vegetation combined with areas of dirt and taller trees along the boundaries of the Central Area. Some signage is visible throughout the site, where the signs also have a low profile.

North Area

The North Area includes the following individual sites: Northern Synergy Oil Field, Southern Synergy Oil Field, and Alamitos Bay Partners. The North Area is located in the City of Long Beach and is bound by the Los Cerritos Channel to the north, North Studebaker Road to the east, East 2nd Street to the south, and the PCH to the west.

Currently, the North Area is primarily vegetated, with thicker areas occurring in the north/northeast portion of the North Area as well as pockets in the northwest and southeast corners of the overall area. The Northern Synergy Oil Field site is an undeveloped, vacant site with no active oil operations. The Southern Synergy Oil Field site is an active oil field with oil production and wells, tank farms, and a network of roads, pipelines, and other oil field-related amenities including the Bixby Ranch Field Office. There are 22 active oil wells and 17 idle oil wells on-site. The Alamitos Bay Partners site is an active oil field with oil wells and associated oil production infrastructure, such as pipelines and tanks. There are 3 active oil wells and 1 idle oil well on-site. Dirt access roads traverse the site.

Generally, long-range views across the North Area show taller trees and thicker vegetation around the perimeter of the area with oil infrastructure, telephone poles and overhead lines, and low-lying vegetation across the area. In the distance, surrounding industrial uses are also visible.

Lighting Environment

Existing sources of light are present throughout the program vicinity including, at the Marketplace Long Beach, Marina Pacific Mall, Alamitos Bay Marina Center to the west, residential uses, including Belmont Shores Mobile Estates and Island Village, and industrial uses including the AES Alamitos Energy Center and Haynes Generating Station, to the north, and industrial and residential uses to the east and south. Existing sources of light include both fixed and mobile sources of light, such as exterior building-mounted and freestanding light fixtures, illuminated signage along storefronts, and streetlights along PCH, Studebaker Road, and 2nd

Street. Other sources of light include cars passing through the program area on PCH, Studebaker Road, and 2nd Street. While the program area does not include lighting along access roads, some areas where oil well facilities are located also include lighting.

3.1.2.2 Existing Views

Because the program area is visible from public viewpoints in surrounding off-site land uses, the following viewpoints were photographed to provide a visual baseline of the program area that would be visible to nearby observers in existing conditions. As discussed in greater detail below, to demonstrate the changes in visual character that would result with implementation of the proposed program, visual simulations of the program area from eight selected viewpoints were used to evaluate changes in both long-range views towards and across the program area and visual character based on height, bulk, massing, and type of development when compared to existing conditions. Certain visual simulations may also support the evaluation of the proposed program's potential effects to visual quality, as well as scenic vistas and scenic resources, in this section.

Figure 3.1-1, *Key Viewpoint Map*, identifies the viewpoints chosen by the LCWA as the most representative locations where the program area is visible from public locations. **Figure 3.1-2 through Figure 3.1-6** (presenting Viewpoints 1 through 6) provide existing views of the program area from each viewpoint, as well as one or more visual simulations to depict the anticipated change in aesthetic conditions from these viewpoints that would occur with construction and implementation of various proposed program components between the time periods of years 1 through 10 (near term), 10 through 20 (mid term), and 20 years onwards (long term).

Viewpoint 1: View from Pacific Coast Highway Looking Southeast Across the South Area (Figure 3.1-2). Viewpoint 1 represents views looking south/southeast from PCH toward the State Lands Parcel site and beyond to the South LCWA site. In the foreground of Viewpoint 1 is a barbed wire fence with a large expanse of non-native vegetation behind the fence, including small shrubs. Palm trees of varying sizes as well as an existing concrete foundation dominate the views in the middle ground. The middle ground also includes sporadically planted shrubs throughout the site, which obstructs views. Utility poles and transmission lines are visible overhead throughout the site. Residential structures and structures associated with the oil production uses are visible in the background.

Viewpoint 2: View from Gum Grove Park Looking North Across the South Area (Figure 3.1-2). Viewpoint 2 provides a view from Gum Grove Park looking north toward the South LCWA site and beyond into the Hellman Retained site. A large strip of thick non-native vegetation dominates the foreground and continues into the middle ground where the non-native vegetation appears to be dried. Oil well pumps and large industrial structures associated with the power plant on the Hellman Retained site, coupled with some trees and a palm tree, are visible in the background.

Viewpoint 3a: View from San Gabriel River Trail looking Southwest across the Isthmus Area (Figure 3.1-3). Viewpoint 3a represents views looking southwest from the San Gabriel River Trail looking toward the Zedler Marsh site and beyond into the Haynes Cooling Channel

and Hellman Retained site. A dirt slope, chain linked fence and dirt road is visible in the foreground, closest to the San Gabriel River Trail, and travels into the distance. A portion of the San Gabriel River is visible from Viewpoint 3a. Viewpoint 3a also includes views of fencing and structures visible just beyond the wetlands area in the middle ground. The background shows power poles and transmission lines, shrubbery, and trees, with oil production facilities interspersed within the background. The Pacific Coast Highway bridge is also visible in the background of Viewpoint 3a.

Viewpoint 3b: View from San Gabriel River Trail looking Northeast across the Isthmus Area (Figure 3.1-3). Viewpoint 3b represents views looking northeast from where the Isthmus Bryant site and Zedler Marsh site meet at the third levee along the San Gabriel River towards the DWP site and Haynes Cooling Channel. A view of the San Gabriel River with trees and riprap lining the San Gabriel River as well as the San Gabriel River Trail, a dirt slope, chain linked fence and dirt road are visible from the foreground. The middle ground includes views of the East 2nd Street bridge, power poles and transmission lines, and a partial view of the residential uses located in the Island Village. The background shows the large industrial structures within the Haynes Generating Station that are located north of the East 2nd Street and views of transmission lines are seen throughout the background.

Viewpoint 4a: View from San Gabriel River Trail looking west into the Central Area (Figure 3.1-4). Viewpoint 4a represents views looking west/northwest to the Central LCWA site, and the Long Beach City Property site and Pumpkin Patch site beyond. Viewpoint 4a also includes a partial view of the Isthmus LCWA site. The foreground includes the San Gabriel River Trail as well as a view of the San Gabriel River with trees and riprap lining the San Gabriel River. In the middle ground, views of oil operation infrastructure on the Isthmus LCWA site are partially visible. In addition, just north west of the San Gabriel River, oil wells, buildings, and trees are visible in the middle ground. Power poles and transmission lines are visible throughout the middle ground. The background includes a view of the Pacific Coast Highway Bridge and views of the commercial buildings located west of the Pacific Coast Highway through the Pumpkin Patch site, which is generally vacant with some trailers and fencing located on and in the perimeter of the site.

Viewpoint 4b: View from San Gabriel River Trail looking north into the Central Area (Figure 3.1-4). Viewpoint 4b provides a view from the San Gabriel River Trail looking north into the Central LCWA site and beyond into the Central Bryant site across the San Gabriel River. The foreground includes the San Gabriel River with riprap lining the San Gabriel River. Beyond the river, in the middle ground, oil wells, and power poles and transmission lines are visible. The middle ground is also interspersed with shrubs, trees, and palm trees of various heights and sizes. In the background, large industrial structures from the AES Alamitos Energy Center are visible from Viewpoint 4b.

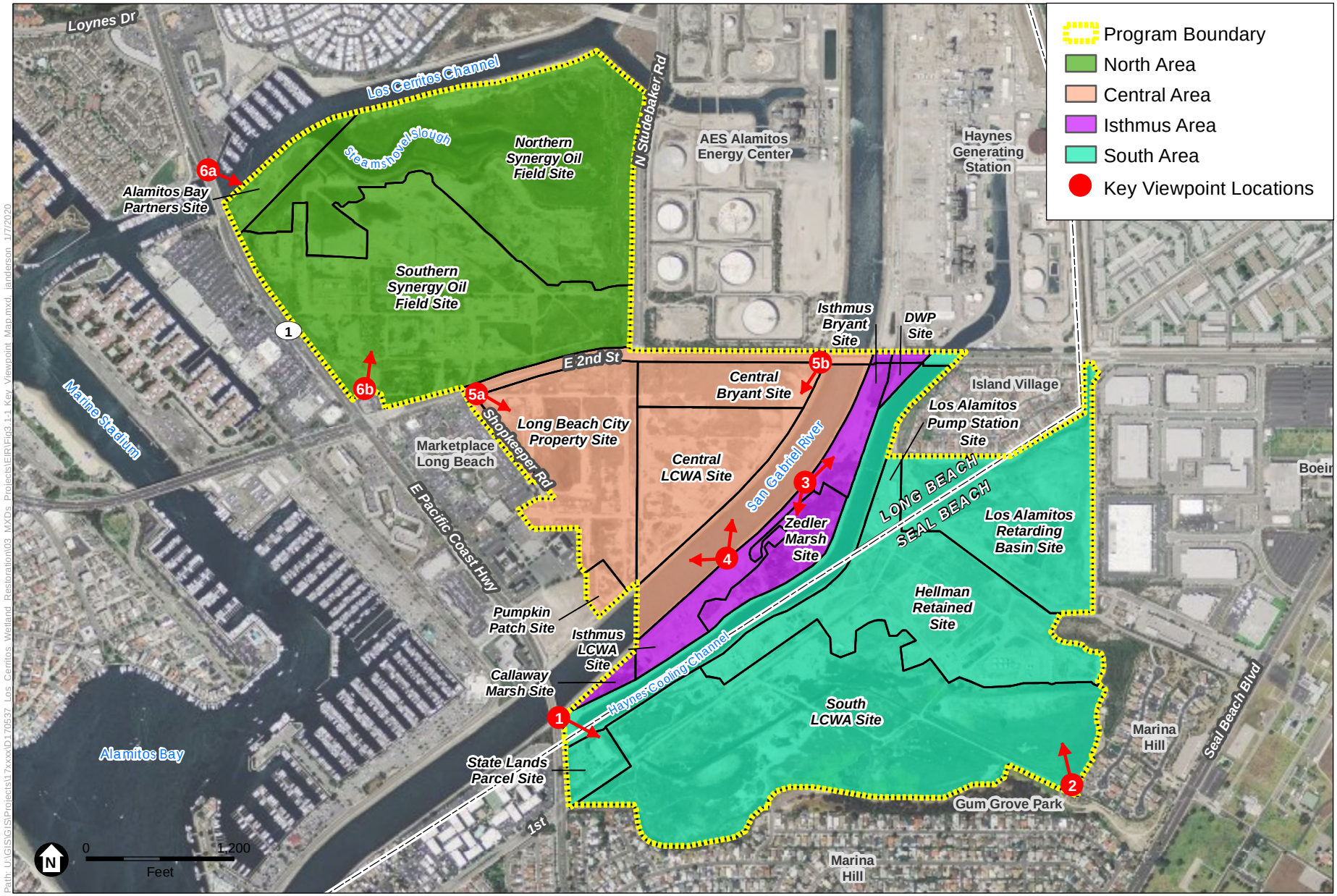
Viewpoint 5a: View from Corner of East 2nd Street and Shopkeeper Road looking southeast across the Central Area (Figure 3.1-5). Viewpoint 5a provides a view from the southeast corner of East 2nd Street and Shopkeeper Road looking southeast towards the Long Beach City Property site and beyond into the Central LCWA site. In the foreground, views

include small non-native vegetation including weeds and palm trees. Views in the middle ground include oil production structures as well as a chain linked fence and more non-native vegetation. The background includes more oil wells interspersed with trees and palm trees. Power pole and transmission lines are also visible in the background.

Viewpoint 5b: View from East 2nd Street Bridge looking southwest into the Central Area (Figure 3.1-5). Viewpoint 5b provides a view from the East 2nd Street bridge looking into the Central Bryant site and beyond into the Central LCWA site. The foreground includes dirt and sparse vegetation. A chain link fence and levee separate the Central LCWA site from the San Gabriel River. The middle ground includes views of power poles and transmission lines as well as small shrubs. The background includes views of oil production structures, palm trees, and trees interspersed throughout the Central Area.

Viewpoint 6a: View from the Pacific Coast Highway Bridge looking southeast across the North Area (Figure 3.1-6). Viewpoint 6a is from the Pacific Coast Highway Bridge looking southeast across the Los Cerritos Channel towards the Alamitos Bay Partners site and beyond into the Northern and Southern Synergy Oil Field site. In the foreground are views of the Los Cerritos Channel and boats moored to the pier in the small marina for the Cerritos Bahia Yacht Club. The middle ground includes oil wells and non-native vegetation including palm trees. Some wetland areas are also visible in the middle ground, including a partial view of the Steamshovel Slough. Views in the background include trees and palm trees, power pole and utility lines, as well as large industrial structures associated with the AES Alamitos Energy Center.

Viewpoint 6b: View from corner of East 2nd Street and Pacific Coast Highway looking northeast across the North Area (Figure 3.1-6). Viewpoint 6b is from the parking lot of the In-n-Out located on the northeast corner of East 2nd Street and the Pacific Coast Highway. The viewpoint looks northeast towards the Southern Synergy Oil Field site and beyond to the Northern Synergy Oil Field site. The foreground includes a dirt lot and sparse vegetation. The middle ground includes assorted non-native vegetation and invasive palm trees. Power poles and transmission lines dominate the middle ground. Views in the background include oil wells and other industrial structures.



SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-1
Key Viewpoint Map

ESA

VIEWPOINT 1: View from Pacific Coast Highway Looking Southeast Across the South Area.

VIEWPOINT 2: View from Gum Grove Park Looking North Across the South Area.

D170537.00

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-2
Viewpoint 1 and Viewpoint 2

ESA

VIEWPOINT 3a: View from San Gabriel River Trail looking Southwest across Isthmus Area.

VIEWPOINT 3b: View from San Gabriel River Trail looking Northeast across Isthmus Area.

D170537.00

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-3
Viewpoint 3a and 3b

ESA

VIEWPOINT 4a: View from San Gabriel River Trail looking west into the Central area.

VIEWPOINT 4b: View from San Gabriel River Trail looking north into the Central area.

D170537.00

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-4
Viewpoint 4a and 4b

ESA

VIEWPOINT 5a: View from Corner of East 2nd Street and Shopkeeper Road looking southeast across the Central area.

VIEWPOINT 5b: View from East 2nd Street Bridge looking southwest into the Central area.

D170537.00

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-5
Viewpoint 5a and 5b

ESA

VIEWPOINT 6a: View from Pacific Coast Highway Bridge looking southeast across North area.

VIEWPOINT 6b: View from corner of East 2nd Street and Pacific Coast Highway looking northeast across the North area.

D170537.00

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-6
Viewpoint 6a and 6b

ESA

3.1.3 Regulatory Framework

3.1.3.1 State

State Scenic Highways

The California Scenic Highway Program is maintained by the California Department of Transportation (Caltrans) and identifies scenic highway corridors for preservation and protection of aesthetic value. Caltrans maintains a list of routes that are "adopted" and "eligible." A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated (Caltrans 2016). In Los Angeles County, there are two adopted scenic highways, both of which are more than 20 miles northeast of the program area. In Orange County, there is one adopted scenic highway, which is located more than 15 miles from the program area. Eligible routes are those that are proposed for further study and may be officially designated when a local jurisdiction adopts a scenic corridor protection program and applies to Caltrans for scenic highway approval. State Route (SR) 1, commonly known as PCH, is an "Eligible State Scenic Highway" but has not been designated as an Official State or County Scenic Highway (Caltrans 2016). The eligible segment of the highway within Long Beach spans from the intersection of PCH and Lakewood Boulevard to the northern border of Orange County. The remaining portions of this eligible scenic highway extend south through the City of Seal Beach to the City of Dana Point. In order for the highway to become officially designated as a scenic highway, the local governing body would need to apply to Caltrans for scenic highway approval and adopt a Corridor Protection Program.

California Coastal Act

The primary authority for implementing the federal Coastal Zone Management Act in the State of California is the California Coastal Commission pursuant to the California Coastal Act of 1976. Sections of the California Coastal Act that pertain to aesthetics and scenic resources are described below. While the City of Seal Beach does not have a certified Local Coastal Program (LCP), it is currently in the process of preparing its LCP. The City of Long Beach has an LCP certified by the California Coastal Commission. For more information about these LCPs, see Section 3.9, *Land Use and Planning*.

Section 30116 Sensitive Coastal Resource Areas

The program area falls within the California Coastal Zone and would be considered a "Sensitive coastal resource area," which are identifiable and geographically bounded land and water areas within the coastal zone of vital interest and sensitivity. "Sensitive coastal resource areas" include the following:

a) Special marine and land habitat areas, wetlands, lagoons, and estuaries as mapped and designated in Part 4 of the coastal plan.

b) Areas possessing significant recreational value.

c) Highly scenic areas.

d) Archaeological sites referenced in the California Coastline and Recreation Plan or as designated by the State Historic Preservation Officer.

The program area falls within criteria "a" due to the presence of existing wetland habitat and criteria "c" as the open space is a unique scenic feature of the site relative to the urban and developed areas that surround it. The program area does not possess a significant recreational value under criteria "b" and none of the archaeological sites in the program area are references in the California Coastline and Recreation Plan or as designated by the State Historic Preservation Officer under criteria "d."

Section 30251 Scenic and Visual Qualities of Coastal Areas

Under Coastal Act Section 30251, the scenic and visual qualities of coastal areas must be considered and protected as a resource of public importance. Under this section, permitted development is required to be sited and designed to protect views to and along the ocean and scenic coastal areas (such as the Los Cerritos Wetlands), to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

3.1.3.2 Local

City of Seal Beach

City of Seal Beach General Plan

The City of Seal Beach's General Plan was first adopted in 1973, with the latest General Plan adopted in 2003. It contains the goals, policies, and directions that guide the City of Seal Beach in managing its future. The General Plans consists of eight elements: Land Use, Circulation, Open Space/Recreation/Conservation, Safety, Housing, Noise, Cultural Resources, and Growth Management. Many of the elements have been updated over the years. The following goals, objectives, and policies are related to scenic quality and lighting:

> **Circulation Element Goal.** Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City and near open space habitats for wildlife, while minimizing environmental impacts (including air, light, and noise pollution).
>
> **Circulation Element Policy.** Develop a circulation system that enhances the environmental amenities and scenic areas.

Seal Beach Municipal Code

The City of Seal Beach Municipal Code regulates development in the City of Seal Beach through zoning designations and development standards. As discussed above and as illustrated in Figure 2-10, *Zoning Districts*, within Chapter 2, *Project Description*, of this PEIR, the individual sites within Seal Beach are zoned as Specific Plan Regulation (SPR), Open Space Natural (OS-N), and Oil Extraction (OE).

The following provisions the City of Seal Beach Municipal Code help minimize light and glare impacts associated with new development projects, including the proposed program:

> **Section 11.4.20.025 N, General Parking Design Standards, Lighting.** Adequate lighting shall be provided for the illumination and protection of the premises. See subsection 11.4.10.020.A: Lighting. Lighting shall be directed away from adjacent streets and properties. All light standards and luminaries shall be clearly identified on all site plans. Lights shall not blink, flash, change intensity, or cause glare. String lights are prohibited. The type of lighting (e.g., mercury vapor, sodium vapor, fluorescent, etc.) shall be approved by the director.

Hellman Ranch Specific Plan

The Hellman Ranch Specific Plan is one of the five specific plans that govern various portions of the City of Seal Beach. The Hellman Ranch Specific Plan was first adopted by the City of Seal Beach City Council on June 19, 1981, with the latest updated specific plan adopted in 1996. The Hellman Ranch Specific Plan covers a 231-acre area located in the City of Seal Beach and divides the specific plan area by five Conservation Planning Areas and 5 Development Planning Areas. The following goals are related to scenic quality and lighting:

> **Project Goals.** Preserve and enhance the open space and create public access opportunities.
>
> **Development Standard 7.8.** All lighting shall be installed and maintained in such a manner to confine direct rays to the premises and prevent direct rays or glare onto neighboring properties.

City of Long Beach

City of Long Beach General Plan

Adopted in 1973, the City of Long Beach General Plan contains the goals, policies, and directions that guide the City in managing its future. The General Plans consists of 12 elements: Air Quality, Conservation, Historic Preservation, Housing, Land Use, Mobility, Noise, Open Space and Recreation, Public Safety, Seismic Safety, Scenic Routes, Seismic Safety, and LCP (described in more detail below). Many of the elements have been updated over the years.

The Scenic Routes Element includes policies regarding scenic resources. Adopted by the City of Long Beach in 1975, the Scenic Routes Element emphasizes criteria, standards, and proposed alignment of urban routes for local designation in a further refinement of the State's Guidelines on Scenic Highways. Four suggested scenic automobile routes and one scenic bicycle route are presented in the Scenic Routes Element. In the program vicinity, this includes PCH, which is also eligible as a State and County Scenic Highway.

The City of Long Beach recently adopted the General Plan Land Use Element on December 2019. The land use designations for the program area are Open Space (OS) PlaceType with a Specific Plan Overlay, with the exception of the Pumpkin Patch site and a portion of the Long Beach City Property site, which have a Regional-Serving Facility (RSF) PlaceType with a Specific Plan Overlay.

Long Beach Municipal Code

The City of Long Beach Municipal Code regulates development in the City of Long Beach through zoning designations and development standards. As discussed above and as illustrated in Figure 2-10, *Zoning Districts*, within Chapter 2, *Project Description*, of this PEIR, the properties within the City of Long Beach subject to the adopted SEADIP are zoned as Planned Development District 1 (PD-1). Under the proposed SEASP 2060, properties would be zoned Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right-of-Way (not built). Further discussion of both the adopted SEADIP and proposed SEASP 2060 is provided below.

The following standard from the City of Long Beach Municipal Code help minimize light and glare impacts associated with new development projects, including the proposed program:

> **Section 21.44.600 (E) (3) Prohibited Signs, Unlawful Illumination.** Floodlights that are not hooded or shielded so that the light source is visible from public right-of-way, adjacent property, or residential dwelling unit are prohibited.

Southeast Area Development and Improvement Plan and Proposed Southeast Area Specific Plan

Adopted Southeast Area Development and Improvement Plan

Development Districts in the City of Long Beach are special districts that have more comprehensive land use regulations than conventional zoning and are intended to achieve a specific outcome in a geographic area, similar to a Specific Plan. Approved in 1977, the SEADIP was the first PD-1 district in the City of Long Beach and also provides zoning for the covered properties. The SEADIP document is intended to guide land use and development in area that was experiencing a period of rapid growth at the time of adoption. The adopted SEADIP provided development and use standards (e.g., density, setbacks, and height limitations), established a mechanism for infrastructure improvements, and protected views, open space, and wetlands.

The following provisions from the adopted SEADIP are applicable to the proposed program:

> **Provision 11.** Public access shall be provided to and along the boundaries of all public waterways as provided for in the wetlands restoration plan.
>
> **Provision 12.** Public views to water areas and public open spaces shall be maintained and enhanced to the maximum extent possible, consistent with the wetlands restoration plan.
>
> **Provision 13.** Adequate landscaping and required irrigation shall be provided to create a park-like setting for the entire area. A landscaped parkway area shall be provided along all developments fronting on PCH, Westminster Avenue, Studebaker Road, Seventh Street, and Loynes Drive.

Proposed South East Area Specific Plan 2060

The City is in the process of replacing the adopted SEADIP with the proposed SEASP 2060, a new specific plan. The proposed SEASP 2060 area consists of 1,472 acres and includes 1,381 acres currently zoned PD-1 (SEADIP), 94 acres of the San Gabriel River and Los Cerritos Channel, and 6 acres along the southeast edge of the current PD-1 (SEADIP) boundary.

Under the proposed SEASP 2060, a majority of the individual sites would have a land use designation of Coastal Habitat, Wetlands, and Recreation (CHWR). In addition, the Los Alamitos Pump Station site and the portion of the Los Alamitos Retarding Basin site within the City of Long Beach have a land use designation of Public. Furthermore, a portion of the Long Beach Property site is proposed to be designated as Dedicated Right of Way (not built). The CHWR land use designation provides for coastal restoration, access, visitor-serving recreation (boating, public launching, kayaking, paddle boarding, etc.), and biological reserves. Public access to coastal water is encouraged and uses such as interpretive centers and public parking associated with coastal resources are permitted. The Public land use designation provides more public and institutional uses such as elementary schools, museums, and interpretive centers, parking, water tanks and retention basis. Uses in this designation shall comply with provisions of Long Beach Municipal Code Chapter 21.34, Institutional Districts. The Dedicated Right of Way (not built) designation is intended for the extension of Shopkeeper Road which currently dead-ends into the Pumpkin Patch site in the Central Area. The proposed SEASP 2060 indicates that the ultimate alignment of Shopkeeper Road shall be designed to avoid impacting a delineated wetland. The Public designation is applicable to the Los Alamitos Pump Station and Los Alamitos Retarding Basin sites.

The following priorities from the proposed SEASP 2060 are applicable to the proposed program:

> **Priority 3.** View preservation. Preserve views of the hills and mountains and maintain the scenic environment through control of building placement and/or height.

Given that the SEASP 2060 has not been adopted, the consistency analysis below focuses on the proposed program's consistency with the policies in the adopted SEADIP. Note that at the time of writing this PEIR, the California Coastal Commission has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program. As such, a consistency analysis is also provided for the proposed SEASP 2060, for informational purposes.

City of Long Beach Local Coastal Program

In order to mitigate and upgrade adverse conditions of existing oil sites located in the coastal zone and impacting residential cities, the City of Long Beach LCP proposes the following policies and measures that protect visual quality in the surrounding area.

A. Upon application for a permit, a detailed landscaping, irrigation and fencing plan shall be submitted and must meet with the approval of the Department of Planning and Building and the Bureau of Parks.

B. Specific requirements for landscaping, etc., shall be:

   1. Fencing shall be of masonry and gates shall be of solid wood.
   2. Landscaping shall include trees, not less than 15 gallons in size; shrubs not less than 5 gallons in size; suitable ground cover; all maintained in a neat and healthy condition so as to screen and conceal equipment.
   3. Landscaped areas shall be watered with a fully automatic irrigation system.

4. Applicant shall be required to implement the approved plan at the time of site preparation prior to drilling in areas where they are required, curbs, sidewalks, and landscaped parkways shall be installed.
5. All gathering and injection lines outside any walled areas must be buried.
6. All production shall be transported from any new site by buried pipeline. On existing sites measures must be instituted wherever possible to convert to pipeline transportation.
7. The number of tanks shall be kept to a minimum and new tanks shall be installed so that height of the tank does not exceed 10 feet above grade level.
8. The use of above ground storage tanks in residential areas in service on August 1, 1979, may be continued provided sites are enclosed by a 6-foot-high masonry all and trees of adequate size to screen them from public view and do not adversely affect the aesthetic value of surrounding property, implement as soon as possible.
9. Tanks must be maintained and painted on a regular basis.
10. Existing production sites within residential areas shall comply with landscaping, wall, sidewalk, and setback requirements within the minimum legally possible amortization period.
11. Permittees who are also owners of a fee simple interest in the land on which abandoned wells are located shall not be exempt from land restoration and clean-up when wells are abandoned in residential areas.

3.1.4 Significance Thresholds and Methodology

3.1.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the CEQA Guidelines, the program would have a significant impact on aesthetic resources if it would:

a) Have a substantial adverse effect on a scenic vista;

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or

d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

3.1.4.2 Methodology

The analysis identifies potential temporary impacts from the proposed construction and restoration activities and permanent post-restoration effects of the proposed program on aesthetic resources, as seen from publicly accessible roads, bike trails, and other sensitive observer points, as identified in Figure 3.1-2 through Figure 3.1-6, shown above. Program elements are evaluated

on the basis of visual simulations,[1] technical expertise, and familiarity with the program area to determine the potential of the program to result in impacts to aesthetic resources using the significance criteria provided above. Projects can result not only in direct impacts on readily identifiable scenic resources, amenities, or features, but also in indirect effects on the visual quality or character of an area. The approach to evaluating the effect of this program under each criterion is described below:

1. ***Have a substantial adverse effect on a scenic vista:*** This criterion applies only to projects that would be located on or disrupt access to a scenic vista or result in visual changes within its viewshed. Scenic vistas may be officially recognized or designated (e.g., within local planning documents) or they may be informal in nature (e.g., mountain peaks or coastal bluffs). A project's effect would be considered substantial if it would appreciably damage or remove the visual qualities that make the view unique, unobstructed, and/or exemplary.
2. ***Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway:*** Damage to a scenic resource is substantial when it is reasonably perceptible to affected viewers and when it appreciably degrades one or more of the aesthetic qualities that contributes to a scenic setting. The presence of and potential damage to scenic resources in this analysis is considered along with program-related effects on the existing visual character and quality of a site or surroundings within the Caltrans scenic highway program.
3. ***In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality:*** The first half of this criterion is applicable to those projects in a non-urbanized setting where a project would result in either temporary or permanent visual change. A project is considered to "substantially degrade" the visual character or quality of a site if it would have a strongly negative influence on the public's experience and appreciation of the visual environment. The second half of this criterion is applicable to those projects in an urbanized setting and the analysis would instead focus on whether the project would conflict with applicable zoning as defined within a municipal code or other regulations governing scenic quality, such as those within a general plan or specific plan.
4. ***Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area:*** This criterion applies to projects that require nighttime lighting, or that involve structures or finishes that could create substantial glare.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the LCWA sent the Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations and individuals potentially interested in the program to identify the relevant environmental issues that should be addressed in the PEIR. One comment was received by the California Coastal Commission requesting that visual simulations of the program's effects on coastal scenic vista from public viewing areas are included in the PEIR. This comment regarding viewpoints and visual simulations is addressed below. No other issues related to aesthetics were identified in the received comments.

[1] The grading and planting plans in the visual simulations are conceptual and modifications may be made as they are finalized, such as changes to the specific type of native plants to be installed.

3.1.5 Program Impacts and Mitigation Measures

Impact AES-1: The proposed program would result in a significant impact if the proposed program would have a substantial adverse effect on a scenic vista.

Scenic vistas in the area include views of the Los Cerritos Wetlands Complex, Los Cerritos Channel, Steamshovel Slough, and San Gabriel River with the San Gabriel Mountains rising in the background northeast of the program area.

Construction

As described in Chapter 2, *Project Description*, of this PEIR, construction of the proposed program would generally involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor centers, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. However, this would vary between each individual site. In order to perform some of these construction activities, the proposed program would include the use of barges to transport soil/construction materials out to sea for a marine disposal or to another port/marina site to be picked up by construction trucks. An analysis of each area of the proposed program is provided below.

South Area

Construction activities on the South Area include grading on the South LCWA site in the near term, construction of an earthen berm or flood wall to protect the Hellman Retained site, raising 1st Street, and constructing the Seal Beach Visitor Center on the State Lands Parcel site. In the mid term, a channel will be excavated to connect the Haynes Cooling Channel to the South LCWA site. Oil operations in the long term on the Hellman Retained site would need to be phased out or consolidated to allow for restoration. Construction activities in the long term include grading on the Hellman Retained site, removing 1st street in its entirety, and excavating a channel to connect the Haynes Cooling Channel to the Hellman Retained site.

These restoration activities would temporarily alter scenic vistas as seen from areas surrounding the program area, which include scenic vistas of the Los Cerritos Wetlands as well as the San Gabriel Mountains that can be seen in the far distance to the northeast of the South Area on a clear day. While the Haynes Cooling Channel is located within the South Area, it is not considered a scenic vista as it is a waterway used by the Haynes Generating Station to bring in water from the Pacific Ocean via 7 culverts in the Alamitos Bay Marina to cool the power plant. The Haynes Cooling Channel is planned for decommissioning as part of Cumulative Project No. 22 (see Table 3-1 in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, of this PEIR). Potential visible restoration and construction activities could include earth moving and construction equipment and materials, stockpiled soil fill, visible dust plumes, and debris piles, which could partially obscure scenic vistas when viewed in close proximity to the site.

With regard to the Los Cerritos Wetlands Complex, the construction activities proposed under the proposed program would serve to restore and enhance the wetlands and would be temporary in nature. The State Lands Parcel site is not located within the wetlands, but construction of the

visitor's center would include movement of construction equipment. However, as shown in Figure 3.1-2, development would occur on an existing developed site and any construction activities would be temporary. Views of scenic vistas from public roads surrounding the site, including PCH, could be affected by the restoration and construction activities; however, views from these roadways are from the same elevation as the program area and, thus, any restoration and construction work viewed from these roads would be seen in the foreground and would not block or obscure broader views of background scenic vistas, such as those of the San Gabriel Mountains and, thus, would not temporarily or permanently alter a scenic vista. Impacts would be less than significant.

Isthmus Area

Construction activities on the Isthmus Area include grading on the Isthmus Bryant site in the near term. In the mid term, construction activities include grading on the Callaway Marsh site. Oil operations in the long term on the Isthmus LCWA site would need to be phased out or consolidated to allow for restoration. Soils on the Isthmus LCWA site would also need to be remediated. Construction activities in the long term also include grading on the Isthmus LCWA site and removal of access roads on the Isthmus Bryant site and DWP site. These restoration activities would temporarily alter scenic vistas as seen from areas surrounding the program area, which include scenic vistas of the Los Cerritos Wetlands and San Gabriel River, which runs directly adjacent to the Isthmus Area. Potential visible restoration and construction activities could include earth moving and construction equipment and materials, stockpiled soil fill, visible dust plumes, and debris piles, which could partially obscure scenic vistas when viewed in close proximity to the site.

While construction within the Isthmus Area includes visible restoration and construction activities, these activities serve to restore and enhance the wetlands and would be temporary in nature. Views of scenic vistas from public roads surrounding the Isthmus Area, including 2nd Street, could be affected by the restoration and construction activities; however, proposed construction does not include the use of large construction equipment or permanent structures that could potentially obstruct views of the San Gabriel River from 2nd Street. In addition, while there are views of the San Gabriel Mountains from the San Gabriel River Trail, views are currently obstructed by the AES Alamitos Energy Center and Haynes Generating Stations, and construction activities would not block or obscure broader views of background scenic vistas. Thus, construction activities on the Isthmus Area would not temporarily or permanently alter a scenic vista. Impacts would be less than significant.

Central Area

Construction activities on the Central Area include remediation of soils and relocation or modification of oil infrastructure, grading of the individual sites, construction of earthen levees, and construction of public trails and viewpoints within the Central LWCA site and Central Bryant site in the near term. The Central LCWA site and Central Bryant site also include raising the existing wells and breaching the San Gabriel River Levee to reconnect the river with the restored marsh in the near term. In the long term, construction activities include removal of the Interim Levee on the Central LCWA site and Central Bryant site. Construction activities on the Long

Beach City Property site include grading, construction of an earthen levee, excavation of a tidal channel, construction of public trails, and construction of viewpoints in the long term. On the Pumpkin Patch site, construction activities would include construction of an earthen levee. Other activities occurring within the Central Area, but that were analyzed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083), include construction of an aboveground pipeline systems along 2nd Street and removal of oil operations within the Long Beach City Property and Pumpkin Patch sites.

These restoration activities would temporarily alter scenic vistas as seen from areas surrounding the program area, which include scenic vistas of the Los Cerritos Wetlands as well as the San Gabriel River that runs adjacent to and south of the Central Area and the San Gabriel Mountains in the background to the northeast of the Central Area. Potential visible restoration and construction activities could include earth moving and construction equipment and materials, stockpiled soil fill, visible dust plumes, and debris piles, which could partially obscure scenic vistas when viewed in close proximity to the site.

Both the Long Beach City Property site and Central LCWA site are both located on active oil fields and are developed with oil infrastructure and contain non-native species which degrade the quality of the scenic vista in this portion of the wetlands. The construction activities proposed under the proposed program would serve to restore and enhance the wetlands and would be temporary in nature. As shown in Figure 3.1-5, views of the San Gabriel River are limited and only available from PCH adjacent to the Pumpkin Patch site. While views of construction within the Central Area could potentially be seen in the foreground from the San Gabriel River and 2nd Street, construction and remediation activities would not block or obscure broader views of background scenic vistas, such as those of the San Gabriel Mountains. Furthermore, all construction and remediation activities occurring within the Central Area would be temporary in nature and, thus, would not temporarily or permanently alter a scenic vista. Impacts would be less than significant.

North Area

Construction activities on the Southern Synergy Oil Field site in the long term include grading of the site to support habitat restoration, construction of earthen levees, and excavation of a tidal channel. Oil infrastructure on the Alamitos Bay Partners site also need to be relocated to allow for restoration. Additional long-term construction activities include remediation of soils and grading of the Alamitos Bay Partners site. No construction activities are proposed on the Northern Synergy Oil Field site. Other construction activities that would occur within the North Area, but that were analyzed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083), include the remediation of soils, construction of a barrier, grading tidal channels, and removal of segments of existing berm within the Northern Synergy Oil Field site and development of the Long Beach Visitor Center and parking lot and construction of trails, overlook, sidewalk enhancements, and bikeway improvements within the Southern Synergy Oil Field site.

The proposed restoration activities on the northern portion of the North Area, which would occur within the Los Cerritos Wetlands Complex and adjacent to Steamshovel Slough and Los Cerritos

Channel, would temporarily alter scenic vistas as seen from areas surrounding the program area. Similarly, views of the southern portion of the North Area would temporarily be altered during construction activities, including phasing out of oil infrastructure and restoration of areas around oil infrastructure. Potential visible restoration and construction activities could include earth moving and construction equipment and materials, stockpiled soil fill, visible dust plumes, and debris piles, which could partially obscure scenic vistas when viewed in close proximity to the site.

The construction activities proposed under the proposed program would serve to restore and enhance the wetlands and would be temporary in nature. In addition, views of scenic vistas from public roads surrounding the site, including PCH, 2nd Street, and Studebaker Road, could be affected by the restoration and construction activities; however, views from these roadways are from the same elevation as the program area and, thus, any restoration and construction work viewed from these roads would be seen in the foreground views. Restoration and construction activities would not block or obscure broader views of background scenic vistas, such as those of the San Gabriel Mountains. Furthermore, all restoration and construction activities would be temporary in nature and, thus, would not temporarily or permanently alter a scenic vista. Impacts would be less than significant.

Operation

The following analysis discusses the potential for the proposed program to have an adverse effect on a scenic vista based on visual simulations that depict existing and future views of the proposed program. Existing and future views of conditions under the proposed program were provided for Viewpoint 1 (South Area), Viewpoint 2 (South Area), Viewpoint 3b (Isthmus Area), Viewpoint 4b (Central Area), Viewpoint 5a (Central Area), and Viewpoint 6a (North Area), as illustrated in Figures 3.1-7 through 3.1-12, below.

South Area

Viewpoint 1: View from PCH Looking Southeast Across the South Area. As shown in Figure 3.1-7, the existing long-range view from PCH looking southeast towards the State Lands Parcel site and beyond to the South LCWA site includes a large expanse of non-native vegetation in the foreground, palm trees of varying sizes as well as an existing pad dominate the middle ground, and residential structures and structures associated with oil production in the background. As described in Chapter 2, *Project Description*, of this PEIR, within the near term, activities within Viewpoint 1 would include development of the Seal Beach Visitor Center and associated parking facilities on the State Lands Parcel site as well as habitat restoration, removing the gate on the Hellman Channel culvert to the San Gabriel River, and raising 1st Street. As shown in **Figure 3.1-7**, *Visual Simulation – Viewpoint 1*, the gate and fencing preventing access to the South LCWA site is removed and vegetation in the foreground has been restored to wetland species with tidal salt marsh restored in the middle ground to the south east and native grass land has been restored to the south west. The existing concrete foundation in the middle ground includes the Seal Beach Visitor Center and parking area with native vegetation fronting the visitor center.

With regard to the Los Cerritos Wetlands Complex, under operation, the existing wetlands would be retained and further enhanced with the restoration of the surrounding area with tidal salt marsh and native grasslands, within the raptor foraging habitat. The Seal Beach Visitor Center would also visually improve the view of the State Lands Parcel site from PCH. No other scenic vistas, including the Steamshovel Slough, San Gabriel River, or the San Gabriel Mountains, are visible from Viewpoint 1. Impacts to scenic vistas under operation of the proposed program would be less than significant.

Viewpoint 2: View from Gum Grove Park Looking North Across the South Area. As shown in **Figure 3.1-8**, *Visual Simulation – Viewpoint 2*, the existing long-range view from Gum Grove Park looking north towards the South LWCA site and beyond to the Hellman Retained site includes a thick strip of non-native vegetation in the foreground and middle ground and industrial structures in the background with obstructed views of the San Gabriel Mountains in the distance on a clear day. As described in Chapter 2, *Project Description*, of this PEIR, near-term activities within Viewpoint 2 would include tidal salt marsh restoration and the construction of an earthen berm or flood wall to maintain the existing flood control for the Hellman Retained site. As shown in Figure 3.1-8, the vast majority of the South LWCA site has been restored from the overgrown non-native vegetation to tidal salt marsh. In addition, the berm can be seen in the middle ground that separates the South LWCA site from the industrial Hellman Retained site. While the visual simulation illustrated in Figure 3.1-8 only provides a near-term visual simulation of Viewpoint 2, it should be noted that in the long term within the Hellman Retained site, which can be seen in the distance of Viewpoint 2, the oil operations would be phased out or consolidated and would allow for habitat restoration.

With regard to the Los Cerritos Wetlands Complex under operation, the non-native vegetation would be replaced with tidal salt marsh and would restore the habitat. In addition, obstructed views of the San Gabriel Mountains would be partially visible on a clear day behind the industrial structures on the Hellman Retained site. There are no proposed changes within the near term or mid term that would further obstruct these views. In the long term, the oil operations would be phased out or consolidated, and the berm previously built during the near term would be lowered, breached, or removed which would allow for improved views of the restored wetlands and transitional zone habitat that would be on the Hellman Retained site after removal/consolidation of the oil operations. Phasing out or consolidation of the oil operations would provide for an unobstructed view of the San Gabriel Mountains and would enhance the scenic vista. Impacts to scenic vistas under operation of the proposed program would be less than significant.

Isthmus Area

Viewpoint 3b: View from San Gabriel River Trail looking Northeast across the Isthmus Area. As shown in **Figure 3.1-9**, *Visual Simulation – Viewpoint 3b*, the existing long-range view from the San Gabriel River Trail looking northeast towards the Isthmus Bryant site includes a dirt slope, chain linked fence and dirt road in the foreground, the East 2nd Street bridge, power poles and transmission lines, and a partial view of the residential uses are visible in the middle ground, and large industrial structures within the and Haynes Generating Stations are visible in the background with obstructed views of the San Gabriel Mountains in the distance. As described in Chapter 2, *Project Description*, of this PEIR, near-term activities within Viewpoint 3b would

include habitat restoration such as focused grading and removal of invasive species and planting of native vegetation. Long-term activities within the Isthmus Bryant site would include removal of access roads and culverts. Figure 3.1-9 illustrates a long-term visual simulation of the Isthmus Bryant site. As shown therein, the chain link fence and dirt road in the foreground and the non-native species in the middle ground have been completely removed and the site has been restored with tidal salt marsh and transition zone habitat.

With regard to the Los Cerritos Wetlands Complex, under operation, the non-native vegetation would be removed and tidal salt marsh and transition zone habitat would be restored. In addition, while the San Gabriel River is visible within Viewpoint 3b, permanent structures that could potentially obstruct views of the San Gabriel River from 2nd Street are not proposed and the surrounding restored habitat would serve to enhance views of the San Gabriel River. Furthermore, obstructed views of the San Gabriel Mountains would be partially visible on a clear day behind the AES Alamitos Energy Center and Haynes Generating Station. As stated previously, no permanent structures are proposed that would obstruct the views of the San Gabriel Mountains further. Impacts to scenic vistas under operation of the proposed program would be less than significant.

Central Area

Viewpoint 4b: View from San Gabriel River Trail looking north into the Central Area. As shown in **Figure 3.1-10**, *Visual Simulation – Viewpoint 4b*, the existing long-range view from the San Gabriel River Trail looking north towards the Central LCWA site and beyond to the Central Bryant site includes the San Gabriel River and rock levee in the foreground, oil wells, power poles and transmission lines, and shrubs, trees, and palm trees of various heights and sizes in the middle ground, and large industrial structures from the AES Alamitos Energy Center are visible from Viewpoint 4b with obstructed views of the San Gabriel Mountains in the distance. As described in Chapter 2, *Project Description*, of this PEIR, the proposed program would construct a perimeter and interim levee and raise the oil wells in place. Additional activities in the near term would include breaching the existing levee and excavating channels throughout the sites. The perimeter levee would run parallel to 2nd Street and would be offset 30 feet from the property line. Long-term activities within the Central LCWA site and Central Bryant site include removal of the interim levee and excavation of a tidal channel from the Central LCWA/Central Bryant site to the Long Beach City Property site. Figure 3.1-10 illustrates a near-term visual simulation of Viewpoint 4b. As shown therein, the existing rock levee has been removed and breached such that the San Gabriel River flows into the Central Area. The tidal salt marsh habitat has also been restored and a partial view of the vegetated levee at the back of the site is visible from Viewpoint 4b.

With regard to the Los Cerritos Wetlands Complex, under operation, the non-native vegetation would be removed and tidal salt marsh habitat would be restored. In addition, while the San Gabriel River is visible within Viewpoint 4b, permanent structures that could potentially obstruct views of the San Gabriel River from 2nd Street are not proposed and the surrounding restored habitat would serve to enhance views of the San Gabriel River. Furthermore, obstructed views of the San Gabriel Mountains would be partially visible on a clear day behind the AES Alamitos Energy Center. In the near term, raising the oil wells would not obstruct views as the changes

would blend in with the industrial uses within the AES Alamitos Energy Center in the background, which already obstructs views of the San Gabriel Mountains in the existing setting. Impacts to scenic vistas under operation of the proposed program would be less than significant.

Viewpoint 5a: View from Corner of East 2nd Street and Shopkeeper Road looking southeast across the Central Area. As shown in **Figure 3.1-11**, *Visual Simulation – Viewpoint 5a*, the existing long-range view from the corner of 2nd Street and Shopkeeper Road looking southeast towards the Long Beach City Property site and beyond into the Central LWCA site includes small non-native vegetation in the foreground, oil production structures, a chain linked fence and more non-native vegetation in the middle ground, and oil wells, trees and palm trees, and power pole and transmission lines in the background. As described in Chapter 2, *Project Description*, of the PEIR, within the near term, activities within the view would include a those described above under the discussion of Viewpoint 4b, which includes two options to address ongoing oil well production on the Central LWCA site and habitat restoration activities. These near-term activities would be visible in the middle ground. Activities that would occur closer to the foreground within the Long Beach City Property site would occur within the long term and would be similar to those of the near term that would occur within the Central LWCA and Central Bryant sites. Such activities include excavation of tidal channels, habitat restoration, and construction of an earthen levee to protect 2nd Street and Shopkeeper Road. Figure 3.1-11 illustrates a long-term visual simulation of Viewpoint 5a. At this corner of 2nd Street and Shopkeeper Road, a vegetated earthen levee can be seen. However, on this vegetated levee, public trails would be provided that would be accessible via ramps and stairs.

With regard to the Los Cerritos Wetlands Complex, under operation, the non-native vegetation would be removed and tidal salt marsh habitat would be restored. Oil wells and chain-linked fences that are visible in the middle ground would be replaced with a vegetated levee that would be more aesthetically pleasing. In addition, the San Gabriel River is not visible from this point, however, with public access to public trails on top of the perimeter levees, views of the San Gabriel River would be enhanced. No other scenic vistas, including the Steamshovel Slough, San Gabriel River, or the San Gabriel Mountains, are visible from Viewpoint 5a. Impacts to scenic vistas under operation of the proposed program would be less than significant.

North Area

Viewpoint 6a: View from the Pacific Coast Highway Bridge looking southeast across the North Area. As shown in **Figure 3.1-12**, *Visual Simulation – Viewpoint 6a*, the existing long-range view from the PCH looking southeast across the Alamitos Bay Partners site and beyond into the Northern and Southern Synergy Oil Field site includes the Los Cerritos Channel and boats moored to the pier in the small marina for the Cerritos Bahia Yacht Club in the foreground, oil wells, non-native vegetation and some wetlands in the middle ground, including a partial view of the Steamshovel Slough, and trees and palm trees, power pole and utility lines, as well as large industrial structures associated with the AES Alamitos Energy Center, are visible in the background. No near-term activities are proposed under the proposed program within Viewpoint 6a. All near-term activities are associated with the Northern and Southern Synergy Oil Field sites and were analyzed as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). As described in Chapter 2,

Project Description, of this PEIR, within the long-term activities within Viewpoint 6a would include habitat restoration within the Alamitos Bay Partners site and Southern Synergy Oil Field site as well as construction of earthen levee or flood wall to protect 2nd Street and PCH, excavation of a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site, and removal of the new barrier constructed in the near-term (as proposed and analyzed within the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR, State Clearinghouse Number 2016041083).

With regard to the Los Cerritos Wetlands Complex, under operation, the non-native vegetation would be removed and tidal salt marsh habitat would be restored. In addition, while the Los Cerritos Channel is visible within Viewpoint 6a, permanent structures that could potentially obstruct views of the Los Cerritos Channel from PCH are not proposed and the surrounding restored habitat would serve to enhance views of the Los Cerritos Channel. Furthermore, Steamshovel Slough is located more central within the North Area and is partially visible from Viewpoint 6a. However, activities proposed under the proposed program, including habitat restoration throughout the North Area as well as excavation of a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site would serve to further enhance views of the Steamshovel Slough. Impacts to scenic vistas under operation of the proposed program would be less than significant.

Summary

As discussed above, impacts during construction of the proposed program would serve to restore and enhance the wetlands and would be temporary in nature. In addition, as shown in Figure 3.1-7 through Figure 3.1-12, and as supported by the accompanying discussions above, development of the proposed program would change views of the scenic vistas; however, a majority of the viewpoints would be enhanced by the proposed program due to the restoration of native vegetation and wetland habitat and consolidation of oil production facilities. Therefore, the proposed program would not have a substantial adverse effect on a scenic vista and impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-7
Visual Simulation - Viewpoint 1

ESA

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-8
Visual Simulation – Viewpoint 2

ESA

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-9
Visual Simulation – Viewpoint 3b

ESA

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-10
Visual Simulation – Viewpoint 4b

ESA

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-11
Visual Simulation – Viewpoint 5a

ESA

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.1-12
Visual Simulation – Viewpoint 6a

ESA

Impact AES-2: The proposed program would result in a significant impact if the proposed program would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

As previously discussed, PCH has been identified by Caltrans as an "Eligible State Scenic Highway," but has not been designated as an Official State or County Scenic Highway (Caltrans 2016). The Alamitos Bay Partners site, portions of the Northern and Southern Synergy Oil Field sites, the Pumpkin Patch site, State Lands Parcel site, and portions of the South LCWA site are all directly adjacent to and visible from PCH.

As described above, damage to a scenic resource is substantial when it is reasonably perceptible to affected viewers and when it appreciably degrades one or more of the aesthetic qualities that contributes to a scenic setting. Scenic resources on the program area would include wetland areas. View 1, as provided in Figure 3.1-2, Viewpoint 5b, as provided in Figure 3.1-5, and Viewpoints 6a and 6b, as provided in Figure 3.1-6, illustrate the existing conditions on the program area and views from PCH.

With regard to Viewpoint 1, which includes a view of a large expanse of non-native vegetation, including small shrubs and palm trees of varying sizes, no wetlands are visible. Viewpoint 6a provides a view of the Alamitos Bay Partners site from PCH which includes oil wells and non-native vegetation including palm trees. Some wetland areas are also visible from Viewpoint 6a. Viewpoint 6b provides a view of assorted non-native vegetation and invasive palm trees and no wetlands are visible from this view. As such, views of scenic resources on the program area are for the most part not visible from PCH. While views of wetlands located on the North Area are somewhat visible from PCH, the construction and operation of the proposed program would remove non-native vegetation and phase out oil production facilities, which would enhance the scenic value of the proposed program. As such, no scenic resources would be damaged within a state scenic highway. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact AES-3: The proposed program would result in a significant impact if the proposed program would substantially degrade the existing visual character or quality of public views of the site and its surroundings in non-urbanized areas or conflict with applicable zoning and other regulations governing scenic quality in an urbanized area.

The program area is located both the City of Long Beach and the City of Seal Beach, which are urbanized cities. Surrounding uses include residential uses to the south and north of the South Area and north of the North Area; commercial uses to the west of the program area, and industrial uses to the east of the South Area and North Area. As such, this impact analysis will focus on

whether the proposed program conflicts with the applicable zoning and other regulations governing scenic quality, including the City of Seal Beach General Plan, Hellman Ranch Specific Plan, City of Long Beach General Plan, adopted SEADIP, the proposed SEASP 2060 (for informational purposes), and City of Long Beach's LCP.

City of Seal Beach

The South Area includes the following individual sites: Haynes Cooling Channel, State Lands Parcel, South LCWA, Hellman Retained, Los Alamitos Pump Station, and Los Alamitos Retarding Basin. A majority of the South Area is the only area within the program area that is under the jurisdiction of the City of Seal Beach. The individual sites within the South Area not under the City of Seal Beach jurisdiction include the Los Alamitos Pump Station site and the northwestern portion of the Los Alamitos Retarding Basin site.

According to the Seal Beach zoning map, the properties within Seal Beach are zoned as Specific Plan Regulation (SPR), Open Space Natural [OS-N (SPR)], and Oil Extraction [OE (SPR)]. All property in the Specific Plan Regulation Zone shall only be used for the purposes permitted by the general plan and specific plan adopted for such property. The Hellman Ranch Specific Plan designates this parcel as Development Planning Area No. 6 (land use designation Recreation Serving Commercial). In addition, the intent of the OS-N zoning designation is to preserve publicly owned parklands, environmentally sensitive lands and habitats in their natural state. Finally, the OE zone allows for the oil extraction and related production storage and processing, maintenance facilities, and related operational and maintenance facilities. As discussed in Chapter 2, *Project Description*, of the PEIR, the proposed program does not seek any general plan or zoning amendments.

As discussed further in Section 3.9, *Land Use and Planning*, of this PEIR, the activities proposed in the South Area would serve to provide for ecosystem restoration of the coastal salt marsh habitat, which would be allowed under the OS-N and OE zones. In addition, under the proposed program, the State Lands Parcel site would include development of a visitor center, which is allowed under the Specific Plan Regulation Zone, as determined in the Hellman Ranch Specific Plan, which designated this individual site as Development Planning Areas No. 6 (land use designation Recreation Serving Commercial) and is intended for public benefit and visitor serving commercial uses

The Specific Plan Regulation Zone is also applicable to the individual sites zoned as OS-N and OE. These individual sites are included in Conservation Planning Area Nos. 1 (land use designation Saltwater Wetlands), 2 (land use designation Freshwater Wetlands), 4 (land use designation Hellman Ranch Reserve Gold Course), and 5 (land use designation Los Alamitos Retarding Basin), and within Development Planning Area No. 9 (land use designation Mineral/Production Future Development).[2] As analyzed in greater detail in Section 3.9, *Land Use and Planning*, of this PEIR, the activities proposed on the South Area that are within the City of

[2] As described above under Subsection 3.2, Local, the Hellman Ranch Specific Plan divides the specific plan area by five Conservation Planning Areas and 5 Development Planning Areas.

Seal Beach and zoned OS-N (SPR) and OE (SPR) are generally consistent with the purpose identified in the Hellman Ranch Specific Plan.

Both the City of Seal Beach General Plan and Hellman Ranch Specific Plan include regulations governing scenic quality. As provided in the City of Seal Beach General Plan, the Circulation Element includes a goal to provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City and near open space habitats for wildlife, while minimizing environmental impacts (including air, light, and noise pollution) and a related policy to develop a circulation system that enhances the environmental amenities and scenic areas. The Hellman Ranch Specific Plan includes a project goal to preserve and enhance open space and create public access opportunities.

The activities proposed in the South Area would serve to provide for ecosystem restoration of the coastal salt marsh habitat and includes the creation of suitable raptor foraging habitat to support various bird species which nest and/or forage in the South Area and within Gum Grove Park. Along with this enhancement of open space, the South Area includes development of a new restricted trail that would be constructed through the raptor habitat on the South LCWA site. The trail would connect Gum Grove Park to the existing San Gabriel River Trail, fishing area, and trails on the Isthmus area. Development of these trails would serve to support this goal and policy of the City of Seal Beach General Plan Circulation Element. As such, the activities proposed under the proposed program as part of the South Area would be consistent with these regulations governing scenic quality from the City of Seal Beach General Plan and Hellman Ranch Specific Plan.

Overall, as discussed above, the proposed program would not conflict with applicable zoning and other regulations governing scenic quality in an urbanized area.

City of Long Beach

Portion of the South Area, including the Los Alamitos Pump Station site and the northwestern portion of the Los Alamitos Retarding Basin site, as well as the Isthmus Area, Central Area, and North Area, are under the jurisdiction of the City of Long Beach. The individual sites within the City of Long Beach subject to the adopted SEADIP are zoned as PD-1. Under the proposed SEASP 2060, individual sites would be zoned as Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right of Way (not built).

Consistency with the adopted SEADIP

As previously discussed, the properties within the City of Long Beach are zoned as PD-1 (SEADIP). In particular, portions of the proposed program fall in several subareas, including, Subarea 11A (Southern Synergy Oil Field site); Subarea 11B (Alamitos Bay Partners site); Subarea 25 (Long Beach City Property site and Pumpkin Patch site); Subarea 26A and 26B (Central LCWA site and Central Bryant site); Subarea 27 (Callaway Marsh site, Zelder Marsh site, Isthmus Bryant site, DPW site, Haynes Cooling Channel, and Los Alamitos Pump Station site); Subarea 28 (Los Alamitos Retarding Basin site); and Subarea 33 (portions of the Northern and Southern Synergy Oil Field sites).

As discussed in Chapter 2, *Project Description*, of the PEIR, the proposed program does not seek any general plan or zoning amendments. As discussed further in Section 3.9, *Land Use and Planning*, of this PEIR, the proposed program includes various activities, including grading, excavation of tidal channels and construction of earthen levees or flood walls, which would support habitat restoration. Some of the individual sites also include construction of trails and viewpoints.

As described under Section 3.1.3.2, above, the adopted SEADIP includes several provisions governing scenic quality that would be applicable to the proposed program. With regard to Provision 11, which requires that public access be provided to and along the boundaries of all public waterways as provided for in the wetlands restoration plan, the existing San Gabriel River Bike Trail and existing restricted access trails which are adjacent to San Gabriel River would be maintained under the proposed program. In addition, a new restricted access trail (guided) would be provided along the San Gabriel River as well. While are no current public views or open space on the program area, the proposed program would be consistent with Provision 12 of the adopted SEADIP, which requires public views to water areas and public open spaces be maintained and enhanced to the maximum extent possible, as activities under the proposed program would create public views to both open space and water areas by constructing a new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, and viewing areas with overlooks within and along restored wetlands habitats and the San Gabriel River. The proposed program would also be consistent with Provision 13 of the adopted SEADIP, which requires adequate landscaping and required irrigation be provided to create a park-like setting for the entire area. Consistent with this provision, the proposed program would include new landscaping along all setbacks of new development within the Alamitos Bay Partners site, Southern Synergy Oil Field site, Long Beach City Property site, Central Bryant site, Pumpkin Patch site, Isthmus Bryant site, and DWP site, fronting Studebaker Road, Westminster Avenue, and PCH, as necessary. Therefore, the proposed program would be consistent with these provisions of the SEADIP governing scenic quality. Impacts would be less than significant.

Consistency with proposed SEASP 2060

Individual sites that would be zoned CHWR include the Zedler Marsh site, Isthmus Bryant site, DWP site, Callaway Marsh site, and Isthmus LCWA, within the Isthmus Area; the Central LCWA site, Central Bryant site, Pumpkin Patch site, and a portion of the Long Beach City Property site, within the Central Area; and the Northern and Southern Synergy Oil Field sites and the Alamitos Bay Partners site, within the North Area.

As discussed in Chapter 2, *Project Description*, of the PEIR, the proposed program does not seek any general plan or zoning amendments. As discussed further in Section 3.9, *Land Use and Planning*, of this PEIR, the proposed program includes various activities, including grading, excavation of a tidal channels and construction of earthen levees or flood walls, which would support habitat restoration. Some of the individual sites also include construction of trails and viewpoints.

As provided in the SEASP 2060, Priority 3 emphasizes preserving views of hills and mountains and maintaining the scenic environment through control of building placement and/or height.

Generally, in order for restoration activities to occur, oil operations on a majority of the individual sites within the SEASP 2060 (including the Isthmus LCWA site, Central LCWA site, Central Bryant site, Long Beach City Property site, Pumpkin Patch site, and Northern and Southern Synergy Oil Field sites, and the Alamitos Bay Partners site) would be phased out or consolidated. Phasing out or consolidation of oil operations would support habitat restoration and would remove views of oil operations that would otherwise block views of the hills and mountains. Also see analysis for Impact AES-1, which concludes that the proposed program would not temporarily or permanently alter a scenic vista, such as views of the San Gabriel Mountains in the distance. Therefore, the activities proposed under the proposed program within the City of Long Beach would be consistent with these regulations governing scenic quality from the SEASP 2060. Impacts would be less than significant.

Consistency with California Coastal Act and Long Beach Local Coastal Program

The unincorporated areas within the adopted SEADIP—Subareas 11A, 11B, 25, 26a, 26b, 27, 28, 30, and 33—were deleted from the City of Long Beach's LCP. These areas represent wetland areas, existing oil operations, and the Los Alamitos Retaining Basin southeast of the San Gabriel River. As such, all individual sites within the City of Long Beach, with the exception of the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, have been deleted from the City of Long Beach's LCP and are not subject to its goals and policies. As most individual sites within the program area are not covered by the City of Long Beach LCP, proposed development would be reviewed for consistency with the Chapter 3 policies of the CCA, Section 30251. As described under Section 3.1.3.2, above, under Coastal Act Section 30251, the scenic and visual qualities of coastal areas must be considered and protected as a resource of public importance. Under this section, permitted development is required to be sited and designed to protect views to and along the ocean and scenic coastal areas (such as the Los Cerritos Wetlands), to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. As analyzed under Impact AES-1, development of the proposed program would change views from public viewpoints; however, a majority of the viewpoints would be enhanced by the proposed program, and scenic quality would increase with the phasing out of oil production facilities and non-native, invasive species, and the restoration of native vegetation and wetland habitat. The proposed program would not substantially obstruct, alter, or degrade the quality of any scenic vistas. Therefore, the proposed program would be consistent with this policy of the CCA governing scenic quality. Impacts would be less than significant.

While a majority of the program area would not be subject to the goals and policies of the City of Long Beach's LCP, the activities on the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites would comply with the policies and measures that protect visual quality in the surrounding area described under Section 3.1.3.2. Therefore, the proposed program would be consistent with these regulations of the City of Long Beach's LCP governing scenic quality. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact AES-4: The proposed program would result in a significant impact if the proposed program would create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Construction

As described in Chapter 2, *Project Description*, of this PEIR, construction on the proposed program would generally involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor centers, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. However, this would vary from each individual site. In order to perform some of these construction activities, the proposed program would include the use of barges to transport soil/construction materials out to sea for a marine disposal or to anther port/marina site to be picked up by construction trucks. Construction activities on the program area would occur during daylight hours, generally between 7 a.m. and 8 p.m., in compliance with both requirements of the cities of Seal Beach and Long Beach. In particular, the Long Beach Municipal Code Section 8.8.202, Construction Noise Regulations, limits the hours of construction to primarily daytime hours and the Seal Beach Municipal Code Section 7.15.005, adopts the noise code for Orange County and allows construction between the hours of 7 a.m. and 8 p.m. on any day except for Sunday or a Federal holiday, or between the hours of 9 a.m. and 8 p.m. on Sunday or a federal holiday. Any construction lighting needed would be aimed toward the activity and would be mostly contained within the area where work would be occurring. A minimal amount of glare could result from reflection of sunlight off windows of trucks used during construction, but this would be negligible and would not affect daytime views in the area given that there are no light-sensitive uses directly adjacent to the program area.

Security lighting would be provided after hours on all construction sites, but this lighting would be minimal, restricted to the program area, and would not exceed the level of existing night lighting levels in urban areas. Mitigation Measure AES-1 would also ensure that security lighting does not pose undue light and/or glare. With implementation of Mitigation Measure AES-1, the construction activities proposed under the proposed program would not create a new source of substantial light or glare that would adversely affect day or night views in the area. Impacts would be less than significant.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native

vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor centers and associated parking lots. From these operational uses, the proposed program would introduce new light sources associated with security, safety, and wayfinding, particularly on the State Lands Parcel site, which would include the visitor center and associated parking. While the proposed program would introduce new sources of light, it should be noted that the proposed program is located in an urban environment. Thus, lighting is not unusual in the program area. Nevertheless, the proposed program would comply with the requirements set forth by the cities of Seal Beach and Long Beach.

For the individual sites within the City of Seal Beach, the proposed program would comply with Seal Beach Municipal Code Section 11.4.20.025, which requires that lighting in parking areas be directed away from adjacent streets and properties and shall not blink, flash, change intensity, or cause glare. String lights are prohibited. Development Standard 7.8 of the Hellman Ranch Specific Plan also requires that all lighting be installed and maintained in such a manner to confine direct rays to the premises and prevent direct rays or glare onto neighboring properties. For the individual sites within the City of Long Beach, in compliance with the standards set forth in the SEADIP (PD-1), all lighting would be directed downward and exterior lighting would be designed and located in such a way that it does not project off site or onto adjacent uses. In addition, the proposed program would comply with SEASP 2060, once adopted, which requires that prior to approval of any development within the Coastal Habitat, Wetlands, and Recreation (CHWR) land use, the project applicant shall submit a photometric plan demonstrating that the proposed program will be designed and shielded so that nighttime lighting shall be no greater than 0.10 foot-candles at the edge of the habitat. Furthermore, the individual sites within the City of Long Beach would also comply with Long Beach Municipal Code Section 21.41.259, which requires that all parking area lighting be directed and shielded to prevent light spillover to adjacent properties. Compliance with these standards would ensure that impacts from light and glare are reduced to a less-than-significant level.

Mitigation Measure

> **Mitigation Measure AES-1: Lighting Plan.** Prior to issuance of a grading permit for each individual site that requires construction, a Lighting Plan for the individual site shall be developed and implemented that requires all exterior lighting to be directed downward and focused away from adjacent sensitive uses and habitats to encourage wayfinding and provide security and safety for individuals walking to and from parking areas.

Significance after Mitigation

Less than Significant with Mitigation

3.1.6 Cumulative Impacts

Given the flat topography of the program area, the geographic scope for the cumulative aesthetic impacts for the proposed program includes areas that would be located within a publicly accessible viewshed of the proposed program, those that are directly adjacent to one of the four areas that comprise the program area that could be seen together with the proposed program,

assuming construction activities were to be concurrent. These cumulative projects would include a habitat restoration project, infrastructure projects (highway, sewer, and harbor), and energy facility projects.

3.1.6.1 Scenic Vistas

As described above, scenic vistas considered in this analysis include the Los Cerritos Channel, Steamshovel Slough, the Los Cerritos Wetlands Complex, San Gabriel River, and distant views of the San Gabriel Mountains. While construction of the proposed program would include the use of barges to transport soil/construction materials out to sea for a marine disposal or to another port/marina site to be picked up by construction trucks, these activities would be temporary and, thus, construction of the proposed program would not have an adverse effect on any of the scenic vistas. Cumulative Project Nos. 22, 23, and 24 are located within proximity of the program area. These cumulative projects would require hauling of soil and construction debris on- and off-site; however, similar to the proposed program, construction activities would be temporary. As such, the proposed program and cumulative projects would not cumulatively combine to have a substantial adverse effect on a scenic vista during construction activities. During operation of the proposed program, existing oil production facilities and invasive species would be removed and native vegetation and wetland areas would be restored on various portions of the program area through grading, construction of earthen berms or flood walls, and construction of new tidal channels. Overall, these activities would not obstruct any of the scenic vistas and would likely enhance the scenic vista of the Los Cerritos Wetlands Complex. While Cumulative Project Nos. 22, 23, and 24 are located within proximity of the program area, as the proposed program would enhance the scenic vistas of the Los Cerritos Wetlands Complex and impacts would not be cumulatively considerable.

Based on the above, cumulative impacts on the identified scenic vistas would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.1.6.2 Scenic Resources

As described above, PCH has been identified by Caltrans as an “Eligible State Scenic Highway,” but has not been designated as an Official State or County Scenic Highway (Caltrans 2016). The Alamitos Bay Partners site, Northern and Southern Synergy Oil Field sites, State Lands Parcel site and South LCWA site are all directly adjacent to and visible from PCH; however, wetlands are not visible from most views on PCH. While views of wetlands located on the North Area are somewhat visible from PCH, the construction and operation of the proposed program would remove non-native vegetation and phase out oil production facilities, which would enhance the

scenic value of the proposed program. While Cumulative Project Nos. 22 and 23 are located within proximity of the program area, they are not located in proximity to PCH. In addition, while portions of Cumulative Project No. 24 are located in proximity to PCH, these areas are already disturbed and undeveloped in nature and do not include any scenic resources. Therefore, the proposed program and cumulative projects would not cumulatively combine to have a substantial adverse effect on a scenic resource within a scenic highway during either construction or operation of the proposed program. Cumulative impacts on scenic resources within a designated scenic highway during construction would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.1.6.3 Conflict with Regulations Governing Scenic Quality

As with the proposed program, cumulative projects would be required to comply with relevant regulations governing scenic quality through review by regulatory agencies and would be subject to CEQA review. Thus, cumulative impacts related to regulations governing scenic quality would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.1.6.4 Light and Glare

While the proposed program would create new sources of light and glare during construction activities, the individual sites within the City of Long Beach would be required to comply with Long Beach Municipal Code Section 8.8.202, Construction Noise Regulations, which would limit the hours of construction to primarily daytime hours. Individual sites within the City of Seal Beach would be required to comply with Seal Beach Municipal Code Section 7.15.005, which adopts the noise code for Orange County and allows construction between the hours of 7:00 a.m. and 8:00 p.m. on any day except for Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday. Cumulative Project Nos. 22 and 23 are located in the City of Long Beach within proximity of the program area. As such, similar to the proposed program, the cumulative projects would adhere to Long Beach Municipal Code Section 8.8.202, Construction Noise Regulations. Therefore, the proposed program and

cumulative projects would not cumulatively combine to result in lighting impacts during construction activities.

While the proposed program would introduce new sources of light associated with security, safety, and wayfinding during operation, it should be noted that the program area is located in an urban environment surrounded by residential, commercial, and industrial uses. As such, lighting is not unusual in the program vicinity. Generally, all individual sites within both the City of Seal Beach and City of Long Beach would install lighting that would be shielded to prevent any spillover to adjacent properties and light sensitive receptors. For the individual sites within the City of Seal Beach, the proposed program would comply with Seal Beach Municipal Code Section 11.4.20.025, which requires that lighting in parking areas be directed away from adjacent streets and properties and shall not blink, flash, change intensity, or cause glare. String lights are prohibited. For the individual sites within the City of Long Beach, in compliance with the standards set forth in the SEADIP (PD-1), all lighting would be directed downward and exterior lighting would be designed and located in such a way that it does not project off site or onto adjacent uses. In addition, the proposed program would comply with SEASP 2060, once adopted, which requires that prior to approval of any development within the Coastal Habitat, Wetlands, and Recreation (CHWR) land use, the project applicant shall submit a photometric plan demonstrating that the proposed program will be designed and shielded so that nighttime lighting shall be no greater than 0.10 foot-candles at the edge of the habitat. Furthermore, the proposed program within the City of Long Beach would also comply with Long Beach Municipal Code Section 21.41.259, which requires that all parking area lighting be directed and shielded to prevent light spillover to adjacent properties. Compliance with these standards described above would ensure that impacts from light and glare are reduced to a less-than-significant level. Cumulative Project Nos. 22, 23, and 24 are located in the City of Long Beach within and in proximity to the proposed program. Cumulative Project No. 22 includes filling in the Haynes Cooling Channel and would not result in additional lighting during operation. Cumulative Project No. 23 includes the development of two concrete tilt-up industrial buildings. Cumulative Project No. 24 includes would consolidating existing oil operations and implementing a wetlands habitat restoration project that would provide new public access opportunities to this portion of the Los Cerritos Wetlands, including the construction of a visitor center as well as development of an office and warehouse building. Lighting for the proposed buildings within these cumulative projects would adhere to all City of Long Beach requirements governing lighting, similar to the proposed program. Therefore, the proposed program and cumulative projects would not cumulatively combine to result in lighting impacts during operation.

Based on the above, cumulative impacts related to light and glare would be less than significant.

Mitigation Measure

Mitigation Measure AES-1.

Significance after Mitigation

Less than Significant with Mitigation

3.1.7 References

California Department of Transportation (Caltrans). 2016. State Scenic Highway System. Accessed July 7, 2019. Available at http://www.dot.ca.gov/hq/tsip/gis/datalibrary/Metadata/ScenicHwys.html.

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SECTION 3.2
Air Quality

3.2.1 Introduction

This section evaluates the potential air quality impacts associated with construction activities, mobile sources, and other aspects the proposed program's construction and operations that have the potential to generate criteria air pollutant emissions. The objectives of this analysis are to:

- Evaluate the construction and operational criteria air pollutant emissions associated with program level restoration process and the potential for regional air quality impacts based on applicable standards and thresholds;
- Identify air quality benefits from improving habitat areas and restoring wetlands;
- Provide, if needed, air quality mitigation measures as required to meet applicable air quality standards and thresholds as specified by the South Coast Air Quality Management District (SCAQMD).

The information presented in this section is based on the analysis conducted in the *Air Quality Technical Report* (ESA 2019), which is included as Appendix B to this PEIR). All information sources used are included as citations within the text; sources are listed in Section 3.2.7, *References*.

3.2.2 Environmental Setting

3.2.2.1 Regional and Local Air Quality

The program area is located within the South Coast Air Basin (Air Basin). The Air Basin is an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east (SCAQMD, 2012). The Air Basin consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Air Basin, as it is a coastal plain with connecting broad valleys and low hills.

The Air Basin lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The usually mild climatological pattern is interrupted by periods of hot weather, winter storms, or Santa Ana winds. The extent and severity of criteria pollutant concentrations in the Air Basin is a function of the area's natural physical characteristics (weather and topography) and anthropogenic influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of

pollutants throughout the Air Basin, making it an area of high pollution potential. The Air Basin's meteorological conditions, in combination with regional topography, are particularly conducive to the formation and retention of ozone (O_3), which is a secondary pollutant that forms through photochemical reactions in the atmosphere. Thus, the greatest air pollution impacts throughout the Air Basin typically occur from June through September. This condition is generally attributed to the emissions occurring in the Air Basin, light winds, and shallow vertical atmospheric mixing. These factors reduce the potential for pollutant dispersion causing elevated air pollutant levels. Pollutant concentrations in the Air Basin vary with location, season, and time of day. Concentrations of O_3, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Basin and adjacent desert (SCAQMD, 2012).

Criteria Air Pollutants and Ozone Precursors

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified as criteria air pollutants and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality. The following criteria pollutants are regulated by the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB), and are subject to emissions control requirements adopted by federal, state, and local regulatory agencies. Ambient air quality standards (AAQS) have been established to limit the pollutant health impacts discussed below, and air district mass emission significance thresholds have been established that tie to the achievement and maintenance of the AAQS (SCAQMD, 2017).

Ozone (O_3): Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds (VOCs) and nitrogen oxides (NO_X) in the presence of sunlight under favorable meteorological conditions, such as high temperature and stagnation episodes. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable. According to the USEPA, ozone can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath (USEPA, 2018a). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease (USEPA, 2018a). Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (USEPA, 2018a). The USEPA states that people most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (USEPA, 2018a). Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (USEPA, 2018a). According to CARB, studies show that children are no more or less

likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults (CARB, 2018). Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. As such, children are less likely than adults to notice their own symptoms and avoid harmful exposures (CARB, 2018). Further research may be able to better distinguish between health effects in children and adults (CARB, 2018).

Volatile Organic Compounds (VOCs): VOCs are organic chemical compounds of carbon and are not "criteria" pollutants themselves; however, they contribute with NO_X to form ozone, and are regulated to prevent the formation of ozone (USEPA, 2017b). According to CARB, some VOCs are highly reactive and play a critical role in the formation of ozone, other VOCs have adverse health effects, and in some cases, VOCs can be both highly reactive and have adverse health effects (CARB, 2016b). VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids, internal combustion associated with motor vehicle usage, and consumer products (e.g., architectural coatings, etc.) (CARB, 2016b).

Nitrogen Dioxide (NO_2): NO_X is a term that refers to a group of compounds containing nitrogen and oxygen. The primary compounds of air quality concern include NO_2 and nitric oxide (NO). Ambient air quality standards have been promulgated for NO_2, which is a reddish-brown, reactive gas (CARB, 2019b). The principle form of NO_X produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X (CARB, 2019b). Major sources of NO_X include emissions from cars, trucks and buses, power plants, and off-road equipment (USEPA, 2016b). The terms NO_X and NO_2 are sometimes used interchangeably. However, the term NO_X is typically used when discussing emissions, usually from combustion-related activities, and the term NO_2 is typically used when discussing ambient air quality standards. Where NO_X emissions are discussed in the context of the thresholds of significance or impact analyses, the discussions are based on the conservative assumption that all NO_X emissions would oxidize in the atmosphere to form NO_2. According to the USEPA, short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing). Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections, leading to hospital admissions and emergency room visits (USEPA, 2016b). According to CARB, controlled human exposure studies show that NO_2 exposure can intensify responses to allergens in allergic asthmatics (CARB, 2019b). In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses (CARB, 2019b). Infants and children are particularly at risk from exposure to NO_2 because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB, 2019b). CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO_2 and there is only limited information for NO and NO_X, as well as large uncertainty in relating health effects to NO or NO_X exposure (CARB, 2019b).

Carbon Monoxide (CO): CO is primarily emitted from combustion processes and motor vehicles due to the incomplete combustion of fuel, such as natural gas, gasoline, or wood, with the majority of outdoor CO emissions from mobile sources (CARB, 2019a). According to the USEPA, breathing air with a high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain. At very high levels of CO, which can occur indoors or in other enclosed environments, CO can cause dizziness, confusion, unconsciousness, and death (USEPA, 2016a). Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease because these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress (USEPA, 2016a). In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (USEPA, 2016a). According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain (CARB, 2019a). For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress; inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance (CARB, 2019a). Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB, 2019a).

Sulfur Dioxide (SO_2): According to the USEPA, the largest source of sulfur dioxide (SO_2) emissions in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities while smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content (USEPA, 2018b). In 2006, California phased-in the ultra-low-sulfur diesel regulation limiting vehicle diesel fuel to a sulfur content not exceeding 15 parts per million (ppm), down from the previous requirement of 500 parts per million, substantially reducing emissions of sulfur from diesel combustion (CARB, 2004). According to the USEPA, short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult (USEPA, 2018b). According to CARB, health effects at levels near the state one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity and exposure at elevated levels of SO_2 (above 1 ppm) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality (CARB, 2019c). Children, the elderly, and those with asthma, cardiovascular disease, or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO_2 (CARB, 2019c; USEPA, 2018b).

Particulate Matter (PM10 and PM2.5): Particulate matter air pollution is a mixture of solid particles and liquid droplets found in the air (USEPA, 2018c). Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye while other particles are so small they can only be detected using an electron microscope (USEPA, 2018c). Particles are defined by their diameter for air quality regulatory purposes: inhalable particles with diameters that are generally 10 micrometers and smaller (PM10); and fine inhalable particles with diameters that

are generally 2.5 micrometers and smaller (PM2.5) (USEPA, 2018c). Thus, PM2.5 comprises a portion or a subset of PM10. Sources of PM10 emissions include dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, and wind-blown dust from open lands (CARB, 2017). Sources of PM2.5 emissions include combustion of gasoline, oil, diesel fuel, or wood (CARB, 2017). PM10 and PM2.5 may be either directly emitted from sources (primary particles) or formed in the atmosphere through chemical reactions of gases (secondary particles) such as SO_2, NO_X, and certain organic compounds (CARB, 2017). According to CARB, both PM10 and PM2.5 can be inhaled, with some depositing throughout the airways; PM10 is more likely to deposit on the surfaces of the larger airways of the upper region of the lung while PM2.5 is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation (CARB, 2017). Short-term (up to 24 hours' duration) exposure to PM10 has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB, 2017). The effects of long-term (months or years) exposure to PM10 are less clear, although studies suggest a link between long-term PM10 exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (IARC, 2014). Short-term exposure to PM2.5 has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days and long-term exposure to PM2.5 has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (CARB, 2017). According to CARB, populations most likely to experience adverse health effects with exposure to PM10 and PM2.5 include older adults with chronic heart or lung disease, children, and asthmatics. Children and infants are more susceptible to harm from inhaling pollutants such as PM10 and PM2.5 compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems (CARB, 2017).

Lead (Pb): Major sources of lead emissions include ore and metals processing, piston-engine aircraft operating on leaded aviation fuel, waste incinerators, utilities, and lead-acid battery manufacturers (USEPA, 2017a). In the past, leaded gasoline was a major source of lead emissions; however, the removal of lead from gasoline has resulted in a decrease of lead in the air by 98 percent between 1980 and 2014 (USEPA, 2017a). Lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood. (USEPA, 2017a) The lead effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage (CARB, 2019d). Excessive lead exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain (CARB, 2019d).

Non-Criteria Air Pollutants

In addition to criteria air pollutants and ozone precursors, the state and local air districts regulate non-criteria pollutants that contribute to adverse air quality and health effects, which are discussed below.

Toxic Air Contaminants: Toxic air contaminants (TACs) are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical, its toxicity, how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM10 and PM2.5 or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

Diesel Particulate Matter: According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines, i.e., diesel particulate matter (DPM). The State of California has identified DPM as a TAC. However, DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra-fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines: the on road diesel engines of trucks, buses and cars and the off-road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to DPM is breathing the air that contains diesel exhaust. The fine and ultra-fine particles are respirable (similar to PM2.5), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to

DPM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just DPM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

Other Emissions (Odors)

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress, generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

3.2.2.2 Existing Pollutant Levels at Nearby Monitoring Stations

Criteria Air Pollutants

The SCAQMD maintains a network of air quality monitoring stations located throughout the Air Basin to measure ambient pollutant concentrations. The program area is in the South Los Angeles County Coastal Source-Receptor Area (SRA) 4. The monitoring station most representative of the program area is the Long Beach (Hudson) Monitoring Station (South Coastal Los Angeles County 3 location). Criteria pollutants monitored at this station include CO, O_3, NO_2, PM10, and SO_2. However, PM2.5 and lead are not monitored at this station. The second most representative monitoring station for these pollutants is the South Coastal Los Angeles County 2 location. The most recent data available from the SCAQMD for these monitoring stations is from years 2013 to 2018. The pollutant concentration data for these years are summarized in **Table 3.2-1**, *Ambient Air Quality Data*.

TABLE 3.2-1
AMBIENT AIR QUALITY DATA

Pollutant/Standard	2013	2014	2015	2016	2017	2018
O_3 (1-hour)						
Maximum Concentration (ppm)	0.090	0.087	0.087	0.079	0.082	0.074
Days > CAAQS (0.09 ppm)	0	0	0	0	0	0
O_3 (8-hour)						
Maximum Concentration (ppm)	0.069	0.072	0.066	0.059	0.068	0.063
4th High 8-hour Concentration (ppm)	0.057	0.061	0.056	0.055	0.062	0.053
Days > CAAQS (0.070 ppm)	0	1	0	0	0	0
Days > NAAQS (0.075 ppm)	0	0	0	0	0	0
NO_2 (1-hour)						
Maximum Concentration (ppm)	0.0813	0.1359	0.1018	0.0756	0.0895	0.0853
98th Percentile Concentration (ppm)	0.0713	0.0848	0.0644	0.0663	0.0729	0.0627
Days > CAAQS (0.18 ppm)	0	0	0	0	0	0
NO_2 (Annual)						
Annual Arithmetic Mean (0.030 ppm)	0.0215	0.0207	0.0198	0.0185	0.0179	0.0173
CO (1-hour)						
Maximum Concentration (ppm)	—	4.0	3.3	3.3	3.9	2.0
Days > CAAQS (20 ppm)	—	0	0	0	0	0
Days > NAAQS (35 ppm)	—	0	0	0	0	0
CO (8-hour)						
Maximum Concentration (ppm)	2.6	2.6	2.2	2.2	2.6	1.7
Days > CAAQS (9 ppm)	0	0	0	0	0	0
Days > NAAQS (9 ppm)	0	0	0	0	0	0
SO_2 (1-hour)						
Maximum Concentration (ppm)	0.0151	0.0375	0.0126	0.0178	0.0197	0.0105
99th Percentile Concentration (ppm)	0.0116	0.0118	0.0063	0.0012	0.0143	0.0094
Days > CAAQS (0.25 ppm)	0	0	0	0	0	0
Days > NAAQS (0.075 ppm)	0	0	0	0	0	0
PM10 (24-hour)						
Maximum Concentration (μg/m^3)	—	—	80	75	79	84
Samples > CAAQS (50 μg/m^3)	—	—	6	8	9	1
Samples > NAAQS (150 μg/m^3)	—	—	0	0	0	0
PM10 (Annual Average)						
Annual Arithmetic Mean (20 μg/m^3)	—	—	31.5	31.9	33.3	23.9
PM2.5 (24-hour)						
Maximum Concentration (μg/m^3)	42.9	52.2	48.3	28.93	56.3	47.10
98th Percentile Concentration (μg/m^3)	24.6	27.2	31.2	22.05	31.10	27.70
Samples > NAAQS (35 μg/m^3)	1	2	4	0	5	2
PM2.5 (Annual)						
Annual Arithmetic Mean (12 μg/m^3)	10.97	10.72	10.26	9.62	11.02	11.15
Lead						
Maximum 30-day average (μg/m^3)	0.012	0.012	0.010	0.008	0.010	0.006
Samples > CAAQS (1.5 μg/m^3)	0	0	0	0	0	0

NOTES:

ppm = parts per million; μg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards

SOURCE: South Coast Air Quality Management District. Historical Data by Year. Available online at: http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year. Accessed June 2019.

Toxic Air Contaminants

Concentrations of TACs are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a state law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks. The State Air Toxics Program (Assembly Bill 2588) identified over 200 TACs, including the 188 TACs identified in the CAA. The USEPA has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.

Between July 2012 and June 2013, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES IV), which is a follow-up to previous air toxics studies conducted in the SCAB. The MATES IV Final Report was issued in May 2015. The study, based on actual monitored data throughout the SCAB, consisted of a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the SCAB from exposure to TACs. The study concluded that the average of the modeled air toxics concentrations measured at each of the monitoring stations in the SCAB equates to a background cancer risk of approximately 418 per million based on the average of 10 fixed monitoring sites and 367 per million based on a population-weighted average risk. The risk is primarily due to diesel exhaust, which is about 65 percent lower for the average of 10 fixed monitoring sites and 57 percent lower for the population-weighted risk than the previous MATES III cancer risk (SCAQMD 2015, ES-2-3). Subsequent to the SCAQMD's risk calculations estimates performed for MATES IV, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA Guidance) updated the methods for estimating cancer risks (OEHHA 2015). The updated method utilizes higher estimates of cancer potency during early life exposures and uses different assumptions for breathing rates and length of residential exposures. When combined together, SCAQMD staff estimates that risks for the same inhalation exposure level will be about 2.5 to 2.7 times higher using the updated methods. This would be reflected in the average lifetime air toxics risk estimated from the monitoring sites data going from 418 per

million to 1,023 per million the average of 10 fixed monitoring sites and from 367 per million to 897 per million for the population-weighted risk (SCAQMD 2015, 2-11). Under the updated OEHHA methodology, adopted in March 2015, the relative reduction in risk from the MATES IV results compared to MATES III would be the same (about 65 percent reduction in risk).

Approximately 68 percent of the airborne carcinogenic risk is attributed to diesel particulate emissions matter (DPM), approximately 22 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10 percent is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations) (SCAQMD 2015, ES-2). The study also found lower ambient concentrations of most of the measured air toxics compared to the levels measured in the previous study conducted during 2004 and 2006. Specifically, benzene and 1,3-butadiene, pollutants generated mainly from vehicles, were down 35 percent and 11 percent, respectively (SCAQMD 2015, 6-1). The reductions were attributed to air quality control regulations and improved emission control technologies. In addition to air toxics, MATES IV included continuous measurements of black carbon and ultrafine particles (particles smaller than 0.1 micron in size), which are emitted by the combustion of diesel fuels. Sampling sites located near heavily-trafficked freeways or near industrial areas were characterized by increased levels of black carbon and ultrafine particles compared to more rural sites.

3.2.2.3 Sensitive Receptors

Certain population groups, such as children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), are considered more sensitive to the potential effects of air pollution than others. The nearest sensitive land uses to the program area are shown in **Figure 3.2-1**, *Air Quality Sensitive Receptors*, and include the following:

JH McGaugh Elementary School: 1,800 feet south from program boundary

Charles F Kettering Elementary School: 2,000 feet north from program boundary

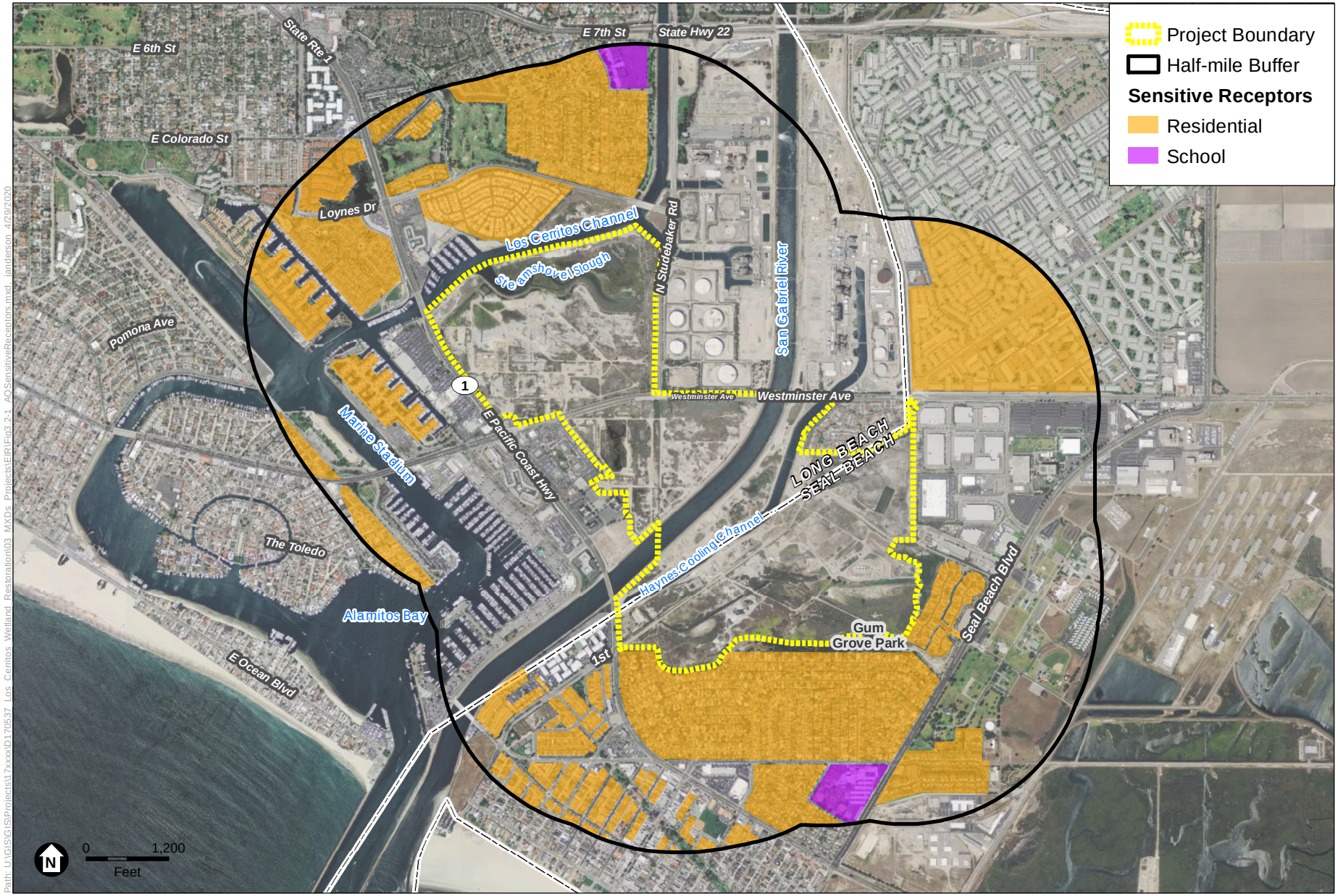
Long Beach VA Hospital: 5,165 feet northwest from the program boundary (not shown on map)

Residential neighborhoods (including the Leisure World retirement community) to the north, east, south, and west of the program boundary. Residential neighborhoods to the south are immediately adjacent to the program boundary.

3.2.3 Regulatory Framework

3.2.3.1 Federal

The federal Clean Air Act of 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the USEPA is responsible for implementation of certain portions of the Clean Air Act including mobile source requirements. Other portions of the Clean Air Act, such as stationary source requirements, are implemented by state and local agencies.



SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.2-1

Air Quality Sensitive Receptors

ESA

The Clean Air Act establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. The 1990 Amendments to the Clean Air Act identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions) of the Clean Air Act are most applicable to the development and operations of the proposed program. Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants: (1) O_3; (2) NO_2; (3) CO; (4) SO_2; (5) PM10; and (6) Pb. The NAAQS were updated in 1997 to include separate standards for PM2.5, which is a subset of PM10 emissions. **Table 3.2-2**, *Ambient Air Quality Standards*, shows the NAAQS currently in effect for each criteria pollutant.

The proposed program is located within the South Coast Air Basin, which is an area designated as non-attainment because it does not currently meet NAAQS for certain pollutants regulated under the Clean Air Act. Currently, the Air Basin does not meet the NAAQS for O_3 and PM2.5 and is classified as being in non-attainment for these pollutants. The Air Basin is in non-attainment for PM10 California Ambient Air Quality Standards (CAAQS) in both Los Angeles and Orange counties. The Los Angeles County portion of the Air Basin is designated as non-attainment for the lead NAAQS while the Orange County portion of the Air Basin is designated as attainment for lead NAAQS. **Table 3.2-3**, *South Coast Air Basin Attainment Status*, lists the criteria pollutants and their relative attainment status.

The Clean Air Act also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards would be met. The 1990 amendments to the Clean Air Act identify specific emission reduction goals for basins not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones.

Title II of the Clean Air Act pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

TABLE 3.2-2
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
O_3[h]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
NO_2[i]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	None	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
CO	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m^3)		9 ppm (10 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
SO_2[j]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)[9]
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[j]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[j]	—	
PM10[k]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
PM2.5[k]	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3 [k]	15 µg/m^3	
Pb[l,m]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[m]	Same as Primary Standard	
	Rolling 3-Month Average[m]	--		0.15 µg/m^3		

TABLE 3.2-2
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Visibility Reducing Particles[n]	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates (SO_4)	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[l]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

NOTES:

[a] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, PM10, PM2.5, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Reference method as described by the USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.

[h] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[i] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.

[j] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[k] On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3.

[l] CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[m] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[n] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2016a.

TABLE 3.2-3
SOUTH COAST AIR BASIN ATTAINMENT STATUS

Pollutant	National Standards (NAAQS)	California Standards (CAAQS)
O_3 (1-hour standard)	N/A[a]	Non-attainment
O_3 (8-hour standard)	Non-attainment – Extreme	Non-attainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM10	Attainment	Non-attainment
PM2.5	Non-attainment – Serious	Non-attainment
Lead (Pb)	Non-attainment (Los Angeles County)[b]; Unclassified/Attainment (Orange County)	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Attainment
Vinyl Chloride[c]	N/A	Attainment

NOTES: N/A = not applicable

[a] The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

[b] Partial Non-attainment designation – Los Angeles County portion of the Air Basin only for near-source monitors.

[c] In 1990, the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

SOURCES: California Air Resources Board, Area Designations Maps/State and National, last reviewed December 28, 2018. Available at http://www.arb.ca.gov/desig/adm/adm.htm. Accessed June 2019;
South Coast Air Quality Management District, *National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin*, February 2016. Accessed June 2019.

3.2.3.2 State

California Air Resources Board

CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the CAAQS, complies emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emission standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and local air districts. The SIP is required for the state to take over implementation of the federal Clean Air Act from the USEPA.

California Clean Air Act

The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. The CAAQS apply to the same criteria pollutants as the federal Clean Air Act but also include state-identified criteria pollutants, which

include sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. CARB has primary responsibility for ensuring the implementation of the California Clean Air Act, responding to the federal Clean Air Act planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state. Table 3.2-2 shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the state. As shown in Table 3.2-2, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. Table 3.2-3 provides a summary of the attainment status of the Air Basin for both Los Angeles and Orange Counties with respect to the state standards. The Air Basin is designated as attainment for the California standards for sulfates, hydrogen sulfide, and vinyl chloride.

On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other vehicle emissions (Title 13 California Code of Regulations [CCR], Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given time.

In 2008, CARB approved the Truck and Bus regulation to reduce NO_X, PM10, and PM2.5 emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The requirements were amended in December 2010 and apply to nearly all diesel fueled trucks and busses with a gross vehicle weight rating greater than 14,000 pounds. For the largest trucks in the fleet, those with a gross vehicle weight rating greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the state subject to this option would meet or exceed the 2010 engine emission standards for NO_X and particulate matter by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters achieving at least 85 percent removal efficiency, so that by January 1, 2016, their entire fleet is equipped with diesel particulate filters. However, diesel particulate filters do not typically lower NO_X emissions. Thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and buses by 2020.

In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp), such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR, Section 2449). Implementation

is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with the largest fleets to begin compliance by January 1, 2014. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment in large and medium fleets and across 100 percent of small fleets by 2028.

3.2.3.3 Regional

South Coast Air Quality Management District

As indicated previously, the cities of Seal Beach and Long Beach are located within the South Coast Air Basin (Air Basin). The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Air Basin is a sub-region of the SCAQMD jurisdiction. While air quality in this area has improved, the Air Basin requires continued diligence to meet air quality standards.

Air Quality Management Plan

The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the CAAQS and NAAQS. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including regional growth projections to achieve federal standards for air quality in the Air Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. Additionally, it highlights the significant amount of emissions reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal Clean Air Act (SCAQMD, 2012).

The key understanding of the 2012 AQMP is to bring the Air Basin into attainment with the NAAQS for the 24-hour PM2.5 standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O3 standard deadline with new measures designed to reduce reliance on the federal Clean Air Act Section 182(e)(5) long-term measures for NO_X and VOC reductions The SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The SCAQMD Governing Board adopted the 2016 AQMP on March 3, 2017. CARB approved the AQMP on March 23, 2017. Key elements of the 2016 AQMP include implementing fair-share

emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of zero and near-zero-emissions technologies; and taking credit from co-benefits from greenhouse gas (GHG), energy, transportation and other planning efforts (SCAQMD, 2017). The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the federal non-attainment pollutants O_3 and PM2.5 (SCAQMD, 2016). Similar to the 2012 AQMP, the 2016 AQMP relies on "…aggressive mobile source control strategy supplemented with focused and strategic stationary source control measures" (SCAQMD, 2017, p. 4-1). The 2016 AQMP also recognizes the reduction in traditional air pollutants which occur as a "co-benefit" with the reduction in climate change-related pollutants achieved through GHG emission reduction programs and policies (SCAQMD, 2016). Vehicles and appliances (boilers, water heaters, space heaters, etc.) used in the construction and operation of the proposed program would comply with applicable regulations. While the 2016 AQMP was adopted by the SCAQMD and CARB, it has not yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP for federal purposes; however, this analysis considers both the 2012 and 2016 AQMP as appropriate.

Air Quality Guidance Documents

The SCAQMD published the CEQA Air Quality Handbook to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts (SCAQMD, 1993). The CEQA Air Quality Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook with the Air Quality Guidance Handbook. While this process is underway, the SCAQMD recommends that lead agencies avoid using the screening tables in Chapter 6 (Determining the Air Quality Significance of a Project) of the CEQA Air Quality Handbook and instead recommends using other approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod) software. The SCAQMD has published a guidance document called the *Final Localized Significance Threshold Methodology* that is intended to provide guidance in evaluating localized effects from mass emissions during construction and operations (SCAQMD, 2008). The SCAQMD adopted additional guidance regarding PM2.5 in a document called Final Methodology to Calculate Particulate Matter (PM)2.5 and PM2.5 Significance Thresholds (SCAQMD, 2006). This latter document has been incorporated by the SCAQMD into its CEQA significance thresholds and Localized Significance Threshold Methodology.

Regulations and Rules

Several SCAQMD rules adopted to implement portions of the AQMP may apply to construction or operation of the proposed program. The proposed program may be subject to the following SCAQMD rules and regulations:

Regulation IV – Prohibitions: This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown

exemptions and breakdown events. The following is a list of rules which may apply to the proposed program:

Rule 401 – Visible Emissions: This rule states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or of such opacity as to obscure an observer's view (US Bureau of Mines, 1967).

Rule 402 – Nuisance: This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust: This rule requires projects to prevent, reduce or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM10 emissions to less than 50 $\mu g/m^3$ and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule). Mitigation measures may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities. Finally, a contingency plan may be required if so determined by the USEPA.

Regulation XI – Source Specific Standards: Regulation XI sets emissions standards for different specific sources. The following is a list of rules which may apply to the proposed program:

Rule 1113 – Architectural Coatings: This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Rule 1166. Volatile organic compound emissions from decontamination of soil procedures and requirements: This rule sets requirements to control the emissions of VOC from excavating, grading, handling, and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations: This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also **Rule 403**).

3.2.3.4 Local

Seal Beach General Plan

The City of Seal Beach General Plan, adopted in December 2003, does not contain a stand-alone air quality element. Rather, the City is able to comply with SCAQMD's AQMP through its Land Use Element, which "organizes land uses in relation to the circulation system, promotes commercial and industrial land uses with convenient access to transportation, and provides a Land Use Plan that promotes a favorable relationship between jobs and housing" (City of Seal Beach, 2003). In addition, the Circulation Element sets a goal to minimize air pollution through

development of regional transportation facilities and a transportation demand management system. A reduction in vehicle miles traveled would have a resulting beneficial impact to air quality emissions.

Long Beach General Plan: Air Quality Element

The City of Long Beach adopted an "Air Quality Element," (adopted December 3, 1996) as part of the City's General Plan. The Air Quality Element, "identifies a series of policies, programs, and strategies that encourage fewer vehicle trips, increased opportunities for alternative transportation modes and fuels, and land use patterns that can be efficiently served by a diversified transportation system (Long Beach, 1996)." The following goals and policies are relevant to the proposed program:

Air Quality Element—1996

Goal 6.0: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.

Policy 6.1: Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.

Goal 7.0: Reduce emissions through reduced energy consumption.

3.2.4 Significance Thresholds and Methodology

3.2.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on air quality if it would:

a. Conflict with or obstruct implementation of the applicable air quality plan;
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
c. Expose sensitive receptors to substantial pollutant concentrations; or
d. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

The *CEQA Guidelines* Section 15064.7 indicates that significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. SCAQMD has set thresholds for both construction and operational emissions, as described in the Air Quality Technical Report (SCAQMD, 2019). A project with daily emission rates below these thresholds would be considered to have a less than significant impact to air quality.

3.2.4.2 Methodology

Existing Emissions

For the purposes of this program-level analysis, it is conservatively assumed that the program activities would result in all net new emissions. Most of the program area is either vacant or an active oil field. Existing emissions from oil fields within the boundaries of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083), located on the Southern Synergy Oil Field site and the Long Beach City Property site in the northern and central portion of the program area, were found to be minimal and have already been addressed in a previously certified EIR, and therefore are not analyzed in this PEIR. As the program activities would restore habitats and eventually decommission and remove existing oil operations, the net change for emissions in the long term could be negative. However, this would be difficult to quantify since the exact timing and commitments to cease oil operations in the future is unknown. As a conservative approach, no existing emissions were subtracted from estimated program emissions before comparison to emission thresholds.

Construction Emissions

Daily regional emissions during construction are forecasted by assuming a worst-case scenario year for the maximum acreage to be disturbed in one year. The emissions are estimated using the CalEEMod (Version 2016.3.2) software, an emissions inventory software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professions to quantify potential criteria pollutant emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying air pollutant emissions from land use projects throughout California and is recommended by the SCAQMD.

The input values used in this analysis were adjusted to account for the nature of wetlands restoration activities and referenced the equipment and assumptions used for the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) for consistency. Specialized construction equipment was added as appropriate according to the activities listed in Chapter 2, *Project Description*, of this PEIR. An off-road equipment list is shown in Table 5 of the *Air Quality Technical Report*, provided in Appendix B of this PEIR.

Construction haul and vendor truck emissions were evaluated using regional heavy-duty truck emission factors from the CARB on-road vehicle emissions factor model (EMFAC), with emission factors from the USEPA-approved EMFAC2017 model used for the analysis. Subphases of construction would include demolition and site preparation, grading/excavation for levees, drainage/utilities/subgrade, building construction for the visitor center, paving for access roads and parking, and architectural coating for the visitor center and traffic markings. The demolition and site preparation includes removal of pipelines, tanks, and other oil infrastructure within the

Alamitos Bay Partners site and Central LCWA site. Waste is assumed to be hauled to the Montebello landfill located approximately 23 miles away. The main wetland restoration activities are covered in the grading/excavation subphase, which includes construction, modifying, and removing berms as well as establishing tidal channels. It is assumed that a tug boat would be used to pull the barges for soil transport and that there would be two crew/survey boats at most on any given day. The proposed program may use either a tugboat or a combination of a tugboat and trucks to transport soil. However, the use of a tugboat for soil transport would generate greater emissions of VOC, NO_X, CO, and SO_2 compared to trucks (see Table 3.2-4, *Maximum Unmitigated Regional Construction Emissions [Pounds per Day]*, below). Therefore, it is more conservative to assume soil transport by tugboat compared to truck travel. Tugboat emissions were calculated using emission factors from USEPA marine engine rules for Tier 2 engines. Emission factors were multiplied by the number of vessels and estimated hours of operation per day for usage and travel to and from the program area. Calculations are included in Appendix A of the Air Quality Technical Report provided in Appendix B, of this PEIR. These off-shore emissions (tugboats and other crew/survey boats) were added to the on-shore emissions for the grading/excavation subphase. For building construction and paving, for the purposes of this program-level air quality analysis, it is estimated that approximately 2,000 square feet of visitor center space and 50 parking spaces would be required to serve the program area. Emissions from these activities are estimated by construction subphase.

Fugitive emissions from paved and unpaved roads are calculated in CalEEMod using emission factors for off-road equipment from CARB's OFFROAD model and on-road vehicles from CARB's EMFAC model (CARB, 2019e). All unpaved demolition and construction areas shall be wetted (i.e., three times daily unless soils already contain equivalent moisture content) during excavation and construction, and temporary dust covers shall be used where needed to reduce dust emissions and meet SCAQMD District Rule 403. Wetting would reduce fugitive dust emissions by 61 percent.

The maximum daily emissions are estimated values for the worst-case day and do not represent the emissions that would occur for every day of program construction. The construction year was set to 2020 to obtain conservative emission factors for the construction activities. Emission factors decline in later years because of the requirement and development of cleaner and more efficient equipment. The year 2020 would represent a worst case scenario with all of the construction activities occurring simultaneously that are associated with the near-term restoration and public access. Construction activities for the mid-term, and long-term phases were not modeled specifically, but would likely be less than the modeled 2020 year due to similar construction subphases, but lower emission factors. The maximum daily emissions are compared to the SCAQMD daily regional numeric indicators. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in Appendix A of the Air Quality Technical Report, provided in Appendix B, of this PEIR.

Localized impacts to air quality were not analyzed quantitatively in this program-level document due to the uncertainty of the timing and exact locations of the construction activities. Rather, local air quality was discussed qualitatively with regard to the potential for localized impacts.

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis as necessary. The screening-level analysis consists of reviewing the program site plan and project description to identify new or modified odor sources. If it is determined that the proposed program would introduce a potentially significant new odor source or modify an existing odor source, then downwind sensitive receptor locations are identified, and a site-specific analysis is conducted to determine potential impacts.

Operational Emissions

The operational emissions are estimated using the CalEEMod software. CalEEMod was used to forecast the daily regional emissions from mobile sources that would occur during long-term program operations. The operational year was set to 2021 for a conservative emissions estimate. This consists mostly of truck trips for maintenance of the trails and wetlands and emissions from passenger vehicles from visitors. The analysis relied on the Institute of Transportation Engineers (ITE) Manual, 10th Edition "Public Park" category trip rates (i.e., denoted in the ITE Manual as "Land Use [LU] 411").

Area source emissions are based on natural gas (building heating and water heaters), landscaping equipment, and consumer product usage (including paints) rates provided in CalEEMod for the visitor center building, which was assumed to be up to 2,000 square feet of floor area.

Operational air quality impacts are presented as net new emissions. As discussed previously, no existing emissions were subtracted from estimated program emissions before comparison to emission thresholds given desire for a conservative approach. Program activities would restore habitats and eventually decommission and remove existing oil operations potentially resulting in a net change in emissions in the long term that could be negative, but cannot be accurately evaluated at this program-level given the uncertainty of the timing of specific restoration activities in the program area. The maximum daily emissions from operation of the proposed program are compared to the SCAQMD daily regional numeric indicators. Detailed operational emissions calculations are provided in Appendix A of the Air Quality Technical Report, provided in Appendix B of this PEIR.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to air quality were identified.

3.2.5 Program Impacts and Mitigation Measures

Impact AQ-1: The proposed program would result in a significant impact if the proposed program would conflict with or obstruct implementation of the applicable air quality plan.

The SCAQMD is required, pursuant to the Clean Air Act, to reduce emissions of criteria pollutants for which the Air Basin is in non-attainment of the NAAQS (e.g., O_3 and PM2.5). The Air Basin is also in non-attainment of the CAAQS (e.g., O_3, PM10, and PM2.5). The SCAQMD's

AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS and CAAQS. These strategies are developed, in part, based on regional growth projections prepared by the SCAG. Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's numeric indicators. As noted above, while the 2016 AQMP was adopted by the SCAQMD and CARB, it has not yet received USEPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is approved by the USEPA, the 2012 AQMP remains the applicable AQMP for federal purposes, however, this analysis considers both the 2012 and 2016 AQMP as appropriate.

Criteria for determining the proposed program's consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook, and include the following:

> Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations to which Consistency Criterion No. 1 refers are the CAAQS and the NAAQS. Daily regional emissions during construction are estimated by subphase for a worst case scenario year. For the purposes of the analysis, the construction year was assumed to be 2020. Actual construction for the proposed program will vary over the three phases of near-, mid-, and long-term (next 10 years, 10-20 years, and 20+ years). As discussed below under Impact AQ-2, maximum daily emissions from construction activities would exceed the SCAQMD regional threshold for NO_X (Table 3.2-4). Regional construction emissions of NO_X would be mitigated to less than significant after mitigation (Table 3.2-7, *Maximum Mitigated Regional Construction Emissions [Pounds per Day]*, below). However, as discussed below under Impact AQ-3, localized impacts to sensitive receptors at the program-level during construction would be considered potentially significant. Operational emissions would be less than significant (Table 3.2-4) and no mitigation measures would be required. Therefore, while incorporation of mitigation would reduce regional construction emissions to less than significant, the proposed program could still potentially result in significant localized construction impacts and as such, could conflict with Criterion No. 1 and would result in a potentially significant impact for construction emissions.

> Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the years of the project build-out phase.

Under Consistency Criterion No. 2, the AQMP contains air pollutant reduction strategies based on the SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The SCAQMD recommends that lead agencies demonstrate that a project would not directly obstruct

implementation of an applicable air quality plan and that a project be consistent with the assumptions upon which the air quality plan is based. During construction, the proposed program would be required to comply with CARB requirements to minimize short-term emissions from on-road and off-road diesel equipment, and with SCAQMD's regulations for controlling fugitive dust and other construction emissions. Compliance with these requirements is consistent with and meets or exceeds the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities.

Construction would occur sporadically over the next 20+ years across the 503-acre program area. Construction subphases and the required number of workers would vary over the near-, mid-, and long-term phasing of the proposed program. Because the construction would only occur for short periods of time in each location, construction emissions and duration would still be considered short-term and, therefore, would not conflict with the AQMP. For operations, the proposed program would restore wetlands and habitat areas which would reduce emissions in the long term from the existing environmental setting as oil operations cease. The proposed program would not increase population growth as it includes no housing and would generate a minimal number of jobs for maintenance of the facilities. The improvements to pedestrian access would help decrease vehicle miles traveled region-wide as it provides a recreational area near existing residential communities in the cities of Seal Beach and Long Beach thereby reducing the need to travel long distances for recreation (see Figure 3.2-1). Program emissions would be only a small percentage of overall Basin-wide emissions (Table 3.2-6, *Comparison of Program-Level Operational Emissions and SCAB Emissions [Tons per Year]*, below). Therefore, the proposed program would not conflict with Criterion No. 2.

Because the proposed program could conflict with Criterion No. 1, there would be a significant impact from conflicting with or obstructing implementation of the applicable air quality plan.

Mitigation Measure

Mitigation Measure AQ-1 (as described below under Impact AQ-2).

Significance after Mitigation

Significant and Unavoidable (construction); Less than Significant (operation)

Impact AQ-2: The proposed program would have in a significant impact if a cumulatively considerable net increase of any criteria pollutant for which the program region is non-attainment under an applicable federal or state ambient air quality standard.

Construction

The South Coast Air Basin is in non-attainment of the NAAQS for O_3 and PM2.5 and also in non-attainment of the CAAQS for O_3, PM10, and PM2.5. As shown in **Table 3.2-4**, *Maximum Unmitigated Regional Construction Emissions (Pounds per Day)*, there would be exceedances to the SCAQMD daily regional threshold for NO_X during individual construction subphases. In addition, there is potential for subphases to overlap as well, thereby worsening the exceedances

for NO_X, but likely not causing a new exceedance. The emissions for CO, SO_2, PM10, and PM2.5 would not be exceeded even if all subphases of construction occurred at the same time. Construction emissions would vary temporally and spatially as the exact construction schedules, staging areas, and work plans are not known at this time. Despite the long construction duration for near-term, mid-term, and long-term activities, emissions from a singular activity would not be concentrated in one place for an extended duration. It is anticipated that a project-level analyses would be conducted when more specific construction information is known. At a program level, construction emissions could potentially exceed the SCAQMD daily regional thresholds for the nonattainment ozone precursor emissions (i.e., NO_X), construction impacts would be potentially significant and mitigation measures would be required.

TABLE 3.2-4
MAXIMUM UNMITIGATED REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY)

Source	VOC	NO_X	CO	SO_2	PM10[a]	PM2.5[a]
Construction Subphases						
Demolition and Site Preparation	4	38	27	<0.1	27	6
Grading/Excavation – Combined On-Shore and Off-Shore	17	172	116	28	44	13
On-Shore Emissions	*6*	*67*	*43*	*<0.1*	*41*	*9*
Off-Shore Emissions	*11*	*105*	*73*	*28*	*4*	*4*
Drainage/Utilities/Subgrade	2	22	22	<0.1	1	1
Building Construction	2	20	18	<0.1	2	1
Paving	3	14	15	<0.1	1	1
Architectural Coating[b]	5	2	2	<0.1	<0.1	<0.1
Combined Regional (On-Site and Off-Site) Emissions[c]	**33**	**268**	**200**	**28**	**76**	**22**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Over (Under)	(42)	168	(350)	(122)	(74)	(33)
Exceeds Thresholds?	No	**Yes**	No	No	No	No

NOTES:

Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix A of the Air Quality Technical Report, provided in Appendix B of this PEIR.

[a] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.

[b] Architectural coating emissions for VOC are assumed by CalEEMod to paint the entire 10,000-square-foot floor area in 1 day. VOC emissions have been adjusted to spread out the painting over 20 days.

[c] Emissions from all subphases are combined to simulate a worst case scenario where all construction activities are occurring simultaneously.

SOURCE: ESA, *Air Quality Technical Report*, 2019.

Construction Health Impacts from Regional Emissions (Friant Ranch Case)

The accumulation and dispersion of air pollutant emissions within an air basin is dependent upon the size and distribution of emission sources in the region and meteorological factors such as wind, sunlight, temperature, humidity, rainfall, atmospheric pressure, and topography. As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch* case) (SJVAPCD, 2015), the air districts established and recommend CEQA air quality analysis of criteria air pollutants use significance thresholds that were set at emission levels tied to the region's attainment status, based on emission levels at which stationary pollution

sources permitted by the air district must offset their emissions. Such offset levels allow for growth while keeping the cumulative effects of new sources at a level that will not impede attainment of the NAAQS. The health risks associated with exposure to criteria pollutants are evaluated on a regional level, based on the region's attainment of the NAAQS. Moreover, the formation of ozone occurs through a complex photo-chemical reaction between NO_X and ROG in the atmosphere with the presence of sunlight. The impacts of ozone are typically considered on a basin-wide or regional basis and not on a localized basis. The mass emissions significance thresholds used in CEQA air quality analysis are not intended to be indicative of human health impacts that a project may have (SCAQMD, 2012; SJVAPCD, 2015). Therefore, the proposed program's exceedance of the mass regional emissions threshold prior to mitigation (i.e., proposed program construction NO_X exceedance) from program-related activities does not necessarily indicate that the proposed program would cause or contribute to the exposure of sensitive receptors to ground-level concentrations in excess of health-protective levels. Nonetheless, as indicated above, proposed program construction would require the implementation of feasible mitigation measures to reduce the NO_X exceedance. As shown below, Mitigation Measure AQ-1 would reduce construction emission impacts to less than significant, which would also minimize construction-related air pollution health effects.

The health-based ambient air quality standards for ozone are established as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., ROG and NO_X). It is not necessarily the tonnage of pollutants that causes human health effects, but the concentration of the resulting pollutants, such as ozone. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is not practical to determine whether, or the extent to which, a single project's precursor (i.e., ROG and NO_X) emissions would potentially result in the formation of secondary ground-level ozone and the geographic and temporal distribution of such secondary formed emissions. Meteorology, the presence of sunlight, seasonal impacts, and other complex photochemical factors all combine to determine the ultimate concentration and location of ozone (SCAQMD 2012; SJVAPCD 2015). Running the regional-scale photochemical grid model used for predicting ozone attainment with the emissions from any individual project can be done, but it would not yield reliable information regarding a measurable increase in ozone concentrations sufficient to accurately quantify ozone-related health effects. Based on this information, a general description of the adverse health effects resulting from the program-level criteria pollutants, which is discussed previously, is all that can be feasibly provided at this time.

Operation

As shown in **Table 3.2-5**, *Maximum Unmitigated Regional Operational Emissions (Pounds per Day)*, all operational criteria air pollutants emissions would be well below the SCAQMD regional thresholds during operation. Operational emissions are mainly generated from mobile sources including visitors traveling to and from the wetlands for recreation and the employees who work at the visitor center. There would be a minimal amount of emissions from maintenance staff who would need to maintain the trails, access roads, and facilities within the program area. No operational mitigation measures are required.

TABLE 3.2-5
MAXIMUM UNMITIGATED REGIONAL OPERATIONAL EMISSIONS (POUNDS PER DAY)

Source	VOC	NO_X	CO	SO_2	PM10	PM2.5
Phases						
Area	1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	4	4	29	<0.1	5	1
Total	**5**	**4**	**29**	**<0.1**	**5**	**1**
Maximum Regional (On-Site and Off-Site) Emissions	5	4	29	<0.1	5	1
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Over (Under)	(50)	(51)	(521)	(150)	(145)	(54)
Exceeds Thresholds?	No	No	No	No	No	No

NOTE:
Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix A of the Air Quality Technical Report, provided in Appendix B, of this PEIR.
SOURCE: ESA, *Air Quality Technical Report*, 2019.

Table 3.2-6, *Comparison of Program-Level Operational Emissions and SCAB Emissions (Tons per Year)*, compares program-level operational emissions with South Coast Air Basin emissions. The net increase in emissions from the proposed program would be minuscule in comparison to basin-wide emissions. SCAQMD presents baseline inventories for 2019, 2022, 2023, 2025, and 2031 in their 2016 AQMP. SCAB emissions from 2031 were chosen for consistency with the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) analysis.

TABLE 3.2-6
COMPARISON OF PROGRAM-LEVEL OPERATIONAL EMISSIONS AND SCAB EMISSIONS (TONS PER YEAR)

Source	VOC	NO_X	CO	SO_2	PM10	PM2.5
Program Emissions (Operation)	0.60	0.37	2.75	0.005	0.47	0.13
2031 South Coast Air Basin Emissions	345	214	1,188	18	N/A	65
Program as Percentage of Basin	0.17%	0.17%	0.23%	0.03%	N/A	0.20%

SOURCE: South Coast Air Quality Management District, *Final 2016 Air Quality Management Plan*, Table 3-4E. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf. Accessed June 2019.

Mitigation Measure

The proposed program will require implementation of Mitigation Measure AQ-1: Construction NO_X Reduction Measures. Mitigation measure AQ-1 would reduce NO_X and associated health impacts. The emission reductions are shown in **Table 3.2-7**, *Maximum Mitigated Regional Construction Emissions (Pounds per Day)*.

TABLE 3.2-7
MAXIMUM MITIGATED REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY)

Source	VOC	NO_X	CO	SO_2	PM10[a]	PM2.5[a]
Phases						
Demolition and Site Preparation	1	3	29	<0.1	25	4
Grading/Excavation – combined	12	70	119	28	40	10
On-Shore Emissions	*1*	*6*	*46*	*<0.1*	*38*	*7*
Off-Shore Emissions	*11*	*65*	*73*	*28*	*2*	*4*
Drainage/Utilities/Subgrade	<1	2	25	<0.1	<1	<1
Building Construction	1	4	19	<0.1	1	<1
Paving	1	1	18	<0.1	<1	<1
Architectural Coating	3	<1	2	<0.1	<1	<1
Combined Regional (On-Site and Off-Site) Emissions[b]	**18**	**80**	**212**	**28**	**66**	**15**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Over (Under)	(57)	(20)	(338)	(122)	(84)	(40)
Exceeds Thresholds?	No	No	No	No	No	No

NOTES:

Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in Appendix A of the Air Quality Technical Report, provided in Appendix B of this PEIR.

[a] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.

[b] Emissions from all subphases are combined to simulate a worst-case scenario where all subphases are occurring simultaneously.

SOURCE: ESA, *Air Quality Technical Report*, 2019.

Mitigation Measure AQ-1: Construction NO_X Reduction Measures. The Applicant for the proposed program shall be responsible for the implementation of the following construction-related NO_X reduction measures:

> Require all off-road diesel-powered construction equipment greater than 50 horsepower (e.g., excavators, graders, dozers, scrappers, tractors, loaders, etc.) to comply with EPA-Certified Tier IV emission controls where commercially available. Documentation of all off-road diesel equipment used for this proposed program including Tier IV certification, or lack of commercial availability if applicable, shall be maintained and made available by the contractor to the local permitting agency (City of Seal Beach and City of Long Beach) for inspection upon request. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB) such as certified Level 3 Diesel Particulate Filter or equivalent. A copy of each unit's certified tier specification, BACT documentation, and CARB or South Coast Air Quality Management District operating permit shall be provided at the time of mobilization of each applicable unit of equipment. If Tier IV construction equipment is not available, LCWA shall require the contractor to implement other feasible alternative measures, such as reducing the number and/or horsepower rating of construction equipment, and/or limiting the number of individual construction subphases occurring simultaneously. The determination of commercial availability of Tier IV construction equipment shall be made by the City prior to issuance of grading or building permits based on applicant-provided evidence of the availability or

unavailability of Tier IV equipment and/or evidence obtained by the City from expert sources such as construction contractors in the region.

Require all main engines for tugboats to comply with EPA-Certified Tier IV emission controls.

Eliminate the use of all portable generators. Require the use of electricity from power poles rather than temporary diesel or gasoline power generators.

Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow, including during the transportation of oversized equipment and vehicles.

Provide dedicated turn lanes for movement of construction trucks and equipment on and off-site. The location of these dedicated lanes shall be addressed in the Construction Trip Management Plan.

Reroute construction trucks away from congested streets or sensitive receptor areas.

Prohibit the idling of on-road trucks and off-road equipment in excess of 5 continuous minutes, except for trucks and equipment where idling is a necessary function of the activity, such as concrete pour trucks. The Applicant or construction contractor(s) shall post signs at the entry/exit gate(s), storage/lay down areas, and at highly visible areas throughout the active portions of the construction site of the idling limit.

On-road heavy-duty diesel haul trucks with a gross vehicle weight rating of 19,500 pounds or greater used to transport construction materials and soil to and from the program area shall be engine model year 2010 or later or shall comply with the USEPA 2007 on-road emissions standards.

Significance after Mitigation

Less than Significant with Mitigation (construction); Less than Significant (operation)

Impact AQ-3: The proposed program would result in a significant impact if the program would expose sensitive receptors to substantial pollutant concentrations.

Construction

The South Coast Air Basin is in attainment of the NAAQS for PM10, CO and SO_2, and also in attainment of the CAAQS for CO and SO_2. As shown in Table 3.2-4, the proposed program would not exceed the SCAQMD regional thresholds for these pollutants during construction. Sensitive receptors surround the program area with residents located adjacent to the southern border of the program area (see Figure 3.2-1). Typically, SCAQMD's Localized Significance Threshold (LST) Methodology (June 2003, revised July 2008) relies on on-site mass emission rate screening tables and project-specific dispersion modeling, where appropriate. The program area includes both Seal Beach, located in Source Receptor Area (SRA) 18 and Long Beach, located in SRA 4.

Construction screening LSTs for both cities are shown in **Table 3.2-8**, *Construction Screening LSTs (Pounds per Day)*, for a 5-acre area and a receptor distance of 50 meters for SRA 4 and

25 meters for SRA 18. Compared to Table 3.2-4, if only on-site emissions (no offshore tugboat and survey boat emissions) are considered, then the unmitigated on-site construction emissions would exceed the construction screening LSTs for NO_X, PM10, and PM2.5.

TABLE 3.2-8
CONSTRUCTION SCREENING LSTS (POUNDS PER DAY)

Source	NO_X	CO	PM10	PM2.5
SRA 4 LST Thresholds (25-meter receptor distance)	123	1,530	14	8
SRA 18 LST Thresholds (25-meter receptor distance)	197	1,711	14	9

NOTE:
LST thresholds are listed for a 5-acre site. Receptor distances were chosen based on the nearest sensitive receptor. Within Seal Beach, there are residences directly south and adjacent to the program boundary. Within Long Beach, there are residences within 50 meters across from the Los Cerritos Channel.

SOURCE: SCAQMD, Table C-1, 2006–2008 Thresholds for Construction and Operation with Gradual Conversion of NO_X to NO_2. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2.

However, on-site emissions for the proposed program will vary greatly in location and by subphase for the proposed program. Therefore, it is not possible to conduct a quantified localized analysis without speculating due to the uncertainty of the specific locations, timing, and intensity of construction activities, particularly in areas near sensitive receptors. Without a specific quantitative analysis, the impact to sensitive receptors at the program-level during construction would be considered potentially significant.

Operation

During operation, all criteria pollutants would be below the SCAQMD regional thresholds (Table 3.2-5). Operational activities would include mobile trips by visitors and minimal maintenance of the wetlands once established. Passenger vehicles would be spread out within the entire program area as there would be multiple parking areas and overlook terraces. Siting of these locations would account for the potential of ongoing emissions in the vicinity of a sensitive receptor. Therefore, mobile emissions would not be concentrated by any one sensitive receptor. As discussed above, SCAQMD's LST Methodology (June 2003, revised July 2008) relies on on-site mass emission rate screening tables and project-specific dispersion modeling, where appropriate. Operational screening LSTs for the program area are shown in **Table 3.2-9**, *Operational Screening LSTs (Pounds per Day)*, for a 5-acre area and a receptor distance of 25 meters for SRA 4 and 25 meters for SRA 18. Compared to Table 3.2-5, the unmitigated on-site operational emissions would not exceed any of the operational screening LSTs since most of the operational emissions are from mobile sources (off site).

TABLE 3.2-9
OPERATIONAL SCREENING LSTS (POUNDS PER DAY)

Source	NO_X	CO	PM10	PM2.5
SRA 4 LST Thresholds (25-meter receptor distance)	123	1,530	4	2
SRA 18 LST Thresholds (25-meter receptor distance)	197	1,711	4	2

NOTE:
LST thresholds are listed for a 5-acre site. Receptor distances were chosen based on the nearest sensitive receptor. Within Seal Beach, there are residences directly south and adjacent to the program boundary. Within Long Beach, there are residences within 50 meters across from the Los Cerritos Channel.

SOURCE: SCAQMD, Table C-1, 2006–2008 Thresholds for Construction and Operation with Gradual Conversion of NO_X to NO_2. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2.

Toxic Air Contaminants

A quantitative evaluation of emissions from toxic air contaminants, particularly for program construction activities, would be speculative given the uncertainty of the specific locations, timing, and intensity of construction activities. Therefore, a construction Health Risk Assessment (HRA) cannot be conducted for the program-level analysis without speculating on the locations, timing, and intensity of construction activities. Localized air quality emissions, including toxic air contaminants, would be evaluated quantitatively at the project-level when adequate information is known for individual wetland restoration projects. For example, the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) found cancer risk to be less than significant after mitigation. At the program-level, any subsequent projects within the program area would be required to implement Tier IV engines per Mitigation Measure AQ-1. This would reduce NO_X emissions and other TACs (including diesel particulate matter). However, without a specific construction scenario, impacts to toxic air contaminants at the program-level would be considered potentially significant.

Mitigation Measure

Mitigation Measure AQ-1.

Significance after Mitigation

Significant and Unavoidable (construction); Less than Significant (operation)

Impact AQ-4: The proposed program would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Construction

As shown in Table 3.2-4, construction emissions associated with the proposed program would not exceed the SCAQMD regional significance thresholds for the federal and state attainment pollutants of CO and SO_2, and the federal attainment pollutant of PM10, even if the construction activities were to overlap. With respect to odors, potential activities that may emit odors during construction activities include the use of architectural coatings and solvents and the combustion of diesel fuel in on- and off-road equipment. SCAQMD Rule 1113 would limit the amount of VOCs in architectural

coatings and solvents reducing the potential for odorous emissions. Through mandatory compliance with SCAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. Therefore, construction of the proposed program would result in less-than-significant impacts with respect to odors.

Operation

As shown in Table 3.2-4, operational emissions associated with the proposed program would not exceed the SCAQMD regional significance thresholds for the federal and state attainment pollutants of CO and SO_2, and the federal attainment pollutant of PM10. With respect to odors, according to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Odors are regulated by SCAQMD Rule 402 for causing a nuisance. SCAQMD Rule 402 states, "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." While the program area contains active oil fields and historic landfills, the proposed program would focus on ecosystem restoration and public access improvements. Because the proposed program would decommission oil wells and pipelines, the impact to odors would be expected to be reduced compared to the existing setting. As a result, the proposed program is not expected to discharge contaminants into the air in quantities that would cause a nuisance, injury, or annoyance to the public or property pursuant to SCAQMD Rule 402. Therefore, the proposed program would not create adverse odors affecting a substantial number of people, and impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.2.6 Cumulative Impacts

3.2.6.1 Construction

Per the SCAQMD guidance on cumulative impacts, cumulative significance is based upon project significance (SCAQMD, 2003). As shown in Impact AQ-2, the proposed program would result in potential significant impacts to air quality as program construction activities could result in an exceedance of the SCAQMD regional significance threshold for NO_X emissions during construction. With implementation of feasible mitigation measures, regional construction NO_X emissions would be reduced to less than significant. However, due to the uncertainty of the specific locations, timing, and intensity of construction activities, particularly in areas near sensitive

receptors, without a specific quantitative analysis, the impact to sensitive receptors at the program-level during construction would be considered potentially significant for localized emissions.

Because the City of Seal Beach and City of Long Beach have not adopted their own citywide significance thresholds for air quality impacts, it is appropriate to rely on thresholds established by the SCAQMD (refer to *CEQA Guidelines* Section 15064.7). It would not be meaningful to sum multiple cumulative or related project emissions as there are no thresholds set for comparison. Additionally, regional emissions from a project have the potential to affect the Air Basin as a whole, and it is not possible to establish a geographical radius from a specific project site where potential cumulative impacts from regional emissions would be limited. Therefore, consistent with accepted and established SCAQMD cumulative impact evaluation methodologies, the potential for the proposed program to result in cumulative air quality impacts is assessed based on the SCAQMD thresholds. Thus, given the potentially significant localized construction impact at the project-level, cumulative localized construction air quality impacts would be potentially significant.

Mitigation Measure

Mitigation Measure AQ-1.

Significance after Mitigation

Significant and Unavoidable (construction)

3.2.6.2 Operation

Per the SCAQMD guidance on cumulative impacts, cumulative significance is based upon project significance (SCAQMD, 2003). As shown in Impact AQ-2, program operational impacts to air quality would be less than significant. Operational cumulative impacts would follow the same methodology as demonstrated for construction cumulative impacts. Therefore, the cumulative air quality impacts would be less than significant during operation and mitigation measures would not be required.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.2.7 References

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SECTION 3.3
Biological Resources

3.3.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts on biological resources related to special-status species, sensitive natural communities, jurisdictional resources, wildlife movement and nursery sites, and consistency with local policies and conservation plans protecting biological resources. The analysis is based on a review of available biological reports of the program area and vicinity, including site-specific investigations conducted for each of the four areas that comprise the proposed program, as well as, relevant regulatory ordinances. This section identifies the potential for both program-level and cumulative environmental impacts to occur, as well as feasible mitigation measures that would minimize or avoid the proposed program's impacts on sensitive biological resources.

Information sources for the analysis presented in this section include the following technical reports:

- *Supplemental Biological Surveys and Mapping for the Los Cerritos Wetlands* (Coastal Restoration Consultants [CRC] 2019 [Appendix C1).
- *Biological Technical Report for Los Cerritos Wetlands Oil Consolidation and Restoration Project* (Glenn Lukos Associates Inc. [GLA]) 2017a [see Appendix C1]).
- *Jurisdictional Delineation for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (GLA 2017b [see Appendix C1]).
- *Restoration Plan for the Upper Los Cerritos Wetlands Mitigation Bank* (GLA 2017c [see Appendix C2]).
- *Technical Memorandum—Impacts to Areas that Potentially Meet the California Coastal Act (CCA) Definition for Environmentally Sensitive Habitat Areas (ESHA) Associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project, Long Beach, California* (GLA 2017d [see Appendix C3]).
- *Technical Memorandum—Belding's Savannah Sparrow Surveys for 76.52-Acre Proposed Mitigation Bank at Synergy Oil Field, Long Beach, California* (GLA 2017e [see Appendix C1]).
- *Biological Resources Assessment and Wetland Delineation: Southeast Area Development and Improvement Plan* (Placeworks and VCS Environmental 2016).
- *Los Cerritos Wetlands Conceptual Restoration Plan Habitat Assessment Report* (Tidal Influence 2012).

All information sources used are included as citations within the text; sources are listed in Section 3.3.7, *References*.

3.3.2 Environmental Setting

The proposed program includes the implementation of a restoration program for the Los Cerritos Wetlands Complex located in the South Area, Isthmus Area, Central Area and North Area. These areas within the proposed program coverage area expand into portions of the City of Seal Beach, City of Long Beach, Los Angeles County and Orange County.

3.3.2.1 Literature Review and Field Surveys

Biologists from GLA conducted detailed biological assessments and surveys on the program area (i.e., North and Central Areas) between 2010 and 2017. These surveys included the following: focused surveys for special-status plants and animals; vegetation mapping; delineation and assessment of wetlands and other aquatic resources; and general and focused biological surveys to obtain floral and faunal inventories, including wintering and breeding season surveys for the burrowing owl (*Athene cunicularia*) and focused surveys for special-status plants. In addition, Tidal Influence has conducted informal surveys for special-status species since 2006, including mapping of vegetation, general reconnaissance surveys and habitat assessments in 2011 in the four areas of the proposed program. More recently, CRC conducted supplemental surveys in 2018 that included updated vegetation mapping, a jurisdictional wetlands and waters assessment, mapping of Environmentally Sensitive Habitat Areas (ESHA), focused surveys for three special-status plants, and opportunistic avian observations on the four areas of the proposed program. The LCWA and City of Long Beach have also facilitated surveys for a portion of the Central Area. Additionally, the four areas within the proposed program were evaluated for the presence of waters potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), as well as wetlands as defined under the California Coastal Commission (CCC). These survey efforts have assisted in understanding the sensitive biological resources that occur, or have a potential to occur, in the program area, and the associated technical reports are listed above in Section 3.3.1, *Introduction*.

A summary of the surveys conducted within the program area is described below and further detailed in the biological studies provided in Appendix C1.

Botanical Surveys

In 2019, CRC conducted a review of the California Native Plant Society (CNPS) On-line Inventory and the California Natural Diversity Database (CNDDB) (CRC 2019) to identify special-status plants and wildlife species that have been previously documented in the region. The areas that were queried included the United States Geological Survey (USGS) 7.5’ minute quadrangle map for Anaheim, La Habra, Long Beach, Los Alamitos, Newport Beach, Seal Beach, South Gate and Whittier. The results of these database searches revealed special-status plant species that may have the potential to occur within the proposed program area. A complete list of plant species observed within the program area during CRC’s 2019 assessment is provided in the floral compendium included in the Supplemental Biological Technical Report (Appendix C1).

General Surveys

Numerous botanical surveys and jurisdictional delineations have been conducted within the proposed program area by GLA between 2010 and 2017, and surveys were conducted by Tidal Influence in 2011 and CRC in 2018. During these visits, general botanical surveys were conducted that included detailed plant inventories.

Focused Botanical Surveys

Focused botanical surveys were conducted at the Central Area (Pumpkin Patch site) in 2011, 2013, and 2016; and focused botanical surveys for the North Area (Synergy Oil Field site) were conducted in 2015 and 2016. During the 2015 survey, there was a significant focus on southern tarplant on the North Area (Synergy Oil Field site) because of the substantial numbers observed germinating early in the season that year. These surveys were conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009). Focused botanical surveys were conducted in all four areas in 2018 by CRC but focused only on three species: southern tarplant (*Centromadia parryi* ssp. *australis*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and Lewis' evening primrose (*Camissoniopsis lewisii*). Additionally, botanical surveys and jurisdictional delineations were also performed on the City Property site by AECOM, Tidal Influence, and Vandermost Consulting Services, Inc. (VCS) as set forth in the 2016 Biological Resources Assessment and Wetland Delineation: Southeast Area Development and Improvement Plan (Placeworks and VCS Environmental 2016).

Vegetation Mapping

Vegetation was mapped at the alliance[1] or stand[2] level based on the A Manual of California Vegetation, Second Edition (MCV II) (Sawyer et al. 2009) to the extent possible; however, in some cases, vegetation was characterized based on species dominance. Where applicable, guidelines set forth in Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018b) were implemented during the vegetation mapping efforts.

Wildlife and Habitat Assessments

Habitat assessments were conducted on all four areas within the proposed program in 2011. In addition, focused surveys for burrowing owl were conducted on the North Area (i.e., Synergy Oil Field) and Central Area (i.e., Pumpkin Patch and Central LCWA sites) during the 2015 breeding season and on portions of these areas during the 2016/2017 wintering season. No burrowing owls were detected during these surveys. Focused surveys for Belding's savannah sparrow were conducted in the spring of 2017 to determine the approximate number and extent of breeding territories within the North Area (i.e., Synergy Oil Field). During these focused surveys, and during the habitat assessment conducted in 2011, incidental observations of wildlife, including evidence of presence (e.g., tracks, scat, burrows, etc.), were recorded by field biologists. A

[1] A classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover.

[2] An actual area of vegetation that is homogenous in species composition and structure and in a uniform habitat.

complete list of wildlife species observed, or that are expected to occur within the proposed program area is provided in the Faunal Compendium (see Appendix C1).

Jurisdictional Delineation

A jurisdictional delineation was conducted for portions of the North and Central Areas in 2016 by GLA, and a supplemental assessment was conducted for the remaining North and Central Areas as well as the Isthmus Area and South Area in 2018 by CRC. The limits of USACE, CDFW and CCC jurisdiction were recorded during the delineation on wetland data sheets (Appendix C1).

The 2016 jurisdictional delineation was conducted using the methodology set forth in the United States Army Corps of Engineers 1987 Wetland Delineation Manual (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 (AWS v2.0). While in the field, the limits of USACE/RWQCB/CDFW jurisdiction and wetlands defined by the CCA were recorded using sub-meter GPS technology and/or recorded on a color aerial photograph using visible landmarks.

The 2018 jurisdictional assessment was conducted to identify and map potential federal waters that are likely to be considered jurisdictional by the USACE and potential state waters that are likely to be considered jurisdictional by the RWQCB, CDFW and CCC jurisdiction within the program area. The assessment conducted was not a formal jurisdictional delineation using the USACE 1987 Wetland Delineation Manual and supplementary protocols and guidance documents. The jurisdictional assessment was based on the vegetation mapping done in 2018. Certain vegetation alliances and stands and unvegetated habitats were assumed to be strongly associated with jurisdictional areas.

3.3.2.2 Program Area

South Area

The South Area comprises approximately 206 acres, nearly half of which is mostly unvegetated due to development or regular mowing and disking. Vegetated areas are mostly weedy uplands or tidal and non-tidal pickleweed (*Salicornia pacifica*) wetland. Weedy upland areas are generally dominated by non-native invasive plant species (mustards, grasses, ice plants, and in some areas, weedy species tolerant of salty soils). Descriptions of the vegetation communities within the program area are included in Section 3.3.2.3 below.

The South Area supports a large expanse of tidally influenced wetlands. Tidewater enters the area via a culvert from the San Gabriel River and flows through tidal channels and inundates mud flat, salt marsh and salt flat habitats. The intertidal areas support a wide range of native salt marsh plants. About 70% of the area is heavily disturbed or developed upland, managed for fuel breaks, or weedy upland.

Much of the South Area contains oil facilities that are not subject to tidal influence, and includes areas that support salt marsh alliances and/or areas with non-native ruderal species. The central portion of the area lacks tidal influence and contains the highest concentration of oil facilities including pipeline, tank farms, and numerous pads and roads.

Isthmus Area

The Isthmus Area comprises approximately 26 acres and is long and narrow. It is constrained by complex ownership, flood control structures (the San Gabriel River levee), and other human-made features including the Haynes Cooling Channel, roadways, oil operations, and fuel breaks around oil operations. About one third of the Isthmus is developed (roads and oil operations). The vegetated portions of the site are slightly fragmented and include mainly restoration/mitigation areas, pickleweed marsh, and weedy upland dominated by five-horn smotherweed (*Bassia hyssopifolia*). Other intertidal habitats occur adjacent to the pickleweed marsh and are supported by limited tidal flows delivered via culverts from the San Gabriel River.

Central Area

The Central Area comprises approximately 102 acres and contains a mosaic of wetland alliances mixed with areas disturbed by ongoing oil extraction activities.

North Area

The North Area comprises approximately 155 acres and contains an active oil field with a network of roads, pipelines and other oil field-related amenities. The northern portion of the site contains Steamshovel Slough, an area of tidally influenced southern coastal salt marsh, tidal channels, and mud flats. Steamshovel Slough contains no oil operations and is separated from the oil operation areas by an earthen berm. A tide gate near the mouth of the Steamshovel Slough and series of pipes allow tidal water into western portions of the North Area.

Much of the North Area contains oil facilities that are not subject to tidal influence, and includes areas that support salt marsh alliances and/or areas with non-native ruderal species. The southern portion of the area has tidal influx through leaky tide gates to support limited areas of coastal wetlands vegetation and mudflats and contains the highest concentration of oil facilities including pipeline, tank farms, and numerous pads and roads. This area is diverse, supporting vegetation alliances often consistent with the presence of coastal wetlands, along with areas of non-native herbaceous plants, goldenbush scrub, and non-native herbs.

3.3.2.3 Vegetation Communities

Descriptions of the vegetation associations within the proposed program area have been separated into “upland habitats” and “wetland habitats.” In some cases, certain vegetation associations include both wetland and non-wetland stands (e.g., mulefat scrub) where the upland/wetland status was based on a predominance of wetland indicators such as indicator species, wetland soils and wetland hydrology. **Table 3.3-1**, *Summary of Vegetation Alliances and Land-Cover Types: Program Area*, through **Table 3.3-4**, *Special-Status Plants with Potential to Occur within the Program Area*, summarize the vegetation alliances and land cover types for each of the four areas of the proposed program, followed by detailed descriptions of each individual site. The majority of vegetation data was provided by the CRC (CRC 2019) and supplemented by GLA (GLA 2017a). The CDFW state rankings for natural communities are listed in parenthesis alongside each of the vegetation communities described below. CDFW sensitive natural communities include those communities given a state rank of S1-S3 (CDFW 2019a).

The state rank is a reflection of the condition and imperilment of an element throughout its range within the state. The state ranks are described below and represent a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on the rarity factors (CDFW 2017a).

S1: Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2: Imperiled – Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.

S3: Vulnerable – Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4: Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5: Secure – Common, widespread, and abundant in the state.

? Qualifier: Inexact or Uncertain – A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

SNR: Unranked – State conservation status not yet assessed.

Vegetation alliances that occur within the program area are listed below in **Table 3.3-1**, *Summary of Vegetation Alliances and Land-Cover Types: Program Area*, displayed on **Figure 3.3-1a**, *Vegetation Communities-South Area*, through **Figure 3.3-1d**, *Vegetation Communities – North Area*, and are described below. A brief overview of each individual area is included following the description of vegetation alliances.

Upland Alliances and Land-Cover Types

***Atriplex lentiformis* Shrubland Alliance (S4).** Quailbush (*Atriplex lentiformis*) is a large evergreen shrub and is dominant in the shrub canopy. The canopy is open to intermittent, and the herbaceous layer is variable. Stands occur on heavy salt-affected soils that may be upland, transition, or wetlands. The understory in these areas typically consists of non-native grasses and forbs.

***Baccharis pilularis* Shrubland Alliance (S5).** Coyote brush (*Baccharis pilularis*) is a large drought-tolerant evergreen shrub that tolerates seasonally waterlogged soils. A few small, scattered patches of the vegetation type occur in upland areas. The patches are dominated by coyote brush and the understory typically consists of non-native grasses and forbs.

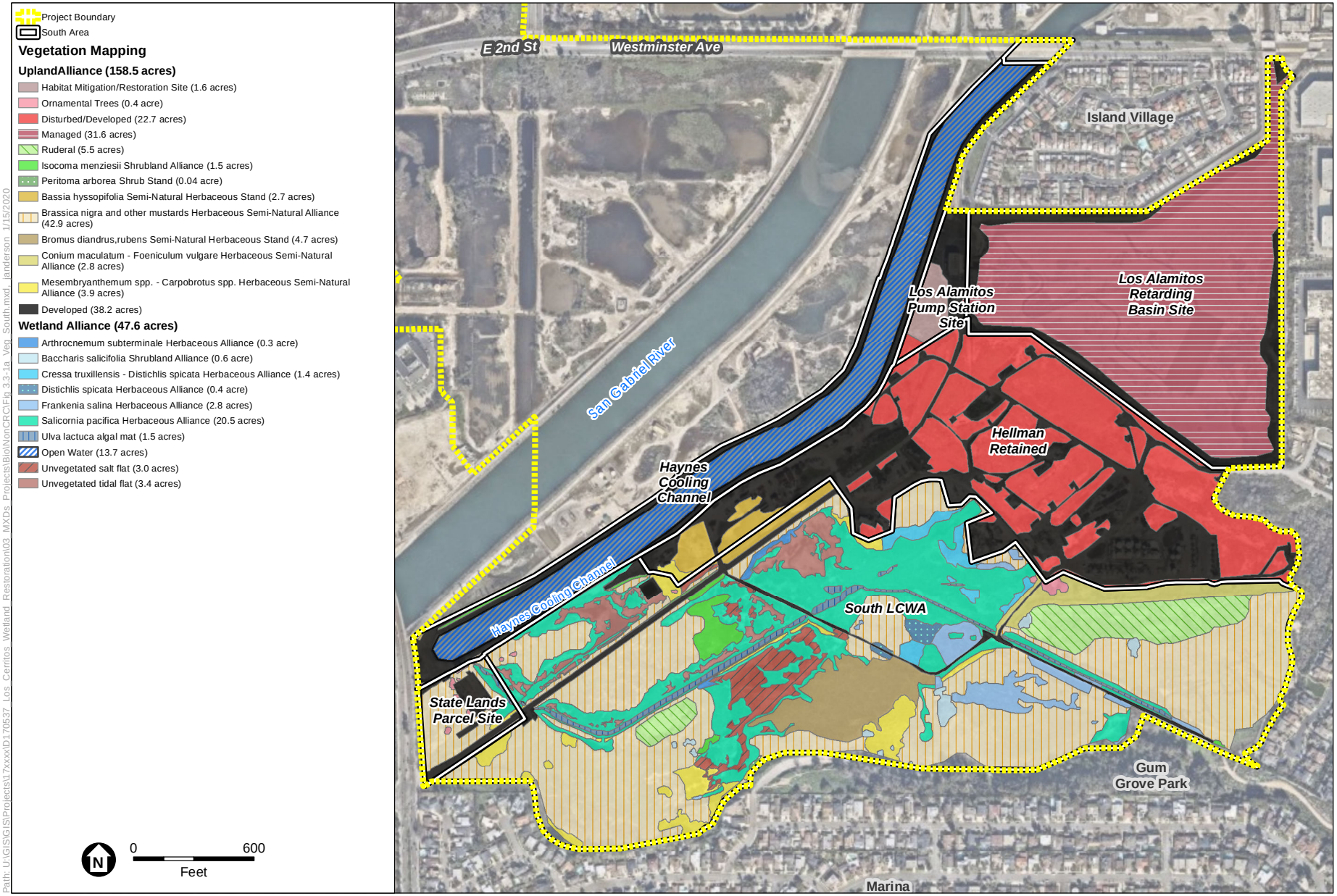
TABLE 3.3-1
SUMMARY OF VEGETATION ALLIANCES AND LAND-COVER TYPES: PROGRAM AREA

Vegetation	South Area (acres)	Isthmus Area (acres)	Central Area (acres)	North Area (acres)	Program Area (acres)
Upland Alliances and Land Covers					
Atriplex lentiformis Shrubland Alliance			0.03		0.03
Baccharis pilularis Shrubland Alliance			0.05	0.41	0.46
Baccharis salicifolia Shrubland Alliance			0.06	1.28	1.34
Baccharis salicina Provisional Shrubland Alliance				0.04	0.04
Bassia hyssopifolia Semi-Natural Herbaceous Stand	2.69	1.87		3.49	8.05
Brassica nigra and other mustards Herbaceous Semi-Natural Alliance	42.94	0.41	2.63		45.98
Bromus diandrus, rubens Semi-Natural Herbaceous Stand	4.67		4.15	8.34	17.16
Carpobrotus edulis or Other Ice Plants Semi-Natural Herbaceous Stands	3.95			2.79	6.74
Centaurea (solstitialis, melitensis) Semi-Natural Herbaceous Stands				2.97	2.97
Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance	2.79				2.79
Cortedaria (jubata, selloana) Semi-Natural Herbaceous Stands				0.20	0.20
Developed	38.19	9.13	18.24	2.22	67.78
Disturbed/Developed	22.73		3.32	22.37	48.42
Habitat Mitigation/Restoration Site	1.63	6.39			8.02
Isocoma menziesii Shrubland Alliance	1.52	1.04	0.10	0.62	3.28
Leymus cinereus – Leymus triticoides Herbaceous Alliance			0.18		0.18
Managed	31.60				31.60
Melilotus (indicus, albus) Semi-Natural Herbaceous Stands				0.34	0.34
Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance			0.90		0.90
Ornamental Trees	0.39	0.01	0.55	2.47	3.42
Peritoma arborea Shrub Stand	0.04				0.04
Ricinus communis Semi-Natural Stand			0.49		0.49
Ruderal	5.49				5.49
Sisymbrium irio Semi-Natural Herbaceous Stands				1.34	1.34
Unvegetated Flats (Upland)				4.32	4.32
Upland Alliances Subtotal	*158.63*	*18.85*	*30.7*	*53.20*	*261.38*

TABLE 3.3-1
SUMMARY OF VEGETATION ALLIANCES AND LAND-COVER TYPES: PROGRAM AREA

Vegetation	South Area (acres)	Isthmus Area (acres)	Central Area (acres)	North Area (acres)	Program Area (acres)
Wetland Alliances and Land Covers					
Anemopsis californica – Helianthus nuttallii – Solidago spectabilis Herbaceous Alliance			0.01		0.01
Arthrocnemum subterminale Herbaceous Alliance	0.31		0.01	11.96	12.28
Baccharis salicifolia Shrubland Alliance	0.59		2.74		3.33
Cressa truxillensis – Distichlis spicata Herbaceous Alliance	1.42		0.45	0.54	2.41
Distichlis littoralis Herbaceous Alliance				0.52	0.52
Distichlis spicata Herbaceous Alliance	0.44		10.14	12.08	22.66
Frankenia salina Herbaceous Alliance	2.78	0.51	1.32	0.87	5.48
Open Water	13.67		17.33	0.73	31.73
Salicornia pacifica Herbaceous Alliance	20.45	4.81	26.67	53.07	105.00
Salix gooddingii Woodland Alliance			0.22	0.14	0.36
Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia) Herbaceous Alliance			3.71		3.71
Schoenoplectus californicus Herbaceous Alliance			0.02		0.02
Spartina foliosa Herbaceous Alliance				1.38	1.38
Tidal Channel				3.18	3.18
Typha domingensis—Herbaceous Alliance				0.11	0.11
Ulva lactuca algal mat	1.55	1.00			2.55
Unvegetated salt flat	2.96	1.88	3.87	0.15	8.86
Unvegetated tidal flat	3.43		0.37	17.55	21.35
Wetland Alliances Subtotal	*47.60*	*8.20*	*66.86*	*102.28*	*224.94*
Total	**206.23**	**27.05**	**97.56**	**155.48**	**486.32**

SOURCE: Coastal Restoration Consultants, 2019, Glenn Lukos, 2017a.



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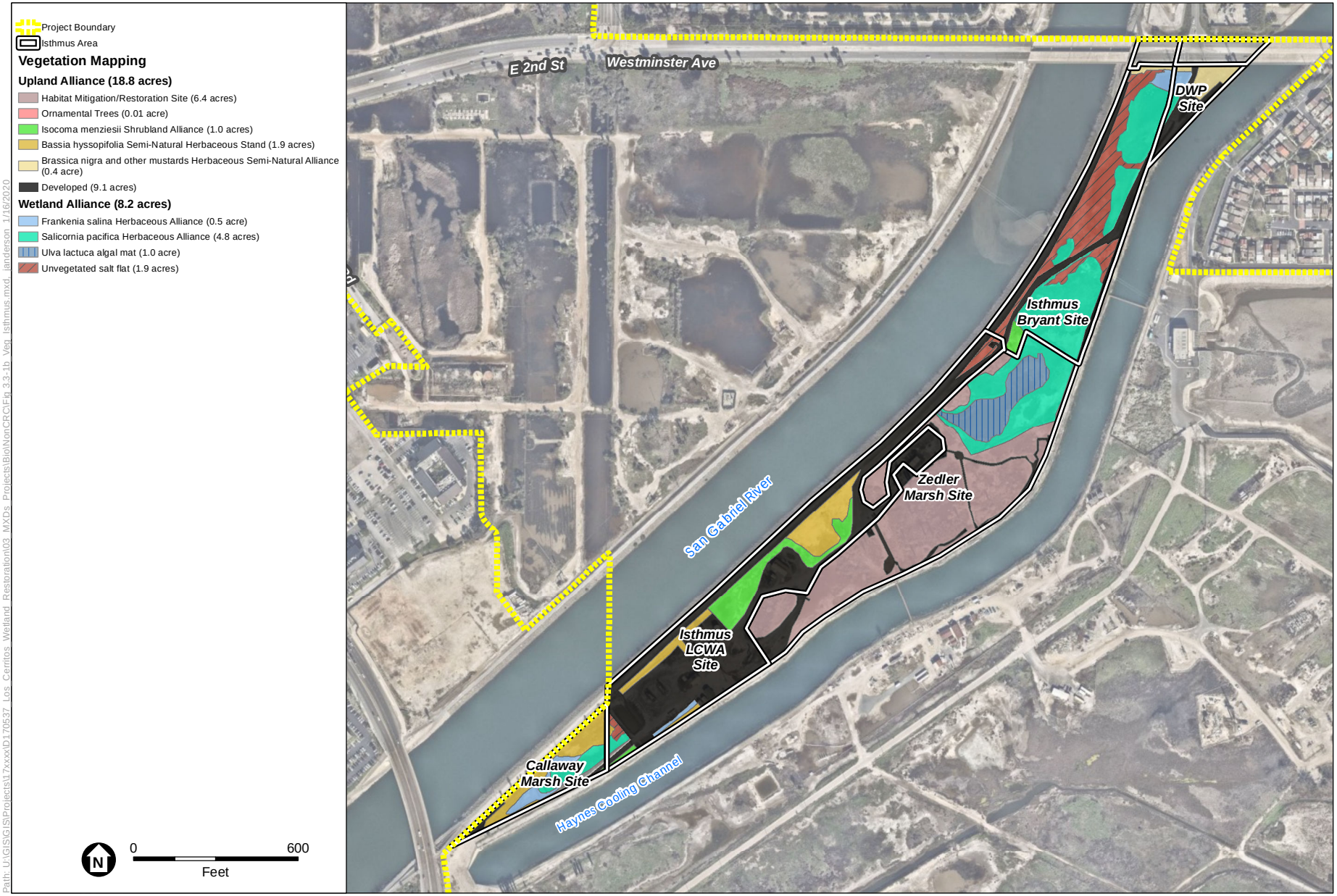
SOURCE: Mapbox, LCWA, CRC

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-1a
Vegetation Communities
South Area

ESA



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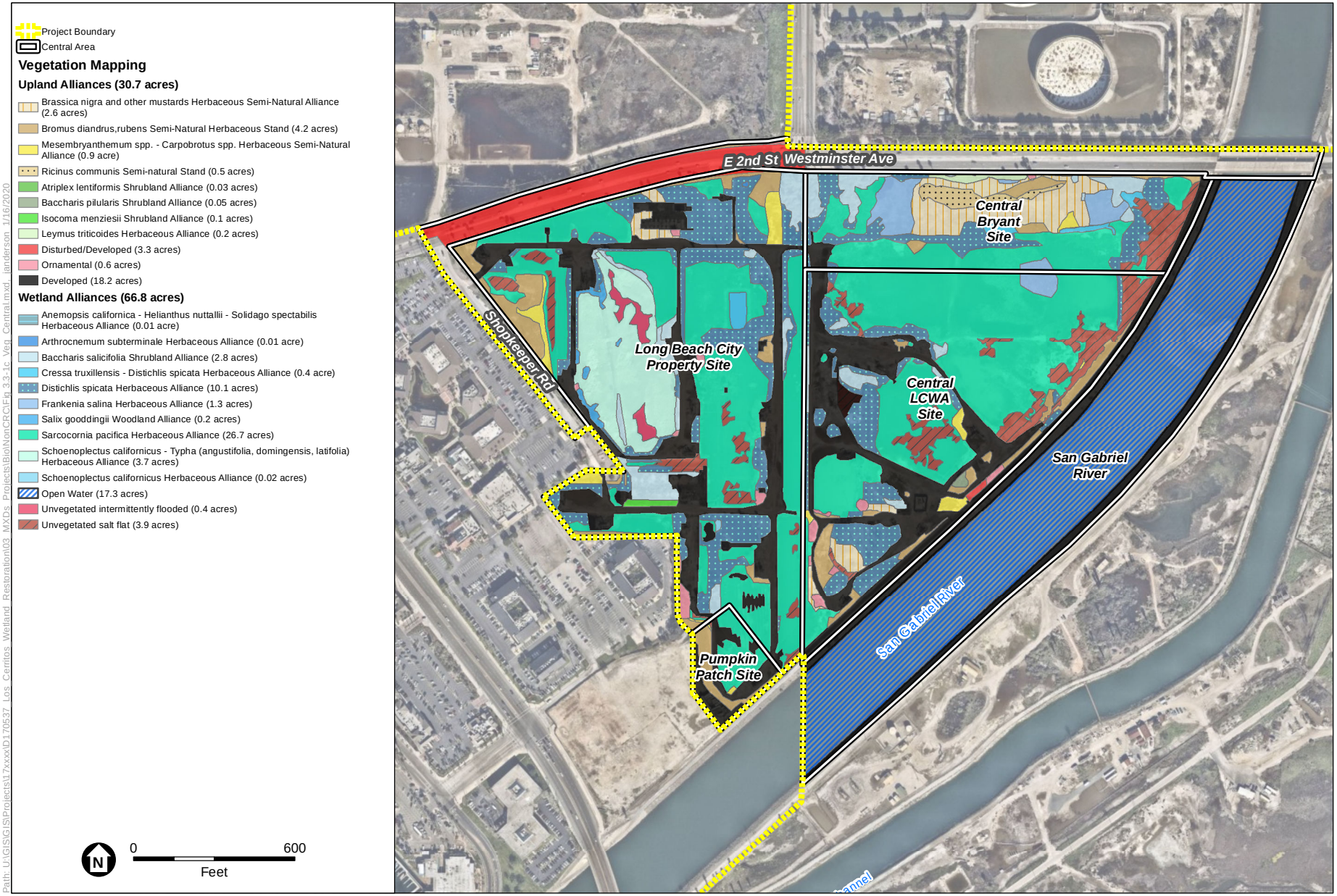
SOURCE: Mapbox, LCWA, CRC

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-1b
Vegetation Communities
Isthmus Area

ESA

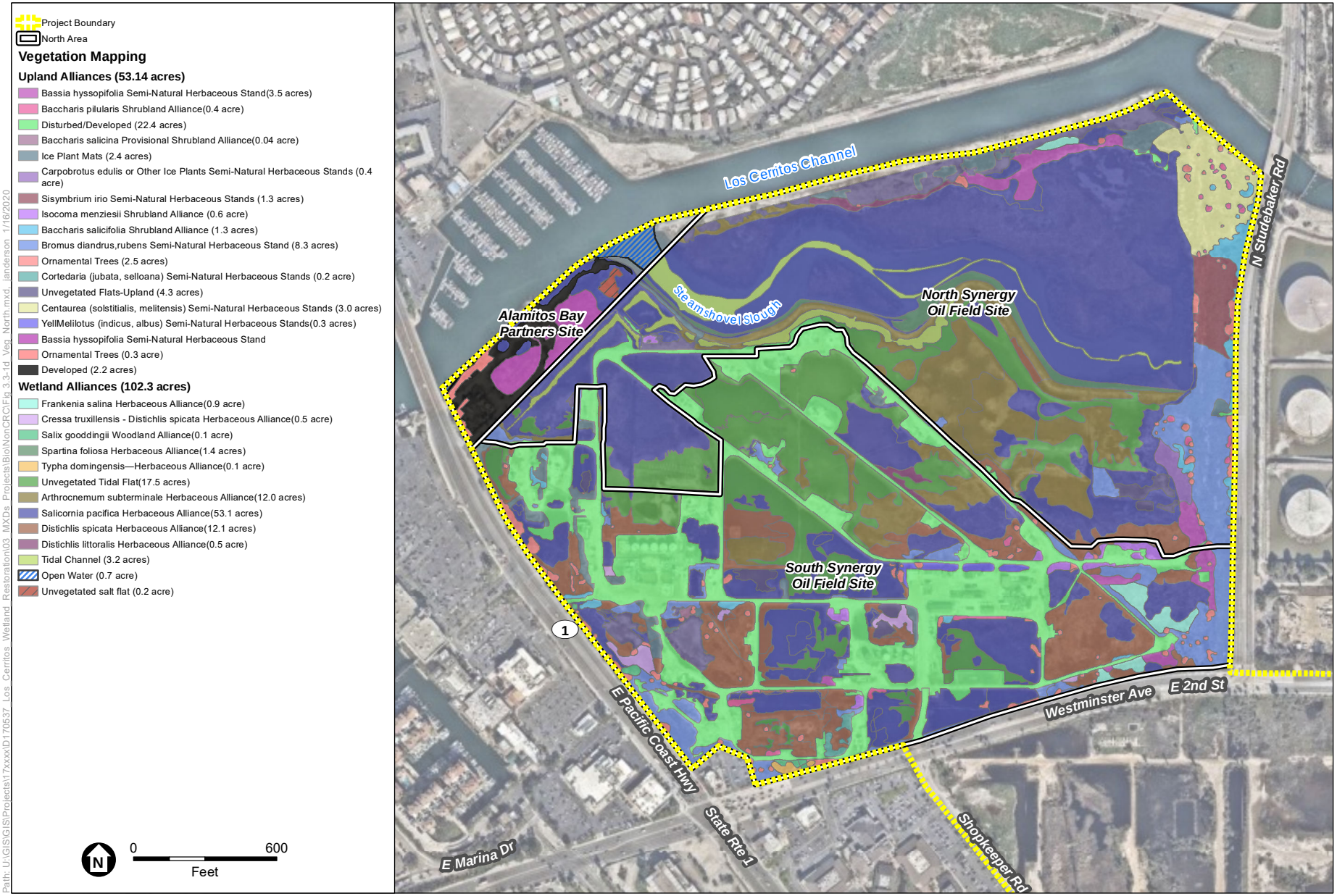


SOURCE: Mapbox, LCWA, CRC, Glenn Lukos Associates

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-1c
Vegetation Communities
Central Area

ESA



SOURCE: Mapbox, LCWA, CRC, Glenn Lukos Associates

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-1d
Vegetation Communities
North Area

ESA

***Baccharis salicina* Provisional Shrubland Alliance (Emory's baccharis thickets) (S3).** Occurs in disturbed areas with an open canopy of Emory's baccharis (*Baccharis salicina*)[3] with a mix of saltgrass (*Distichlis spicata*) and small-flowered ice plant (*Mesembryanthemum nodiflorum*) in the understory.

***Bassia hyssopifolia* Semi-Natural Herbaceous Stand (SNR).** Five-horn smotherweed (*Bassia hyssopifolia*) is a non-native annual species that occurs on disturbed, often saline, soils. In the program area, stands consist of locally dense thickets, typically in disturbed saline soil conditions. This species is also a common weed as understory in other associations. [The MCV II does not have a description for this alliance, it was used here for consistency with City of Long Beach (2017) mapping.]

***Brassica nigra* and Other Mustards Herbaceous Semi-Natural Alliance (SNR).** This alliance includes herbaceous vegetation dominated by various non-native mustards, mostly annual and biennial species, including *Brassica nigra*, *Hirschfeldia incana*, or *Raphanus sativus*. Most of these species are invasive exotics. Native shrubs may be present but only at low relative and absolute cover. The non-native herbs clearly dominate the landscape. This alliance occurs primarily on soils with a history of disturbance.

***Bromus diandrus, rubens* Semi-Natural Herbaceous Stand (SNR).** Non-native annual upland grasses in the genera *Bromus* (bromes) and *Avena* (wild oats) dominate these areas. They are typically upland areas that have a history of soil disturbance. Dominant species include red brome (*Bromus madritensis*), rip gut brome (*Bromus diandrus*), slender wild oats (*Avena barbata*), smilo grass (*Stipa miliacea* var. *miliacea*), as well as locally dense patches of non-native forbs including small-flowered ice plant, five-horn smotherweed, Australian saltbush (*Atriplex semibaccata*), tocalote (*Centaurea melitensis*), London rocket (*Sisymbrium irio*), and summer mustard (*Hirschfeldia incana*). [Note that two categories of MCV II "brome grasslands" have been combined for simplification.]

***Carpobrotus edulis* or Other Ice Plants Semi-Natural Herbaceous Stands (Ice Plant Mats) (SNR).** Common as small patches throughout the program area. This alliance is dominated by non-native small-flowered ice plant (*Mesembryanthemum nodiflorum*) and occasionally by crystalline ice plant (*Mesembryanthemum crystallinum*). Pickleweed may occur in low quantities.

***Centaurea (solstitialis, melitensis)* Semi-Natural Herbaceous Stands (Yellow Star Thistle Fields) (SNR).** Limited occurrences within the program area. This alliance is dominated by tocalote (*Centaurea melitensis*).

***Conium maculatum – Foeniculum vulgare* Herbaceous Semi-Natural Alliance (SNR).** Poison hemlock (*Conium maculatum*) is a biannual invasive exotic species that is dominant (or co-dominant with other non-native plants) in the herbaceous layer. This alliance occurs in uplands on disturbed soil. Other species include a wide variety of annual non-native grasses and annual mustards (*Brassica* spp.).

[3] The 2012 Jepson Manual (Baldwin et al. 2012, 256) now lists this taxon as Baccharis salicina.

***Cortedaria (jubata, selloana)* Semi-Natural Herbaceous Stands (Pampas Grass Patches) (SNR).** Limited occurrences within the program area. Dominated by mostly monotypic stands of pampas grass (*Cortedaria selloana*).

Developed (SNR). Buildings, concrete pads, infrastructure, roads, sidewalks, parking areas, other pavement, constructed drainage and erosion control structures, barriers, berms, sumps, and levees.

Disturbed/Developed (SNR). Most often associated with areas disturbed by historic oil operations, including existing roads, existing and former oil well sites and other types of infrastructure. Many of these areas are bare or sparsely vegetated whereas others are covered by gravels or asphalt-like material (ALM). Vegetation is comprised mostly of non-native with species such as small flowered ice plant, five-horn smotherweed, tocalote (*Centaurea melitensis*) and non-native grasses (*Bromus* spp.).

Habitat Mitigation/Restoration Site (SNR). These areas are the subject of ongoing management as restoration or mitigation sites. The vegetation includes various upland and wetland herbs, shrubs and trees. Non-native species are being managed by weeding. Irrigation may be ongoing.

***Isocoma menziesii* Shrubland Alliance (S3).** Menzie's goldenbush (*Isocoma menziesii*) is an upland shrub that is found in transition zone habitats around salt marshes, on coastal bluffs, and in coastal sage scrub. It is tolerant of occasional flooding and tolerates higher salinity than most upland shrubs. It is a good colonist on disturbed soils, and is often found with a non-native understory that includes small-flowered ice plant and non-native grasses.

***Leymus cinereus – Leymus triticoides* Herbaceous Alliance (S3).** Alkali rye grass (*Leymus triticoides*) is a rhizomatous perennial grass that typically occurs on saline or alkaline soils with a shallow water table. It forms nearly monotypic stands.

Managed (SNR). These areas are the subject of ongoing management as part of the operation of the Los Alamitos Retarding Basin. The vegetation includes various upland and wetland herbs and shrubs.

***Melilotus (indicus, albus)* Semi-Natural Herbaceous Stands (Sweet Clover Fields) (SNR).** This alliance is dominated by yellow sweet clover (*Melilotus indicus*) and also includes non-native grasses.

***Mesembryanthemum* spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance (SNR).** Non-native annual iceplant species (*Mesembryanthemum* spp.) occur in wetland and upland areas typically on disturbed, saline soils. Perennial iceplant species (*Carpobrotus* spp.) form large mats in uplands in the program area. Where this alliance is dominated by small-flowered ice plant (*Mesembryanthemum nodiflorum*) and/or crystalline ice plant (*Mesembryanthemum crystallinum*) other species are very sparse or absent. Where sea fig (*Carpobrotus edulis*) is the dominant, it co-occurs with annual grasses.

Ornamental Trees (SNR). The site supports scattered areas of non-native invasive trees. The diversity of non-native trees scattered across the site is substantially higher than captured by any MCV II alliance, so these trees were mapped as "Ornamental Trees". These include a range of non-native trees, including myoporum (*Myoporum laetum*), Canary Island palm (*Phoenix canariensis*), Mexican fan palm (*Washingtonia robusta*), Shamel ash (*Fraxinus uhdei*), bluegum eucalyptus (*Eucalyptus globulus*), Sydney golden wattle (*Acacia longifolia*), and Brazilian pepper (*Schinus terebinthifolius*). Some of these have various annual non-natives as understory species.

***Peritoma arborea* Shrub Stand (S4).** Bladderpod (*Peritoma arborea*) is a native woody shrub that is growing with non-native mustards and annual grasses on disturbed upland soils.

***Ricinus communis* Semi-Natural Stand (SNR).** Castor bean (*Ricinus communis*) is a large invasive non-native woody shrub that occurs primarily on disturbed upland soils. It grows with tree tobacco (*Nicotiana glauca*) and non-native annual grasses (*Avena* and *Bromus* spp.).

Ruderal (SNR). Ruderal areas are dominated by telegraph weed (*Heterotheca grandiflora*). Telegraph weed is a native annual or short-lived perennial herbaceous species that grows on disturbed upland soils. It grows on site in low densities on sandy soils (likely dredge material as mollusk shells characteristic of salt marsh and beach habitats are common on the soil surface). It grows with scattered annual grasses, heron's bill (*Erodium* spp.) and Lewis' evening primrose.

***Sisymbrium irio* Semi-Natural Herbaceous Stands (SNR).** Occurs at a single location at the southeast corner of the northern area, consisting of a near monoculture of the non-native London rocket (*Sisymbrium irio*). This alliance intergrades with tocalote fields to the north and non-native grasses to the south.

Unvegetated Flats (Upland) (SNR). Consist of areas with less than 5 percent vegetative cover. Unvegetated Flats (Upland) are distinguished from Unvegetated Salt Flat and Unvegetated Tidal Flat, which at a minimum exhibit either wetland hydrology or hydric soils and, therefore, meet the CCA definition of wetlands. The lack of wetland hydrology was determined through direct observations in the field during data collection associated with the jurisdictional assessment or through review of historic aerial photographs for ponding.

Wetland Alliances and Land-Cover Types

***Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance (S2).** Yerba mansa (*Anemopsis californica*) occurs in low-salinity soils that are moist more or less year-round, possibly associated with seeps or urban runoff. Yerba mansa occurs as a nearly-monotypic stand.

***Arthrocnemum subterminale* Herbaceous Alliance (S2).** Parish's glasswort (*Arthrocnemum subterminale*) is a plant that is most common in high marsh areas with seasonally hypersaline soils. This species often forms monocultures. Other species that are sometimes associated with it include common pickleweed, alkali heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), shoregrass (*Distichlis littoralis*), and sea lavender (*Limonium californicum*).

***Baccharis salicifolia* Shrubland Alliance (S4).** Mulefat (*Baccharis salicifolia*) is a large evergreen shrub that occurs along creeks and rivers, in and adjacent to freshwater wetlands, and in uplands. Most of the mulefat at the site occurs in small to medium patches, often in areas that receive runoff from developed areas. This alliance consists of generally small thickets of mulefat with understory that varies from location to location but may include one or more of the following species: saltgrass (*Distichlis spicata*), seaside heliotrope (*Heliotropium curassivicum*), small-flowered ice plant (*Mesembryanthemum nodiflorum*), five-horn smotherweed (*Bassia hyssopifolia*), and non-native upland grasses.

***Cressa truxillensis – Distichlis spicata* Herbaceous Alliance (S2).** Alkali weed (*Cressa truxillensis*) is a native perennial herbaceous plant that occurs in salt-affected seasonal wetlands, high marsh and transition zone habitats, and occasionally in uplands at the site. Other species that co-occur with alkali weed at the site include saltgrass, non-native annual grasses, and alkali heath.

***Distichlis littoralis* Herbaceous Alliance (SNR).** Like Parish's glasswort, shoregrass is a species most common in high marsh areas and is common in areas above tidal influence such as on the berm that demarcates the limits of Steamshovel Slough. This species is also a common component of the pickleweed mat alliance described below, and most of the shoregrass on the site is included in the pickleweed mat and/or Parish's glasswort alliances.

***Distichlis spicata* Herbaceous Alliance (S4).** Saltgrass is a perennial rhizomatous grass that occurs in salt-affected seasonal wetlands, high marsh and transition zone habitats, and occasionally in uplands at the site. Saltgrass is common in a variety of alliances throughout the site, though it dominates in these areas. Other species commonly associated with this alliance include common pickleweed, alkali heath, non-native annual grasses, alkali weed, small-flowered ice plant, and five-horn smotherweed.

***Frankenia salina* Herbaceous Alliance (S3).** Alkali heath is a low-growing, woody, rhizomatous halophyte that occurs in salt-affected seasonal wetlands, high marsh and transition zone habitats, and occasionally in uplands at the site. It is common in a variety of alliances at the site but occasionally forms unbroken stands that constitute a separate alliance. Other species commonly found in this alliance include saltgrass, common pickleweed, alkali weed, and non-native annual grasses.

Open Water (SNR). These areas are permanently flooded tidal areas. They may support patches of rooted eelgrass (*Zostera* spp.), however this species was not mapped in this effort.

***Salicornia pacifica* Herbaceous Alliance (S3).** Common pickleweed is an herbaceous perennial native wetland species that occurs in tidal salt marshes and salt-affected seasonal wetlands. It is the most common wetland alliance in the program area. Other common species that co-occur with common pickleweed include alkali heath, Parish's glasswort, saltgrass, sea lavender, alkali weed, alkali weed, saltwort (*Batis maritima*), fleshy jaumea (*Jaumea carnosa*) and estuary seablite (*Sueada esteroa*).

***Salix gooddingii* Woodland Alliance (S3).** Black willow (*Salix gooddingii*) is dominant and in many cases consists of a single large tree that was of sufficient size to be included as a mapping

unit. The understory varies substantially throughout the site but may include one or more of the following species: saltgrass, tall nutsedge (*Cyperus eragrostis*), seaside heliotrope, alkali weed (*Cressa truxillensis*), and curly dock.

***Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance (S3).** California bulrush (*Schoenoplectus californicus*) grows with cattails (*Typha* spp.) in seasonally flooded or saturated brackish or freshwater wetlands. It grows with trees such as black willow (*Salix gooddingii*) and herbaceous species such as curly dock in basins that are augmented by artificial dry season inflows.

***Schoenoplectus californicus* Herbaceous Alliance (S3).** California bulrush is a large perennial grass-like herb that occurs along freshwater water sources in wetlands. This alliance occurs in a small patch, in an area that receives runoff from developed areas. This alliance consists of generally small, monotypic thickets of California bulrush with little to no understory or other dominant species.

***Spartina foliosa* Herbaceous Alliance (S3.2).** Within Steamshovel Slough. Cordgrass (*Spartina foliosa*) is dominant with other species including common pickleweed and saltwort.

Tidal Channels (Tidal) (SNR). Tidal channels are found within Steamshovel Slough and in the area south of the berm, all of which is included in the northern portion of the north area.

***Typha domingensis* Herbaceous Alliance (S5).** Consists of non-tidal freshwater marsh dominated by southern cattail (*Typha domingensis*). Other species include tall nutsedge, alkali bulrush (*Bolboschoenus maritimus*), and California bulrush (*Schoenoplectus californicus*).

***Ulva lactuca* Algal Mat (SNR).** This cover class represents areas of low elevation mudflat and tidal channel that have moderate to high cover of algal mats. The mats may occur seasonally or intermittently and may be associated with poor water quality (i.e., high nutrient loads). The MCV II does not have a description for this alliance.

Unvegetated Salt Flat (SNR). This habitat type occurs in non-tidal areas that do not have vegetation. The lack of vegetation is likely due to hypersalinity of soils. High soil salinity may be from very rare or historic tidal inundation or as a legacy (i.e., soil dredged from tidal or sub-tidal habitats and placed on site).

Unvegetated Tidal Flat (SNR). This habitat type occurs in tidal areas that do not have emergent vegetation. The lack of vegetation may be due to more or less constant ponding of water (shallow depressions on the marsh plain). They may support algae seasonally, although algal mats were not observed during mapping.

3.3.2.4 Special-Status Plants

Special-status plants are legally protected under the California Endangered Species Act (CESA) (Fish and Game Code Sections 2050 et seq.), the Native Plant Protection Act (Fish and Game Code Sections 1900 et seq.), the federal Endangered Species Act (FESA), other regulations, or

considered sufficiently rare by the scientific community to qualify for such a listing (CDFW 2019b). For purposes of this PEIR, special-status plant species include the following categories:

1. Officially listed by California or the federal government as endangered, threatened, or rare;
2. A candidate for state or federal listing as endangered, threatened, or rare;
3. Taxa that meet the criteria for listing, even if not currently included on any list, as described in *CEQA Guidelines* 15380; and
4. Taxa listed in the CNPS Inventory of Rare and Endangered Plants of California with a California Rare Plant Rank (CRPR) of 1, 2, 3 or 4.

Table 3.3-2, *Special-Status Plants with Potential to Occur*, provides a summary of the special-status plants determined to have potential to occur for the proposed program based on the results of the CNDDB (2019) and CNPS (2019) queries. Also included in Table 3.3-2 are other special-status plants that are known to occur within the vicinity where suitable habitat is present (in the proposed program area). A table providing a summary of those special-status plants determined to be unlikely to occur and therefore were not analyzed further is included in Appendix C3. Following the table, additional discussions are provided for any special-status plants observed on site or for which potentially suitable habitat occurs on the site.

The "Potential for Occurrence" category indicated in Table 3.3-2 is defined as follows:

- *Unlikely:* The program area and/or immediate area do not support suitable habitat for a particular species, and therefore the proposed program is unlikely to impact this species.
- *Low Potential:* The program area and/or immediate vicinity provides low-quality habitat for a particular species, such as improper substrate, disturbed or otherwise degraded habitat, or improper assemblage of desired vegetation, and/or the site is outside of the known range of the species.
- *Moderate Potential:* The program area and/or immediate vicinity provides marginal habitat for a particular species. For example, proper substrate may be present, but the desired vegetation assemblage or density is less than ideal, or substrate and vegetation are suitable, but the site is outside of the known elevation range of the species.
- *High Potential:* The program area and/or immediate vicinity provides high-quality or ideal habitat (i.e., soils, vegetation assemblage, and topography) for a particular species and/or there are known occurrences in the general vicinity of the program area.
- *Present:* Species observed on the site during focused surveys or other site visits.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Aphanisma *Aphanisma blitoides*	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. On bluffs and slopes near the ocean in sandy or clay soils.	Low. Suitable habitat present in South, North and Isthmus Areas; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Brand's star phacelia *Phacelia stellaris*	Federal: None State: None CRPR: 1B.1	Coastal bluff scrub, coastal dunes, coastal scrub. On bluffs and slopes near the ocean in sandy or clay soils.	Low. Suitable habitat present in South, North and Isthmus Areas; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
California box-thorn *Lycium californicum*	Federal: None State: None CRPR: 4.2	Coastal bluff scrub, coastal scrub.	Present. Documented in South Area, occurs in coastal scrub present. Individuals planted at Zedler Marsh in the Isthmus Area. Suitable habitat present in North Area; however, not documented during focused surveys conducted in the North and Central Areas by Glenn Lukos.
California Orcutt grass *Orcuttia californica*	Federal: FE State: SE CRPR: 1B.1	Vernal pools.	Unlikely. Not documented in the program area including during focused surveys conducted in the North and Central Areas by Glenn Lukos, no suitable habitat present.
Catalina mariposa-lily *Calochortus catalinae*	Federal: None State: None CRPR: 4.2	Valley and foothill grassland, chaparral, coastal scrub, cismontane woodland. In heavy soils, open slopes, openings in brush.	Low. Suitable habitat present in South, North and Isthmus Areas; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Chaparral sand verbena *Abronia villosa* var. *aurita*	Federal: None State: None CRPR: 1B.1	Sandy soils in chaparral, coastal sage scrub.	Low. Suitable habitat present; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Coast woolly-heads *Nemacaulis denudata* var. *denudata*	Federal: None State: None CRPR: 1B.2	Coastal dunes.	Low. Suitable habitat present in South and North Areas; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	Federal: None State: None CRPR:1B.1	Playas, vernal pools, marshes and swamps (coastal salt).	Present. Several populations of this species were identified in spring 2011 by Tidal Influence botanists and in 2009 and 2010 by Glen Lukos within the South Area. Individuals were not documented in 2018 during focused surveys conducted for the species by CRC. Suitable habitat present in all four sites within the program area.
Coulter's saltbush *Atriplex coulteri*	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grassland. Occurring on alkaline or clay soils.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	Federal: None State: None CRPR: 1B.2	Alkaline soils in coastal sage scrub, coastal bluff scrub.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Decumbent goldenbush *Isocoma menziesii* var. *decumbens*	Federal: None State: None CRPR: 1B.2	Chaparral, coastal scrub (sandy, often in disturbed areas).	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Engelmann oak *Quercus engelmannii*	Federal: None State: None CRPR: 4.2	Cismontane woodland, chaparral, riparian woodland, valley and foothill grassland.	Unlikely. Not documented on site, no suitable habitat present.
Estuary seablite *Suaeda esteroa*	Federal: None State: None CRPR: 1B.2	Coastal salt marsh and swamps. Occurs in sandy soils.	Present. Documented on site in tidal salt marsh areas primarily in North Area (Steamshovel Slough). Introduced to Zedler Marsh in the Isthmus Area. Suitable habitat present in South and Central Areas.
Gambel's water cress *Rorippa gambelii*	Federal: FE State: ST CRPR: 1B.1	Marshes and swamps.	Unlikely. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos, no suitable habitat present.
Intermediate mariposa-lily *Calochortus weedii* var. *intermedius*	Federal: None State: None CRPR: 1B.2	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky calcareous slopes and rock outcrops.	Low. Suitable habitat present at all four sites; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Laguna Beach dudleya *Dudleya stolonifera*	Federal: FT State: ST CRPR: 1B.1	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. In thin soil on north-facing sandstone cliffs.	Unlikely. Not documented on site, no suitable habitat present.
Lewis' evening primrose *Camissoniopsis lewisii*	Federal: None State: None CRPR: 3	Occurs in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland in sandy or clay soil up to 985 feet in elevation.	Present. Observations limited to South Area in 2018 by CRC and 2011 by Tidal Influence. Suitable habitat present in Isthmus, Central and North Areas.
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	Federal: None State: None CRPR: 1A	Salt and freshwater marshes, historically in Los Angeles, Orange, Riverside and San Bernardino Counties. Still Presumed to be extinct. Plant discovered in Santa Clarita most likely hybrid between *H. nuttallii* and *H. californicus*.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Still presumed to be extinct.
Lucky morning-glory *Calystegia felix*	Federal: None State: None CRPR: 1B.1	Meadows and seeps, riparian scrub. Sometimes alkaline, alluvial.	Unlikely. Not documented on site, no suitable habitat present.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Lyon's pentachaeta *Pentachaeta lyonii*	Federal: FE State: SE CRPR: 1B.1	Chaparral (openings), coastal sage scrub, valley and foothill grassland.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Many-stemmed dudleya *Dudleya multicaulis*	Federal: None State: None CRPR: 1B.2	Chaparral, coastal sage scrub, valley and foothill grassland. Often occurring in clay soils.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the Program Area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Mud nama *Nama stenocarpum*	Federal: None State: None CRPR: 2B.2	Vernal pools and freshwater seasonal ponds.	Low. Suitable habitat present in the South, Central and North Areas; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Parish's brittlescale *Atriplex parishii*	Federal: None State: None CRPR: 1B.1	Chenopod scrub, playas, vernal pools.	Unlikely. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos, no suitable habitat present.
Parish's gooseberry *Ribes divaricatum* var. *parishii*	Federal: None State: None CRPR: 1A	Riparian woodland. Salix swales in riparian habitats.	Unlikely. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos, no suitable habitat present.
Plummer's mariposa-lily *Calochortus plummerae*	Federal: None State: None CRPR: 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire.	Low. Suitable habitat present at all four sites; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Prostrate navarretia *Navarretia prostrata*	Federal: FSC State: None CRPR: 1B.1	Coastal sage scrub, valley and foothill grassland (alkaline), vernal pools. Occurring in mesic soils.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Red sand-verbena *Abronia maritima*	Federal: None State: None CRPR: 4.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat.	Moderate. Not documented on site, suitable habitat present in all four areas.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *maritimum*	Federal: FE State: SE CRPR:1B.2	Coastal dune, coastal salt marshes and swamps.	Moderate. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos, suitable habitat present in all four areas.
Salt spring checkerbloom *Sidalcea neomexicana*	Federal: None State: None CRPR: 1B.2	Occurs in alkali sinks and coastal sage scrub up to 4500 feet in elevation.	Low. Suitable habitat present at all four sites; however, only one documented collection occurs from 1935 in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
San Bernardino aster *Symphyotrichum defoliatum*	Federal: None State: None CRPR:1B.2	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas.	Unlikely. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos, no suitable habitat present.
San Diego button-celery *Eryngium aristulatum* var. *parishii*	Federal: FE State: SE CRPR:1B.1	Vernal pools, coastal scrub, valley and foothill grassland. San Diego mesa hardpan & claypan vernal pools & southern interior basalt flow vernal pools; usually surrounded by scrub.	Unlikely. Not documented on site, no suitable habitat present.
Sanford's arrowhead *Sagittaria sanfordii*	Federal: None State: None CRPR: 1B.2	Marshes and swamps.	Unlikely. Not documented on site including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. No potential to occur on site due to lack of suitable habitat and site is outside of historic range (i.e., no records in Los Angeles County).
Small-flowered morning-glory *Convolvulus simulans*	Federal: None State: None CRPR: 4.2	Chaparral, coastal scrub, valley and foothill grassland. Wet clay, serpentine ridges.	Low. Suitable habitat present at all four sites; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
South Coast branching phacelia *Phacelia ramosissima* var. *austrolitoralis*	Federal: None State: None CRPR: 3.2	Chaparral, coastal scrub, coastal dunes, coastal salt marsh. Sandy, sometimes rocky sites.	Low. Suitable habitat present at all four sites; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
South coast saltscale *Atriplex pacifica*	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, playas.	Low. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Southern California black walnut *Juglans californica*	Federal: None State: None CRPR: 4.2	Chaparral, coastal scrub, cismontane woodland, riparian woodland. Slopes, canyons, alluvial habitats.	Unlikely. Not documented on site, no suitable habitat present.

TABLE 3.3-2
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Southern tarplant *Centromadia parryi* ssp. *australis*	Federal: None State: None CRPR: 1B.1	Disturbed habitats, margins of marshes and swamps, vernally mesic valley and foothill grassland, vernal pools.	Present. Occurs in a variety of locations in all four areas as observed by CRC in 2018, Tidal Influence in 2011 and Glen Lukos in 2011, 2013, 2015 and 2016.
Southwestern spiny rush *Juncus acutus* ssp. *Leopoldii*	Federal: None State: None CRPR: 4.2	Mesic coastal dunes, alkaline meadows and seeps, coastal salt marshes and swamps.	Present. Naturally occurring in Isthmus Area and individuals were planted at Zedler Marsh in the Isthmus Area. Not observed during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos Suitable habitat present in South, Central and North Areas.
Ventura Marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	Federal: FE State: SE CNPS: List 1B.1	Coastal salt marsh. Within reach of high tide or protected by barrier beaches, more rarely near seeps on sandy bluffs.	Moderate. Suitable habitat present at all four sites; however, not documented in the program area including during focused botanical surveys conducted in the North and Central Areas by Glenn Lukos. Abundance of suitable habitat within the program area.
Vernal barley *Hordeum intercedens*	Federal: None State: None CRPR: 3.2	Valley and foothill grassland, vernal pools, coastal dunes, coastal scrub. Vernal pools, dry, saline streambeds, alkaline flats.	Low. Suitable habitat present at all four sites; however, not documented in the program area. Suitable habitat is limited within the program area and either contains non-native plant species or is adjacent to non-native dominated communities and land covers.
Woolly seablite *Suaeda taxifolia*	Federal: None State: None CRPR: 4.2	Coastal bluff scrub, coastal dunes, margins of coastal salt marshes and swamps.	Present. Documented in North Area (Steamshovel Slough) and previously planted at Zedler Marsh in the Isthmus Area. Suitable habitat present in the South and Central Area.

SOURCES: Glenn Lukos Associates Inc., 2017a; Coastal Restoration Consultants, 2019; CNDDB, 2019; Tidal Influence, 2012.

STATUS CODES:

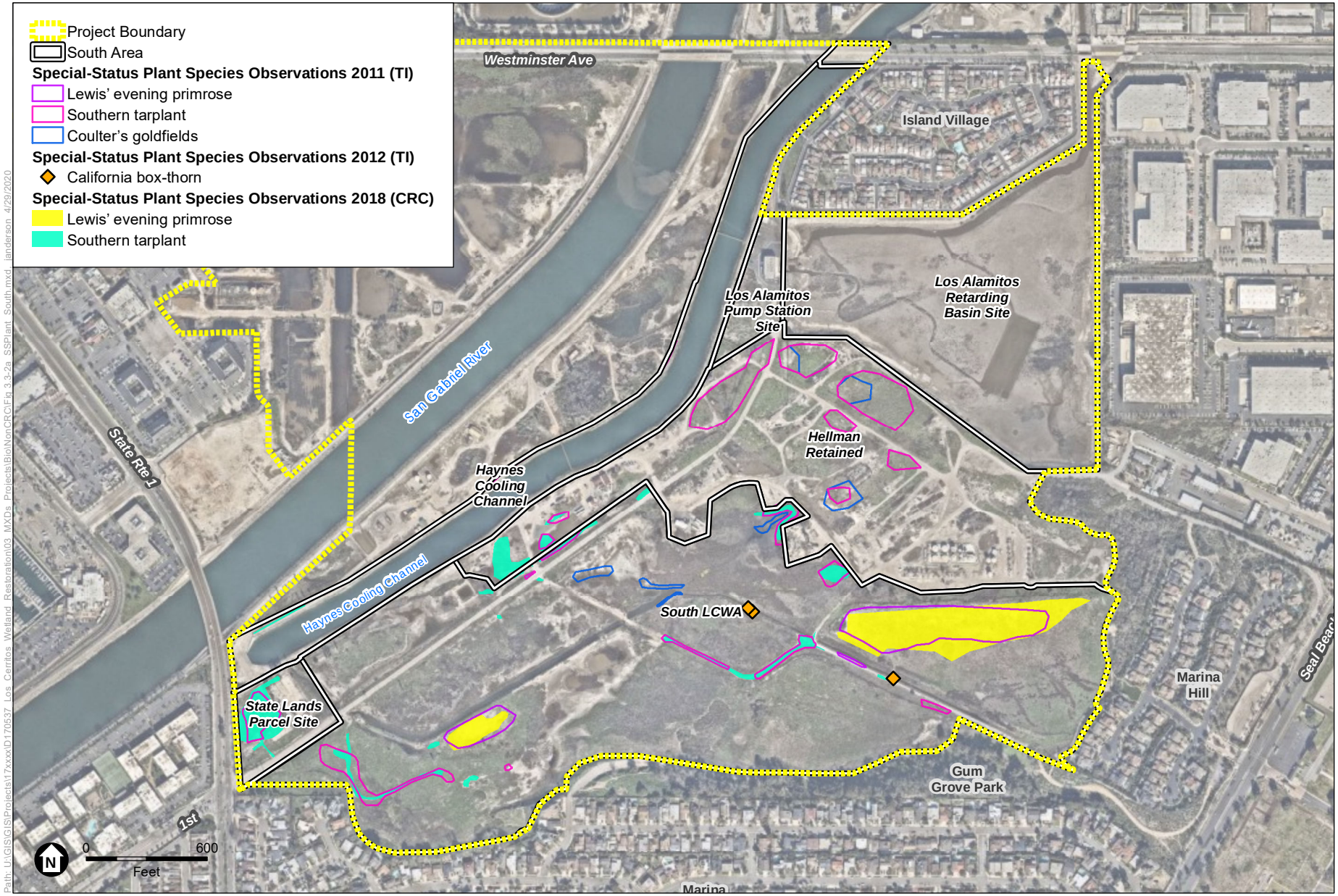
Federal
FE = Federally Endangered
FT = Federally Threatened

State
SE = State Endangered
ST = State Threatened

California Rare Plant Rank (CRPR)
CRPR 1A = Plants presumed extinct in California;
CRPR 1B = Plants considered rare, threatened or endangered in California and elsewhere;
CRPR 2 = Plants considered rare, threatened or endangered in California, more common elsewhere;
CRPR 4 = Limited distribution, watch list.
CRPR Threat Ranks:
0.1 Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)
0.2 Fairly threatened in California (20–80 percent occurrences threatened / moderate degree and immediacy of threat)
0.3 Not very threatened in California (<20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)

Special-Status Plants Documented

Special-status plants detected during focused surveys are depicted in **Figure 3.3-2a**, *Special-Status Plants – South Area*, through **Figure 3.3-2d**, *Special-Status Plants – North Area*. The following special-status plants have been documented as occurring within at least one of the four areas. **Table 3.3-3**, *Flowering Periods of Special-Status Plants with Potential to Occur*, provides a summary of the flowering periods for each of the special-status plants documented on site as well as those with potential to occur.



SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Tidal Influence

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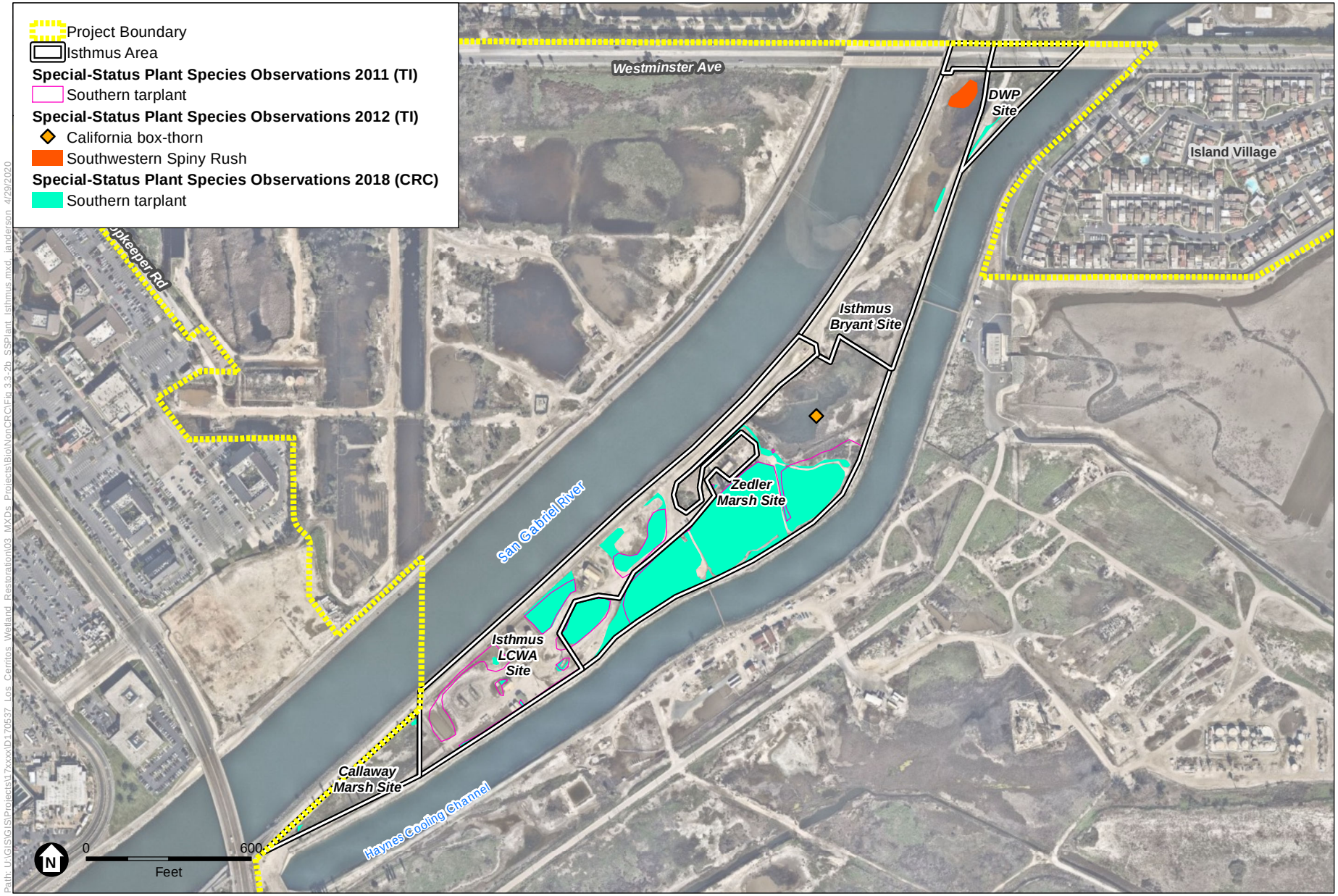
Figure 3.3-2a
Special-Status Plants
South Area

ESA



SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Tidal Influence

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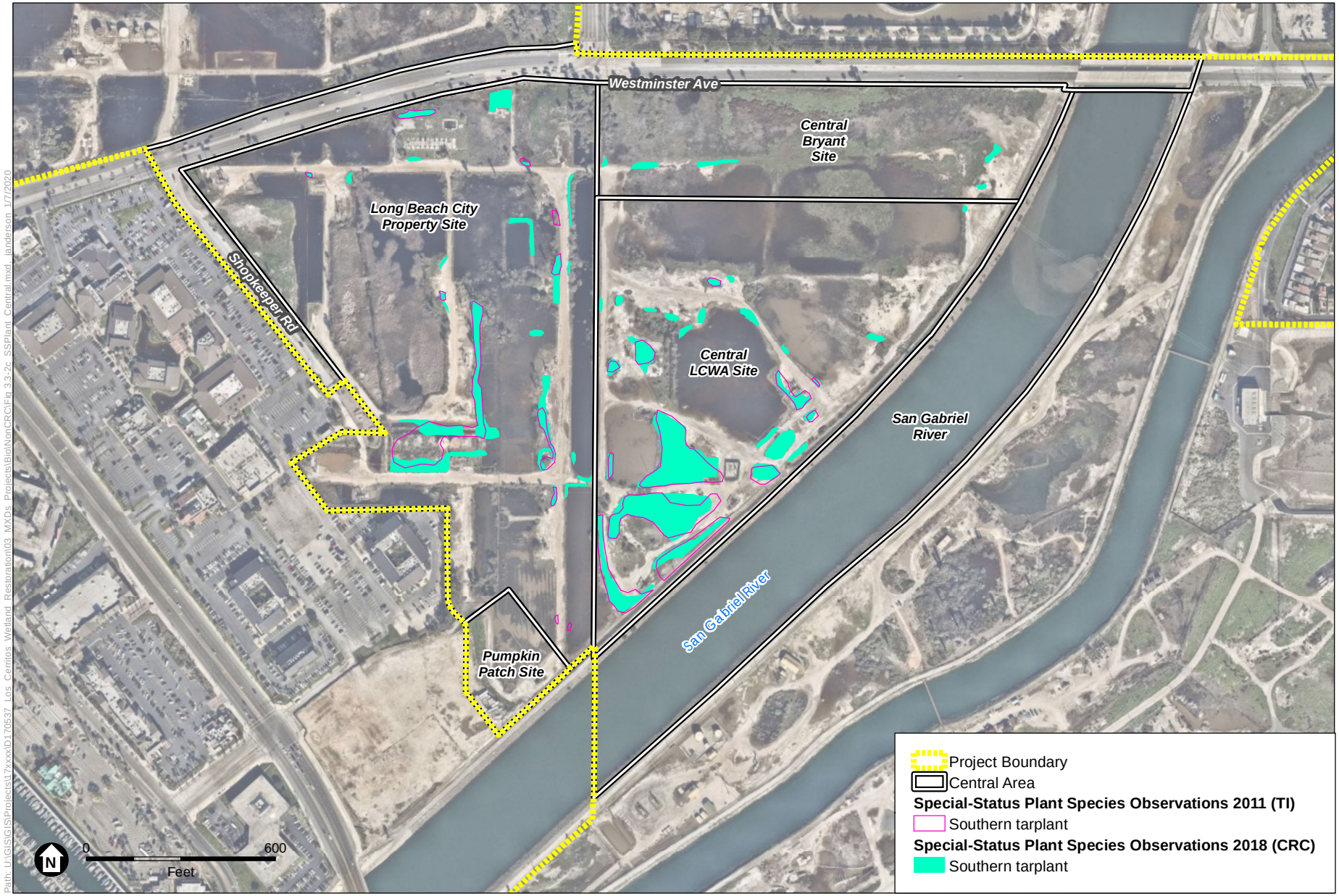
Figure 3.3-2b
Special-Status Plants
Isthmus Area

ESA



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SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Tidal Influence, Glenn Lukos Associates

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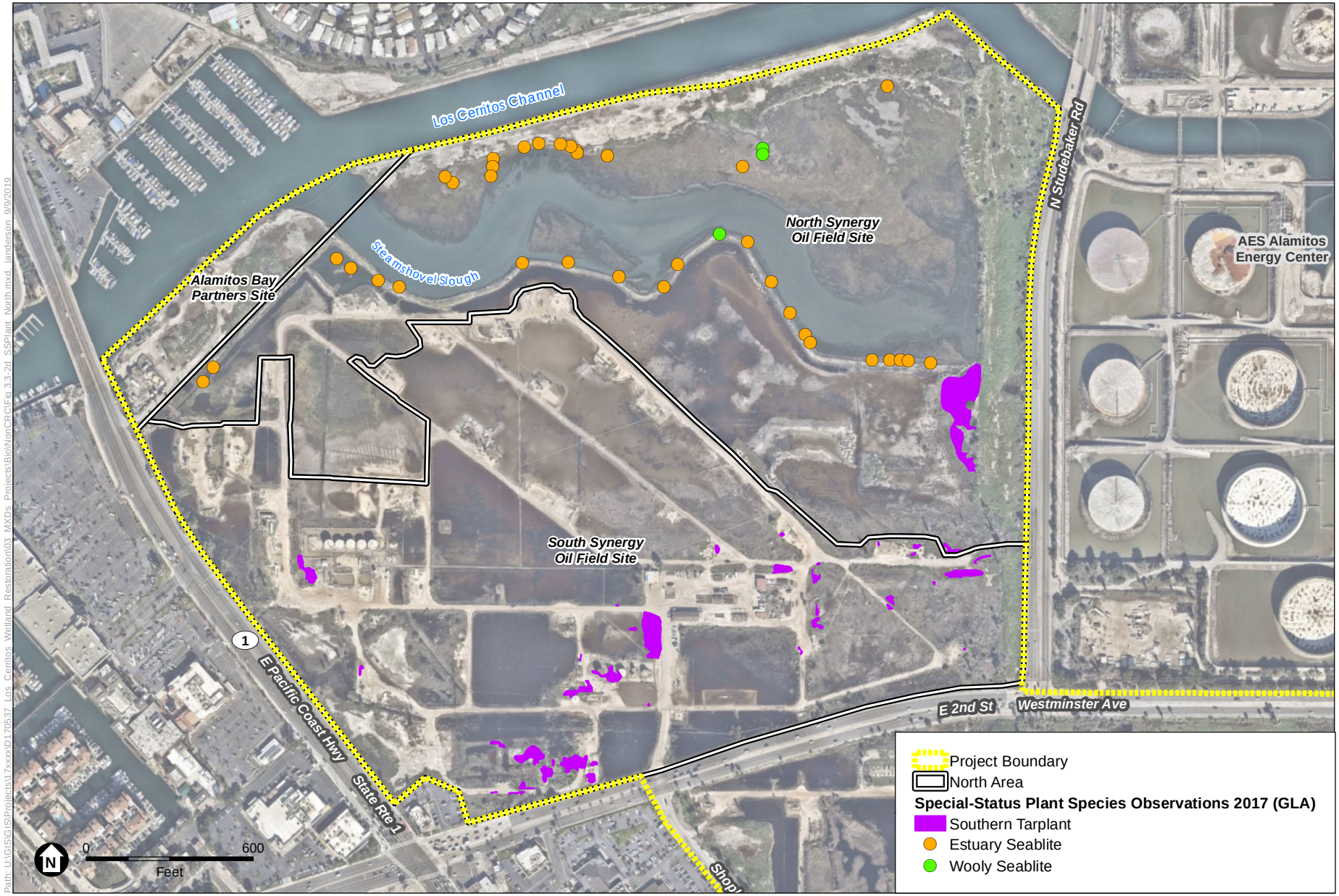
Figure 3.3-2c
Special-Status Plants
Central Area

ESA



SOURCE: Mapbox, LCWA, Glenn Lukos Associates

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Figure 3.3-2d
Special-Status Plants
North Area

ESA

TABLE 3.3-3
FLOWERING PERIODS OF SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Flowering Period
Aphanisma *Aphanisma blitoides*	March to June
Brand's star phacelia *Phacelia stellaris*	March to June
California box-thorn *Lycium californicum*	May to August
Catalina mariposa-lily *Calochortus catalinae*	March to June
Chaparral sand verbena *Abronia villosa* var. *aurita*	January to September
Coast woolly-heads *Nemacaulis denudata* var. *denudata*	April to September
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	February to June
Coulter's saltbush *Atriplex coulteri*	May to October
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	May to October
Decumbent goldenbush *Isocoma menziesii* var. *decumbens*	April to November
Estuary seablite *Suaeda esteroa*	May to October
Intermediate mariposa-lily *Calochortus weedii* var. *intermedius*	May to July
Lewis' evening primrose *Camissonionsis lewisii*	May to June
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	August to October
Lyon's pentachaeta *Pentachaeta lyonii*	March to August
Many-stemmed dudleyad *Dudleya multicaulis*	April to July
Mud nama *Nama stenocarpum*	March to October
Plummer's mariposa-lily *Calochortus plummerae*	May to July
Prostrate navarretia *Navarretia prostrata*	April to June
Red sand-verbena *Abronia maritima*	February to December
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *maritimum*	May to October

TABLE 3.3-3
FLOWERING PERIODS OF SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR

Species	Flowering Period
Salt spring checkerbloom *Sidalcea neomexicana*	March to June
Small-flowered morning-glory *Convolvulus simulans*	March to July
South Coast branching phacelia *Phacelia ramosissima* var. *austrolitoralis*	March to August
South coast saltscale *Atriplex pacifica*	March to October
Southern tarplant *Centromadia parryi* ssp. *australis*	May to November
Southwestern spiny rush *Juncus acutus* ssp. *leopoldii*	May to June
Ventura Marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	June to October
Vernal barley *Hordeum intercedens*	March to June
Woolly seablite *Suaeda taxifolia*	Year-round

California Box-thorn (Lycium californicum)

California box-thorn is a perennial shrub designated as a CRPR 1B.1 that is known from Los Angeles, Orange and San Diego counties, as well as Santa Catalina Island. California box-thorn occur in coastal sage scrub. The flowering period occurs from May to August. This species was detected in the South Area in 2011 and individuals were planted within the Isthmus Area. Focused surveys targeting the species were limited to the North and Central Areas where it was not detected. Suitable habitat for the species also occurs within the Central and North Areas; however, none were observed in 2018.

Coulter's Goldfields (Lasthenia glabrata ssp. coulteri)

Coulter's goldfields are an annual herb designated as a CRPR 1B.1 that is known from Kern, Santa Barbara, Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Coulter's goldfields occur in coastal salt marshes and freshwater marshes, playas and vernal pools. The flowering period occurs from February to June. This species was detected in the South Area in 2011 although none were observed in 2018. Focused surveys targeting the species were conducted in all four areas. Suitable habitat for the species also occurs within the Isthmus, Central and North Areas.

*Estuary Seablite (*Suaeda esteroa*)*

Estuary seablite is a perennial shrub designated as a CRPR 1B.2 that is known from Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties as well as from Baja California. Estuary seablite occurs in mid- to upper zones of coastal salt marshes. The flowering period

occurs from May to October. This species was detected on the North Area (Synergy Oil Field site), where it occurs primarily within Steamshovel Slough and is most common in the mid- to upper-marsh areas growing on berms and slopes. It also occurs in the tidal areas immediately south of the berm that separates the Steamshovel Slough from the areas to the south and within the Isthmus Area (Zedler Marsh). Approximately 650 individuals were detected. Suitable habitat for the species also occurs within the Isthmus, Central, and North Areas. Focused surveys targeting the species were limited to the North and Central Areas.

*Lewis' Evening Primrose (*Camissoniopsis lewisii*)*

Lewis' evening primrose is an annual herb designated as a CRPR 3 that is known from Los Angeles, Orange and San Diego counties. Lewis' evening primrose occurs in coastal sage scrub, foothill woodland and valley grassland. The flowering period occurs from May to June. This species was detected in the South Area in 2018 in all three of the previous locations where it was mapped in 2011. Each of these areas was supporting several hundred individual plants, distributed widely and somewhat sparsely. Suitable habitat for the species is limited to the South Area where it has been observed. Focused surveys targeting the species were conducted in all four areas.

*Southern Tarplant (*Centromadia parryi *ssp.* australis*)*

Southern tarplant is an annual herb designated as a CRPR 1B.1 that is known from Los Angeles, Orange, Santa Barbara, San Diego, and Ventura counties, as well as Santa Catalina Island and Baja California. Southern tarplant occurs at the margins of marshes and swamps, valley and foothill grasslands, and disturbed areas. The flowering period occurs from May to November. This species was previously detected in the North Area and was detected in 2018 on the South, Isthmus and Central Areas. Focused surveys targeting the species were conducted in all four areas.

On the North Area, southern tarplant was most common in disturbed areas, including road edges, existing and former oil well pads, and other disturbed ground. The population in the North Area was estimated to range between 5,500 and 8,000 individuals in 2016. The South and Central Areas supported many hundreds of plants each, generally along the edges or roads and paths. The Isthmus supported several thousand plants that presumably sprouted due to irrigation.

*Southwestern Spiny Rush (*Juncus acutus *ssp.* leopoldii*)*

Southwestern spiny rush is a perennial grass-like herb (rhizomatous) designated as a CRPR 4.2 that is known from Imperial, Los Angeles, Marin, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo and Solano counties. Southwestern spiny rush occur in Mesic coastal dunes, alkaline meadows and seeps, coastal salt marshes and swamps. The flowering period occurs from May to June. Suitable habitat for the species occurs within the South, Isthmus, Central and North Areas. The species has been documented in the Isthmus Area. Focused surveys targeting the species were limited to the North and Central Areas.

*Woolly Seablite (*Suaeda taxifolia*)*

Woolly seablite is a perennial shrub designated as a CRPR 4.2 that is known from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties as well as from Baja California, the Channel Islands, and the Central Valley. Woolly seablite occurs in upper

zones of coastal salt marshes as well as on coastal bluffs, coastal sage scrub, and at the edge of alkali marshes. The flowering period occurs year-round. This species was detected on the North Area, where it occurs in upper marsh areas or on berms associated with Steamshovel Slough and in the Isthmus Area within the Zedler Marsh. Approximately 10 individuals were detected in 2016. Suitable habitat for the species also occurs within the South, Isthmus and Central Areas. Focused surveys targeting the species were limited to the North and Central Areas.

Special-Status Plants with Potential to Occur

The following special-status plants have been documented as having potential to occur within at least one of the four areas.

*Aphanisma (*Aphanisma blitoides*)*

Aphanisma is an annual herb designated as a CRPR 1B.2 that is known from Los Angeles, Orange, Santa Barbara, San Diego and Ventura counties. *Aphanisma* occur in coastal bluff scrub, coastal dunes, and coastal scrub. The flowering period occurs from March to June. Suitable habitat for the species occurs within the South, Isthmus and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Brand's Star Phacelia (*Phacelia stellaris*)*

Brand's star *Phacelia* is an annual herb designated as a CRPR 1B.1 that is known from Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Brand's star *Phacelia* occur in coastal bluff scrub, coastal dunes, and coastal scrub. The flowering period occurs from March to June. Suitable habitat for the species occurs within the South, Isthmus and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Catalina Mariposa-Lily (*Calochortus catalinae*)*

Catalina mariposa-lily is a perennial herb designated as a CRPR 4.2 that is known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura counties. Catalina mariposa-lily occur in valley and foothill grassland, chaparral, coastal scrub, and cismontane woodland. The flowering period occurs from March to June. Suitable habitat for the species occurs within the South, Isthmus and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Chaparral Sand Verbena (*Abronia villosa *var.* aurita*)*

Chaparral sand verbena is an annual herb designated as a CRPR 1B.1 that is known from Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Chaparral sand verbena occur in chaparral and coastal sage scrub. The flowering period occurs from January to September. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Coast Woolly-Heads (*Nemacaulis denudata *var.* denudata*)*

Coast woolly-heads is an annual herb designated as a CRPR 1B.2 that is known from Los Angeles, Marin, Orange, Riverside, San Diego, and San Luis Obispo counties. Coast woolly-heads occur in coastal dunes. The flowering period occurs from April to September. Suitable habitat for the species occurs within the South Area. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Coulter's Saltbush (*Atriplex coulteri*)*

Coulter's saltbush is a perennial herb designated as a CRPR 1B.1 that is known from Alameda, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo and Ventura counties. Coulter's saltbush occurs in coastal strand, valley grassland and coastal sage scrub. The flowering period occurs from May to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Davidson's Saltscale (*Atriplex serenana *var.* davidsonii*)*

Davidson's saltscale is an annual herb designated as a CRPR 1B.2 that is known from Los Angeles, Orange, Riverside, Santa Barbara and Ventura counties. Davidson's saltscale occur in coastal Sage Scrub and wetland-riparian. The flowering period occurs from May to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Decumbent Goldenbush (*Isocoma menziesii *var.* decumbens*)*

Decumbent goldenbush is a shrub designated as a CRPR 1B.2 that is known from Los Angeles, Orange and San Diego counties. Decumbent goldenbush occur in chaparral and coastal sage scrub. The flowering period occurs from April to November. Suitable habitat for the species occurs within the South, Isthmus, Central and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Intermediate Mariposa-Lily (*Calochortus weedii *var.* intermedius*)*

Intermediate mariposa-lily is a perennial herb designated as a CRPR 1B.2 that is known from Los Angeles, Orange, and San Diego counties. Intermediate mariposa-lily occur in coastal scrub, chaparral, valley and foothill grassland. The flowering period occurs from May to July. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Los Angeles Sunflower (*Helianthus nuttallii *ssp.* parishii*)*

Los Angeles sunflower is a perennial herb designated as a CRPR 1A that is known from Los Angeles, Orange, and San Bernardino counties. Los Angeles sunflower occur in salt and

freshwater marshes. The flowering period occurs from August to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species limited to the North and Central Areas.

*Lyon's Pentachaeta (*Pentachaeta lyonii*)*

Lyon's *Pentachaeta* is an annual herb designated as a CRPR 1B.1 that is known from Los Angeles and Ventura counties. Lyon's *Pentachaeta* occur in chaparral, coastal sage scrub, and valley and foothill grassland. The flowering period occurs from March to August. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Many-Stemmed Dudleya (*Dudleya multicaulis*)*

Many-stemmed *Dudleya* is a perennial herb designated as a CRPR 1B.2 that is known from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Many-stemmed dudleya occur in chaparral, coastal sage scrub, and valley and foothill grassland. The flowering period occurs from April to July. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Mud Nama (*Nama stenocarpum*)*

Mud Nama is an annual herb designated as a CRPR 2B.2 that is known from Imperial, Kings, Los Angeles, Merced, Orange, Riverside, and San Diego counties. Mud *Nama* occur in vernal pools and freshwater seasonal ponds. The flowering period occurs from March to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Plummer's Mariposa-Lily (*Calochortus plummerae*)*

Plummer's mariposa-lily is a perennial herb designated as a CRPR 4.2 that is known from Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Plummer's mariposa-lily occur in coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, and lower montane coniferous forest. The flowering period occurs from May to July. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Prostrate Navarretia (*Navarretia prostrata*)*

Prostrate *Navarretia* is an annual herb designated as a CRPR 1B.1 that is known from Alameda, Amador, Butte, Fresno, Los Angeles, Merced, Monterey, Placer, Riverside, San Bernardino, San Benito, Santa Clara, San Diego, and San Luis Obispo counties. Prostrate *Navarretia* occur in coastal sage scrub, valley and foothill grassland (alkaline), and vernal pools. The flowering period

occurs from April to June. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Red Sand-Verbena (*Abronia maritima*)*

Red sand-verbena is a perennial herb designated as a CRPR 4.2 that is known from Los Angeles, Monterey, Orange, Santa Barbara, San Bernardino, Santa Cruz, Sand Diego, San Luis Obispo, Sonoma, and Ventura counties. Red sand-verbena occur in marshes, swamps, and coastal dunes. The flowering period occurs from February to December. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Salt Marsh Bird's-Beak (*Chloropyron maritimum *ssp.* maritimum*)*

Salt marsh bird's-beak is an annual herb designated as a CRPR 1B.2 that is known from Humboldt, Los Angeles, Marin, Orange, Riverside, Santa Barbara, San Bernardino, Santa Clara, San Diego, San Luis Obispo, and Ventura counties. Salt marsh bird's-beak occur in coastal dunes, salt marshes, and swamp. The flowering period occurs from May to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Salt Spring Checkerbloom (*Sidalcea neomexicana*)*

Salt spring checkerbloom is a perennial herb designated as a CRPR 2B.2 that is known from Alameda, Los Angeles, Monterey, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Salt spring checkerbloom occur in alkali sinks and coastal sage scrub. The flowering period occurs from March to June. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*Small-Flowered Morning-Glory (*Convolvulus simulans*)*

Small-flowered morning-glory is an annual herb designated as a CRPR 4.2 that is known from Contra Costa, Fresno, Kings, Kern, Los Angeles, Merced, Monterey, Orange, Riverside, Santa Barbara, San Bernardino, San Benito, San Diego, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, and Ventura counties. Small-flowered morning-glory occur in chaparral, coastal scrub, and valley and foothill grassland. The flowering period occurs from March to July. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*South Coast Branching Phacelia (*Phacelia ramosissima *var.* austrolitoralis*)*

South Coast branching *Phacelia* is a perennial herb designated as a CRPR 3.2 that is known from Los Angeles, Monterey, Orange, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Tulare, and Ventura counties. South Coast branching phacelia occur in chaparral, coastal scrub, coastal dunes and coastal salt marsh. The flowering period occurs from March to August. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

*South Coast Saltscale (*Atriplex pacifica*)*

South Coast saltscale is an annual herb designated as a CRPR 1B.2 that is known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura counties. South Coast saltscale occur in coastal bluff scrub, coastal dunes, coastal sage scrub and playas. The flowering period occurs from March to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Ventura Marsh Milk-Vetch (*Astragalus pycnostachyus *var.* lanosissimus*)*

Ventura marsh milk-vetch is a perennial herb designated as a CRPR 1B.1 that is known from Los Angeles, Marin, and Ventura counties. Ventura marsh milk-vetch occur in coastal salt marsh. The flowering period occurs from June to October. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018. Focused surveys targeting the species were limited to the North and Central Areas.

*Vernal Barley (*Hordeum intercedens*)*

Vernal barley is an annual herb designated as a CRPR 1B.2 that is known from Alameda, Fresno, Kings, Kern, Los Angeles, Merced, Mono, Nevada, Orange, Placer, Riverside, Sacramento, Santa Barbara, San Benito, San Diego, Tulare, Ventura, and Yolo counties. Vernal barley occur in valley and foothill grasslands, vernal pools, coastal dunes, and coastal scrub. The flowering period occurs from March to June. Suitable habitat for the species occurs within the South, Isthmus, Central, and North Areas. The species was not observed during biological resources surveys conducted in 2011 or 2018; however, focused surveys targeting the species were not conducted.

Table 3.3-4, *Special-Status Plants with Potential to Occur within the Program Area*, provides a summary of all special-status plant species determined to be present or to have potential to occur within each of the four program areas.

TABLE 3.3-4
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR WITHIN THE PROGRAM AREA

Species	South Area	Isthmus Area	Central Area	North Area
Aphanisma *Aphanisma blitoides*	H	H		H
Brand's star phacelia *Phacelia stellaris*	H	H		H
California box-thorn *Lycium californicum*	P	P	H	H
Catalina mariposa-lily *Calochortus catalinae*	H	H	H	H
Chaparral sand-verbena *Abronia villosa* var. *aurita*	H	H	H	H
Coast woolly-heads *Nemacaulis denudata* var. *denudata*	H			H
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	P	H	H	H
Coulter's saltbush *Atriplex coulteri*	H	H	H	H
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	H	H	H	H
Decumbent goldenbush *Isocoma menziesii* var. *decumbens*	H	H	H	H
Estuary seablite *Suaeda esteroa*	H	P	H	P
Intermediate mariposa-lily *Calochortus weedii* var. *intermedius*	H	H	H	H
Lewis' evening primrose *Camissoniopsis lewisii*	P	H	H	H
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	H	H	H	H
Lyon's pentachaeta *Pentachaeta lyonii*	H	H	H	H
Many-stemmed dudleya *Dudleya multicaulis*	H	H	H	H
Mud nama *Nama stenocarpum*	H		H	H
Plummer's mariposa-lily *Calochortus plummerae*	H	H	H	H
Prostrate navarretia *Navarretia prostrata*	H	H	H	H
Red sand-verbena *Abronia maritima*	H	H	H	H
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *maritimum*	H	H	H	H
Salt spring checkerbloom *Sidalcea neomexicana*	H	H	H	H
Small-flowered morning-glory *Convolvulus simulans*	H	H	H	H
South Coast branching phacelia *Phacelia ramosissima* var. *austrolitoralis*	H	H	H	H

TABLE 3.3-4
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR WITHIN THE PROGRAM AREA

Species	South Area	Isthmus Area	Central Area	North Area
South coast saltscale *Atriplex pacifica*	H	H	H	H
Southern tarplant *Centromadia parryi* ssp. *australis*	P	P	P	P
Southwestern spiny rush *Juncus acutus* ssp. *leopoldii*	H	P	H	H
Ventura Marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	H	H	H	H
Vernal barley *Hordeum intercedens*	H	H	H	H
Woolly seablite *Suaeda taxifolia*	H	P	H	P

H=habitat present; P=species present

3.3.2.5 Special-Status Wildlife

Special-status wildlife species are legally protected under CESA, FESA, or other regulations, or are considered sufficiently rare by the scientific community to qualify for such a listing. For purposes of this PEIR, special-status wildlife species include:

1. Officially listed by the state or the federal government as endangered, threatened, or rare;
2. A candidate for state or federal listing as endangered, threatened, or rare;
3. Taxa designated by the Legislature as Fully Protected under Fish and Game Code Sections 3511 (birds), 4700 (mammals), and 5050 (reptiles and amphibians);
4. Taxa designated by the CDFW as California Species of Special Concern;
5. Taxa that meet the criteria for listing, even if not currently included on any list, as described in *CEQA Guidelines* Section 15380; and
6. Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation (includes species with a CNDDB state rank of S1, S2, or S3).

Table 3.3-5, *Special-Status Wildlife with Potential to Occur*, provides a summary of all wildlife species determined to have potential to occur with the program area based on (1) species identified by the 2019 CNDDB as occurring (either currently or historically) in the USGS Anaheim, La Habra, Long Beach, Los Alamitos, Newport Beach, Seal Beach, South Gate and Whittier Quadrangles and (2) records of special-status species that are known to occur within the vicinity of the proposed program, or for which potentially suitable habitat occurs on site. A table providing a summary of those special-status wildlife determined to be unlikely to occur and therefore were not analyzed further is included in Appendix C3. Following the table, additional discussions are provided for any special-status animals observed on site or for which potentially suitable habitat occurs on site.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Invertebrates			
Crotch bumble bee *Bombus crotchii*	Federal: None State: None CDFW: None CNDDB: S1S2	Relatively warm and dry sites, including the inner Coast Range of California and margins of the Mojave Desert.	Unlikely. Not documented on site, no suitable habitat present.
Dorothy's El Segundo dune weevil *Trigonoscuta dorothea*	Federal: None State: None CDFW: None CNDDB: S1	Sand dunes in El Segundo, CA.	Unlikely. Not documented on site, no suitable habitat present.
Globose dune beetle *Coelus globosus*	Federal: None State: None CDFW: None CNDDB: S1	Coastal dunes. Inhabitant of coastal sand dune habitat; erratically distributed from Ten-Mile Creek in Mendocino County south to Ensenada, Mexico.	Unlikely. Not documented on site, no suitable habitat present.
Mimic tryonia (California brackishwater snail) *Tryonia imitator*	Federal: None State: None CDFW: None CNDDB: S2	Coastal areas with brackish waters.	Moderate. Suitable habitat present at all four sites; however, this species has not documented in the program area.
Monarch—California overwintering population *Danaus plexippus* pop. 1	Federal: Candidate State: None CDFW: None CNDDB: S2S3	Roosts in winter in wind-protected tree groves along the California coast from northern Mendocino to Baja California, Mexico.	Moderate. Potential to occur within extensive non-native palm tree and/or *Eucalyptus* populations in all four areas.
Mudflat tiger beetle *Cicindela trifasciata sigmoidea*	Federal: None State: None CDFW: None CNDDB: N/A	This predatory beetle inhabits salt marshes, mudflats and salt pannes where they make burrows in the intertidal zone.	Present. This species has been documented on tidal mudflats in North Area (Steamshovel Slough). Suitable habitat also occurs within South, Isthmus, and Central Areas.
Quino checkerspot butterfly *Euphydryas editha quino*	Federal: FE State: None CDFW: None CNDDB: S1S2	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside & San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta*, *P. insularis*, and *Orthocarpus purpurescens*.	Unlikely. Not documented on site, no suitable habitat present.
Riverside fairy shrimp *Streptocephalus woottoni*	Federal: FE State: None CDFW: None CNDDB: S1S2	Deep seasonal vernal pools, with warm water, and low to moderate dissolved solids, that remained filled for extended periods of time. Annual grasslands or patches.	Unlikely. Not documented on site. No suitable habitat within site due to the lack of long-lived (>2 months) vernal pools.
Salt marsh tiger beetle *Cicindela hemorrhagica*	Federal: None State: None CDFW: N/A CNDDB: N/A	Salt marshes, mudflats and salt pannes where they make burrows in the intertidal zone	Present. This species has been documented on tidal mudflats at North Area (Steamshovel Slough) and Isthmus Area (Zedler Marsh). Suitable habitat within South and Central Areas.
Salt marsh wandering skipper *Panoquina errans*	Federal: None State: None CDFW: None CNDDB: S2	Coastal salt marsh and coastal strand areas dominated by saltgrass.	Present. This species is present throughout program boundary within upper marsh and non-tidal stands of its host plant *Distichlis spicata*.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
San Diego fairy shrimp *Branchinecta sandiegonensis*	Federal: FE State: None CDFW: None CNDDB: S2	Seasonal vernal pools.	Unlikely. Not documented in program area. No suitable habitat within program area due to the lack of long-lived (>2 months) vernal pools.
Sandy beach tiger beetle *Cicindela hirticollis gravida*	Federal: None State: None CDFW: None CNDDB: S2	Forages in open unvegetated areas such as marsh pannes and levees. Larvae burrow in moist unvegetated substrates.	Moderate. This species has not been documented in program area; however, there is suitable habitat within North Area (Steamshovel Slough) and other tidal areas in the South, Isthmus and Central Areas.
Senile tiger beetle *Cicindela senilis frosti*	Federal: None State: None CDFW: None CNDDB: S1	Open, unvegetated areas in or near salt marshes.	Moderate. This species has not been documented in program area; however, there is suitable habitat within North Area (Streamshovel Slough) and other tidal areas in the South, Isthmus and Central Areas.
Western beach tiger beetle *Cicindela latesignata*	Federal: None State: None CDFW: None CNDDB: S1	Forages in open unvegetated areas such as marsh pannes and levees. Larvae burrow in moist unvegetated substrates.	Moderate. Not documented on site, potentially suitable habitat within North Area (Streamshovel Slough) and other tidal areas in the South, Isthmus and Central Areas.
Western tidal-flat tiger beetle *Cicindela gabbii*	Federal: None State: None CDFW: None CNDDB: S1	Open, unvegetated areas in or near salt marshes.	Moderate. This species has not been documented in program area; however, there is suitable habitat within North Area (Streamshovel Slough) and other tidal areas in the South, Isthmus and Central Areas.
Fish			
Steelhead – Southern California DPS *Oncorhynchus mykiss irideus* pop. 10	Federal: FE State: None CDFW: None CNDDB: S1	Aquatic, South Coast flowing waters. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County).	Moderate. This species has not been documented in program area; however, there is suitable habitat within the North Area (Los Cerritos Channel) and Central Area (San Gabriel River). Focused fish surveys have not been completed.
Tidewater goby *Eucyclobobius newberryi*	Federal: FE State: SE CDFW: CSC CNDDB: S3	Inhabits benthic zone of shallow coastal lagoons and estuaries where brackish conditions occur.	Moderate. This species has not been documented in program area; however, there is suitable habitat within the North Area (Steamshovel Slough) and South Area. Habitat is suboptimal due to a lack of true estuarine conditions, however, recent, focused fish surveys have not been completed.
Amphibians			
Western spadefoot toad *Spea hammondi*	Federal: None State: None CDFW: CSC CNDDB: S3	Coastal sage scrub, vernal pools, and grasslands; breeds in associated temporary pools and riparian areas.	Unlikely. Not documented on site. Lack of suitable freshwater seasonal ponds that pond for sufficient duration to support breeding.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Reptiles			
Coast horned lizard *Phrynosoma blainvilli*	Federal: None State: None CDFW: CSC CNDDB: S3S4	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland, and riparian woodlands. Main prey item is harvester ants.	Low. This species has not been documented in program area. There is suitable habitat within all four areas; however, food source for this species is not abundant due to the urbanization-influenced invasion of the Argentine ant.
Coastal whiptail *Aspidoscelis tigris stejnegeri*	Federal: None State: None CDFW: CSC CNDDB: S3	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	Low. This species has not been documented; however, there is suitable habitat throughout the program area.
Orange-throated whiptail *Aspidoscelis hyperythra*	Federal: None State: None CDFW: WL CNDDB: S2S3	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes & other sandy areas with patches of brush & rocks. Perennial plants necessary for its major food –termites.	Low. This species has not been documented; however, there is suitable habitat throughout the program area.
Pacific green sea turtle *Chelonia mydas*	Federal: FT State: None CDFW: None CNDDB: S1	Green turtles are generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae.	Present. This migratory reptile is a resident in the Central Area (San Gabriel River) and has also been documented throughout Alamitos Bay, in the South Area (Haynes Cooling Channel) and upstream of the North Area (Steamshovel Slough).
Red diamond rattlesnake *Crotalus ruber*	Federal: None State: None CDFW: CSC CNDDB: S3	Chaparral, woodland, grassland, & desert areas from coastal San Diego county to the eastern slopes of the mountains. Occurs in rocky areas & dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Present. Observed within the program area.
Southern California legless lizard *Anniella stebbinsi*	Federal: None State: None CDFW: CSC CNDDB: S3	Generally, south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally, in moist, loose soil. They prefer soils with a high moisture content.	Low. Not documented in the program area; however, suitable habitat occurs within all four areas.
Western pond turtle *Emys marmorata*	Federal: None State: None CDFW: CSC CNDDB: S3	Slow-moving permanent or intermittent streams, small ponds and lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and treatment lagoons. Abundant basking sites and cover necessary, including logs, rocks, submerged vegetation, and undercut banks.	Moderate. Not documented in the program area; however, freshwater marsh areas present within the South, Central and North Areas.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Birds			
American peregrine falcon *Falco peregrinus anatum*	Federal: None State: None CDFW: CFP CNDDB: S3S4	Near wetlands, lakes, rivers or other water, on cliffs, banks, dunes, mounds, also human-made structures.	Present. Observed on site. Suitable foraging habitat in North Area (Steamshovel Slough) and South, Isthmus and Central Areas. Suitable breeding sites absent in all four areas.
Bank swallow *Riparia*	Federal: None State: ST CDFW: None CNDDB: S2	Colonial nester; nests primarily in riparian and other lowland habitats west or the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Unlikely. Not documented on site, no suitable habitat present.
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	Federal: None State: SE CDFW: None CNDDB: S3	Coastal salt marshes. Nests in Salicornia sp. and about margins of tidal flats.	Present. Observed in multiple locations in all four areas. Suitable foraging and breeding habitat within North Area (Steamshovel Slough) and other areas of pickleweed habitat on the South, Isthmus and Central Areas.
Black skimmer *Rynchops niger*	Federal: None State: None CDFW: CSC CNDDB: S2	Nests on gravel bars, low islets and sandy beaches, in unvegetated sites.	Present. Observed on site. Suitable foraging habitat within the North Area (Steamshovel Slough), Central Area (San Gabriel River) and South Area (Haynes Cooling Channel) for foraging. Suitable breeding habitat absent in all four areas.
Burrowing owl *Athene cunicularia*	Federal: None State: None CDFW: CSC CNDDB: S3	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Present. Individuals were observed in Isthmus Area. All four areas exhibit wintering habitat. Occurs as a migratory winter visitor but is not expected as a breeding species.
California black rail *Laterallus jamaicensis coturniculus*	Federal: None State: ST CDFW: CFP CNDDB: S1	Salt marshes bordering larger bays, coastal spartina marshes, inland in dense, shortgrass, shallow marshes.	Low. Not documented on site; however, suitable foraging and breeding habitat present in marsh areas of North Area (Steamshovel Slough) and tidal areas within the South, Isthmus and Central Areas.
California brown pelican *Pelecanus occidentalis californicus*	Federal: None State: None CDFW: CFP CNDDB: S3	Coastal, salt bays, ocean, beaches. Nests on coastal islands of small to moderate size that afford immunity from attack by ground-dwelling predators.	Present. Observed on site. Suitable foraging habitat present in marsh areas of North Area (Steamshovel Slough) and tidal areas within the South, Isthmus and Central Areas. Suitable breeding habitat absent in all four areas.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
California least tern *Sternula antillarum browni*	Federal: FE State: SE CDFW: CFP CNDDB: S2	Flat, vegetated substrates near the coast. Occurs near estuaries, bays, or harbors where fish is abundant.	Present. Has been observed foraging in North Area (Steamshovel Slough), Central Area (San Gabriel River) and South Area (Haynes Cooling Channel) where suitable foraging habitat occurs. Salt flats within the Central Area provides potential nesting habitat.
Coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	Federal: None State: None CDFW: SSC CNDDB: S3	Southern California coastal sage scrub. Wrens require tall opuntia cactus for nesting and roosting.	Unlikely. Not documented on site, no suitable habitat present.
Coastal California gnatcatcher *Polioptila californica*	Federal: FT State: None CDFW: CSC CNDDB: S2	Low elevation coastal sage scrub and coastal bluff scrub.	Low. Not documented on site; however, suitable foraging habitat present in all four areas. Suitable breeding habitat absent in all four areas.
Ferruginous hawk *Buteo regalis*	Federal: None State: None CDFW: WL CNDDB: S3S4	Only present as wintering individuals. Prefers open grasslands and agricultural areas.	Unlikely. Not documented on site, no suitable habitat present.
Grasshopper sparrow *Ammodramus savannarum*	Federal: None State: None CDFW: SSC CNDDB: S3	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Unlikely. Not documented on site, no suitable habitat present.
Least Bell's vireo *Vireo bellii pusilus*	Federal: FE State: SE CDFW: None CNDDB: S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Present. Observed within the Isthmus Area. Suitable foraging habitat limited to the active habitat mitigation/restoration site. Suitable breeding habitat absent in all four areas.
Merlin *Falco columbarius*	Federal: None State: None CDFW: WL CNDDB: S3S4	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Present. Documented on site but specific locations were not given.; Suitable foraging habitat present in all four areas. Suitable breeding habitat absent in all four areas.
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: None CDFW: CSC CNDDB: S4	Broken woodlands, savannah, pinyon-juniper, Joshua tree & riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting.	Present. Observed throughout the program boundary. Suitable foraging and breeding habitat present in all four areas.
Northern harrier (nesting) *Circus cyaneus*	Federal: None State: None CDFW: CSC CNDDB: S3	A variety of habitats, including open wetlands, grasslands, wet pasture, old fields, dry uplands, and croplands.	Present. Observed within the program boundary. Suitable foraging habitat present throughout the program boundary. Limited potential for breeding in all four areas.
Osprey *Pandion haliaetus*	Federal: None State: None CDFW: WL CNDDB: S4	Riparian forest, ocean shore, bays, freshwater lakes, and larger streams.	Present. Observed within the program boundary. Suitable foraging habitat present with all four areas. Limited potential for breeding in all for areas.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Ridgway's rail *Rallus obsoletus*	Federal: FE State: SE CDFW: CFP CNDDB: S1	Found in salt marshes where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover, feeds on mollusks and crustaceans.	Present. Observed on site. Suitable foraging and breeding habitat present within North Area (Steamshovel Slough) and tidal marsh areas in the South and Isthmus Areas and non-tidal marsh in the Central Area.
Short-eared owl *Asio flammeus*	Federal: None State: None CDFW: CSC CNDDB: S3	Found in swamplands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Present. Observed on site. Suitable foraging habitat occurs during winter in the North Area (Steamshovel Slough) and tidal marsh areas in the South, Isthmus and Central Areas. Suitable breeding habitat absent in all four areas.
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	Federal: None State: None CDFW: WL CNDDB: S3	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Low. Not documented on site; however, suitable foraging habitat present in all four areas. Suitable breeding habitat absent in all four areas.
Southwestern willow flycatcher *Empidonax traillii extimus*	Federal: FE State: SE CDFW: None CNDDB: S1	Riparian woodlands in Southern California.	Low. Not documented on site; however, suitable foraging habitat present in all four areas. Suitable breeding habitat absent in all four areas.
Swainson's hawk *Buteo swainsoni*	Federal: None State: ST CDFW: None CNDDB: S3	Breeding habitat consists of grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands. Requires adjacent suitable foraging areas such as grasslands or alfalfa or grain fields that support rodent populations.	Unlikely. Not documented on site, no suitable habitat present.
Tri-colored blackbird *Agelaius tricolor*	Federal: None State: ST CDFW: CSC CNDDB: S1S2	Requires open water, protected nesting and foraging area with insect prey within a few km of the colony.	Moderate. Not documented on site; however, suitable foraging habitat present within freshwater or brackish wetlands found in all four areas. Suitable breeding habitat absent in all four areas.
Western snowy plover *Charadrius alexandrinus nivosus*	Federal: FT State: None CDFW: CSC CNDDB: S2S3	Sandy or gravelly beaches along the coast, estuarine salt ponds, alkali lakes, and at the Salton Sea.	Moderate. Not documented on site; however, suitable foraging habitat present within the North Area (Steamshovel Slough) and tidal marsh areas in the South, Isthmus and Central Areas. Salt flats within the Central Area provides potential nesting habitat.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Federal: FT State: SE CDFW: None CNDDB: S1	Dense, wide riparian woodlands with well-developed understories.	Unlikely. Not documented on site, no suitable habitat present.
White-tailed kite (nesting) *Elanus leucurus*	Federal: None State: None CDFW: CFP CNDDB: S3S4	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Dense canopies used for nesting and cover.	Low (nesting). No nests have been documented within the program area; however, this species has been observed foraging in the program area.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Yellow rail *Coturnicops noveboracensis*	Federal: None State: None CDFW: CSC CNDDB: S1S2	Freshwater marsh, meadow & seep, summer resident in eastern Sierra Nevada in Mono County.	Low. Not documented in the program area; however, suitable foraging habitat present within freshwater or brackish wetlands found in all four areas. Suitable breeding habitat absent in all four areas.
Yellow warbler *Dendroica petechia brewsteri*	Federal: None State: None CDFW: CSC CNDDB: S3S4	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores & alders for nesting & foraging. Also nests in montane shrubbery in open conifer forests.	Low. Not documented in the program area; however, suitable foraging habitat present within the Isthmus Area (active habitat mitigation/restoration site) where least Bell's vireo was observed in 2018. Suitable breeding habitat absent in all four areas.
Yellow-breasted chat *Icteria virens*	Federal: None State: None CDFW: CSC CNDDB: S3	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Present. Observed foraging throughout the program area. Suitable foraging habitat present in all four areas. Suitable breeding habitat absent in all four areas.
Mammals			
American badger *Taxidea taxus*	Federal: None State: None CDFW: CSC CNDDB: S3	Occurs in drier shrub, forest, and herbaceous habitats. Needs open, uncultivated ground and friable soils for digging burrows. Preys on burrowing rodents.	Unlikely. Not documented on site, no suitable habitat present.
Big free-tailed bat *Nyctinomops macrotis*	Federal: None State: None CDFW: CSC CNDDB: S3	Occurs in low-lying arid areas in Southern California. Roosts in high cliffs or rocky outcrops.	Unlikely. Not documented on site, no suitable habitat present.
Hoary bat *Lasiurus cinereus*	Federal: None State: None CDFW: None CNDDB: S4	Prefers open habitats or habitat mosaics, with access to trees for cover & open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Unlikely. Not documented on site, no suitable habitat present.
Pacific pocket mouse *Perognathus longimembris pacificus*	Federal: FE State: None CDFW: CSC CNDDB: S1	Seems to prefer soils of fine alluvial sands near the ocean.	Moderate. Not documented in the program area; however, suitable habitat present in North Area (Steamshovel Slough) and tidal marsh areas in the South, Isthmus and Central Areas.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	Federal: None State: None CDFW: SSC CNDDB: S3	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Unlikely. Not documented on site, no suitable habitat present.
Silver-haired bat *Lasionycteris noctivagans*	Federal: None State: None CDFW: None CNDDB: S3S4	Temperate, northern hardwoods with ponds or streams nearby. Roost in hollow snags and bird nests.	Unlikely. Not documented on site, no suitable habitat present.
South coast marsh vole *Microtus californicus stephensi*	Federal: None State: None CDFW: CSC CNDDB: S1S2	Tidal marshes in Los Angeles, Orange and southern Ventura Counties.	Moderate. Not documented in the program area; however, suitable habitat present in North Area (Steamshovel Slough) and tidal marsh areas in the South, Isthmus and Central Areas.

TABLE 3.3-5
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR

Species	Status	Habitat	Potential for Occurrence
Southern California salt marsh shrew *Sorex ornatus salicornicus*	Federal: None State: None CDFW: CSC CNDDB: S1	Coastal marshes in Los Angeles, Orange and southern Ventura Counties. Requires dense vegetation and woody debris for cover.	Moderate. Not documented in the program area; however, suitable habitat present in North Area (Steamshovel Slough) and tidal marsh areas in the South, Isthmus and Central Areas.
Western mastiff bat *Eumops perotis californicus*	Federal: None State: None CDFW: CSC CNDDB: S3S4	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, & tunnels.	Low. Not documented in the program area; however, suitable foraging habitat present in all four areas and suitable roosting habitat present within non-native palm tree in all four areas.
Western yellow bat *Lasiurus xanthinus*	Federal: None State: None CDFW: CSC CNDDB: S3	Primarily roost in trees hanging from the underside of leaves. Commonly found in dead fronds of non-native palms	Low. Not documented in the program area; however, suitable foraging habitat present in all four areas. Suitable roosting habitat present within extensive non-native palm tree populations in all four areas.

SOURCE: Glenn Lukos Associates Inc. 2017a; Coastal Restoration Consultants 2019; CNDDB, 2019, Tidal Influence 2012.

STATUS CODES:

Federal	State	CDFW
FE = Federally Endangered	SE = State Endangered	CSC = California Species of Special Concern
FT = Federally Threatened	ST = State Threatened	CFP = California Fully Protected Species
FSC = Federal Species of Special Concern		WL = Watch List

CNDDB Element Ranking

S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or few populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer).

S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.

? = A question mark denotes an inexact numeric rank due to insufficient samples over the full expected range of the type, but existing information points to this rank.

Special-Status Wildlife Documented

The following special-status wildlife species have been documented as occurring within at least one of the four areas.

Invertebrates

Mudflat Tiger Beetle (*Cicindela trifasciata sigmoidea*)

The mudflat tiger beetle is considered locally rare, though it is not a state- or federally-listed species or a California Species of Special Concern. This predatory beetle inhabits salt marshes, mudflats and salt pannes where they make burrows in the intertidal zone. It has been documented as occurring on mudflats in the North Area (Steamshovel Slough) (Tidal Influence 2012). Suitable habitat also occurs within the mudflats in the South, Isthmus and Central Areas.

Salt Marsh Tiger Beetle (*Cicindela hemorrhagica hemorrhagica*)

The salt marsh tiger beetle is considered locally rare, though it is not a state- or federally-listed species or a California Species of Special Concern. This predatory beetle inhabits salt marshes,

mudflats and salt pannes where they make burrows in the intertidal zone. It has been documented as occurring on mudflats in the North Area (Steamshovel Slough) and Isthmus Area (Zedler Marsh) (Tidal Influence 2012). It also has potential to occur on mudflats within the South and Central Areas.

Salt Marsh Wandering Skipper (*Panoquina errans*)

The wandering skipper is a small light brown butterfly that is listed on the IUCN Red List as 2.3, which means "near threatened." The flight season extends from March to November and peaks during the summer. The wandering skipper's known range extends along the California coast from the cape region of Baja California to Santa Barbara County, but only in suitable localities within this range that include areas with saltgrass, which is the most common larval host plant in areas with tidal influence. Suitable habitat for this species occurs within the North Area (Steamshovel Slough) as well as areas that exhibit tidal influence and support patches of saltgrass in the South, Isthmus and Central Areas. Focused surveys were not performed for this species; however, it is expected to occur throughout the proposed program area where suitable habitat is present.

Reptiles

Pacific Green Sea Turtle (*Chelonia mydas*)

The Pacific green sea turtle is a federal endangered species and listed on the IUCN Red List as 4, which means "endangered." This species is generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae. They have been documented immediately upstream of the North Area in Steamshovel Slough, and have the potential to occur at the mouth of the slough. They also occur within the Central Area (San Gabriel River) and South Area (Haynes Cooling Channel) as well as within the Los Cerritos Channel (Tidal Influence 2012). Ongoing monitoring of the species is currently taking place within the program area and data has been collected from 2013 to present.

Red Diamond Rattlesnake (*Crotalus ruber ruber*)

The red diamond rattlesnake is a California Species of Special Concern. The red diamond rattlesnake occurs throughout much of San Diego and Orange Counties as well as in western Riverside County and southwestern San Bernardino County in chaparral, woodland, grassland, and desert habitats. Red diamond rattlesnakes forage primarily on small mammals but will consume lizards, birds, and other snakes. Red diamond rattlesnake has been documented on site (Tidal Influence 2012), but only one individual was observed and may have been an unauthorized release.

Birds

Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*)

The Belding's savannah sparrow is a state endangered bird, and a candidate species for federal protection. This species is a non-migratory subspecies that occurs in coastal salt marshes between Goleta Slough, Santa Barbara County, and Bahia de San Quentin in Mexico. The Belding's savannah sparrow is entirely dependent on salt marshes for nesting and foraging. As such, the Belding's savannah sparrow thus resides year-round in this habitat and is resident and common on the site. The highest concentrations of the Belding's savannah sparrow are within and in

proximity to Steamshovel Slough in the North Area and in the South Area. Based on focused breeding season surveys conducted in 2017, the current capacity of the Steamshovel Slough area is estimated to be between 30 to 42 territories, and two territories south of the slough (GLA 2017e). This species nests preferentially in common pickleweed and/or Parish's glasswort. In addition, this species was also observed foraging within areas of pickleweed and Parish's glasswort south of Steamshovel Slough.

Black Skimmer (*Rynchops niger*)

The black skimmer is a California Species of Special Concern. The black skimmer breeds on gravel bars, low islets and sandy beaches on the coast from San Francisco Bay south to San Diego Bay and in the interior at the Salton Sea. Black skimmers forage along calm, shallow water. Habitat for prey occurs over the aquatic environments located in the South Area, Central Area, and North Area. The black skimmer was observed on site during surveys and are likely to forage within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel).

Burrowing Owl (*Athene cunicularia*)

The burrowing owl is a California Species of Special Concern. Habitat for the burrowing owl is varied, including short-grass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), prairies, coastal dunes, desert floors, and some artificial, open areas as a year-long resident. Burrowing owls require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows that are approximately 4-8-inches in diameter, such as from ground squirrels. As a primary habitat need, they require the use of these rodent burrows, and can also occupy man-made structures such as irrigation pipes, for roosting and nesting cover. Burrowing owls have been observed within the Isthmus Area and suitable habitat occurs in all four areas of the proposed program; however, this species was not detected during focused surveys in 2015, 2016, or 2017 in the North and Central Areas.

California Brown Pelican (*Pelecanus occidentalis californicus*)

The California brown pelican is a California Fully Protected species. The California brown pelican breeds on the Channel Islands and occurs in estuarine, marine subtidal, and marine pelagic waters along California coast. It is rare to uncommon on the Salton Sea. California brown pelicans forage almost entirely on fish. Foraging habitat occurs in the South Area, Central Area and North Area. California brown pelican has been observed on site during surveys and are likely to forage within the North Area (Steamshovel Slough), Central Area (San Gabriel River) and South Area (Haynes Cooling Channel); however, there are no potential breeding areas within the proposed program area.

California Least Tern (*Sterna antillarum browni*)

The California least tern is listed under CESA and FESA as endangered and is also a California Fully Protected species. In Southern California, it breeds along the coast from San Diego County to San Luis Obispo County. This species has been observed foraging within the North Area (Steamshovel Slough). Potential foraging habitat is also present in the Central Area (San Gabriel River), Isthmus Area and South Area (Haynes Cooling Channel); however, there are no potential breeding areas within the proposed program area.

Least Bell's Vireo (*Vireo bellii pusilus*)

The least Bell's vireo is listed as endangered in accordance with CESA and FESA. The least Bell's vireo is a rare, local summer resident in San Benito and Monterey Counties, Southern California from Santa Barbara County south to San Diego County and along the western edge of the deserts. Least Bell's vireo nests and forages in willows and other low, dense riparian habitat feeding on insects. Foraging habitat occurs in the Central, Isthmus and North Areas and least Bell's vireo was observed in the Isthmus Area within the active habitat mitigation/restoration site during focused surveys and may forage within freshwater riparian habitats. Suitable breeding habitat is limited due to the relatively small amount and composition of tree/scrub riparian habitat that is present.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a California Species of Special Concern. Loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered perches and as shrubs, trees, posts, fences and utility lines where it forages mostly large insects. Loggerhead shrike builds nests in shrubs or trees with dense foliage. Foraging habitat occurs in the South Area, Isthmus Area, Central Area, and North Area. Breeding habitat is limited in these areas due to the low numbers of suitable nest shrubs and trees. Nonetheless, foraging habitat is present and loggerhead shrike was observed within the proposed program area during biological resources surveys conducted in 2012 (Tidal Influence 2012).

Merlin (*Falco columbarius*)

The merlin is a California Watch List species. Merlin is an uncommon winter migrant and occurs in most of the western half of the state along coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. Merlin primarily feed on small birds but also small mammals and insects. Merlin breed in Canada and Alaska and are not known to breed in California. Foraging habitat occurs in the South Area, Isthmus Area, Central Area, and North Area. Breeding habitat is absent. Merlin was observed within the proposed program area during surveys conducted in 2012 (Tidal Influence 2012).

Northern Harrier (Nesting) (*Circus cyaneus*)

The northern harrier is a California Species of Special Concern. This species range is across all of North America, wintering across most of the southern United States and into Mexico. It has been documented that the northern harrier is now one of the rarest nesting raptors in southwestern California. Characteristically, this raptor inhabits marshlands, both coastal salt and freshwater, but often forages over grasslands and fields, requiring open habitats for foraging. Northern harrier have occasionally been observed foraging within the proposed program area and suitable foraging habitat occurs within the South, Isthmus, Central and North Areas. Although there are no records of nesting in the vicinity, there are potentially suitable areas for nesting in some of the higher areas of the North (Steamshovel Slough), South, Isthmus and Central Areas.

Osprey

The osprey is a California watch list species. This species inhabits riparian forest, ocean shore, bays, freshwater lakes, and larger streams. The osprey primarily forages in open, clear water and nests in large snags, dead-topped trees, on cliffs, or on human made structures. Suitable foraging

occurs in open water in the North, South, Isthmus and Central Areas. There are limited potentially suitable areas for nesting in the mature trees and human made structures within the North, South, Isthmus and Central Areas. Osprey has been observed within the program boundary.

Ridgway's Rail (*Rallus obsoletus*)

The Ridgway's rail (formerly designated as the light-footed clapper rail) is a federal endangered, state endangered, and California fully protected species. In Southern California, the Ridgway's rail is a year-round resident that prefers coastal salt marshes, but also inhabits freshwater marshes. Cordgrass (*Spartina* spp.) and bulrush (*Bolboshchoenus* spp. and *Schoenoplectus* spp.) are among the preferred species for nesting. The North Area (Steamshovel Slough) and tidal marsh within the South, Isthmus and Central Areas exhibit the highest potential for supporting this species; this species has been documented within the proposed program area during the various surveys and habitat assessments that have been conducted.

Short-Eared Owl (*Asio flammeus*)

The short-eared owl is a California Species of Special Concern. It prefers open habitats such as grasslands, prairie, agricultural fields, salt marshes, estuaries, and mountain meadows. Breeding habitat must have sufficient ground cover to conceal nests and nearby sources of small mammals for food. This species roosts in disturbed areas such as thick hedgerows, overgrown rubble and abandoned fields. The North Area (Steamshovel Slough) and tidal marshes in the South, Isthmus and Central Areas may provide potentially suitable wintering habitat. This species has been documented within the proposed program area during the various surveys and habitat assessments that have been conducted.

White-Tailed Kite (*Elanus leucurus*)

The white-tailed kite is a state fully-protected species that occurs through much of California. In California, the white-tailed kite is a year-round resident in coastal and valley lowlands. It prefers open habitats including grasslands, open shrub, agricultural areas, wetlands dominated by grasses, fence rows and irrigation ditches adjacent to grazed lands, riparian, oak woodlands, coastal sage scrub, and salt marsh. White-tailed kites were observed foraging in the program area and there is suitable foraging habitat throughout the South, Isthmus, Central and North Areas. There is little suitable habitat for nesting (i.e., dense tree/chaparral canopy) within the proposed program area.

Yellow-Breasted Chat (*Icteria virens*)

The yellow-breasted chat is a California Species of Special Concern. The yellow-breasted chat is an uncommon summer resident and migrant in coastal California and in foothills of the Sierra Nevada. Yellow-breasted chat nests and forages in willows and other low, dense riparian habitat feeding on insects. Foraging habitat occurs in the Isthmus Area. Breeding habitat is absent due to the small size and composition of the riparian habitat. Yellow-breasted chat has been observed throughout the site during surveys and may forage within freshwater riparian habitats within the South, Isthmus, Central and North Areas.

Special-Status Wildlife with Potential to Occur

The following special-status wildlife species have been noted as having potential to occur within at least one of the four areas.

Invertebrates

Mimic Tryonia (*Tryonia imitator*)

The mimic tryonia is a small brackish water snail that is listed on the International Union for the Conservation of Nature (IUCN) Red List as DD (data deficient), which means there is inadequate data to make a direct or indirect assessment. The mimic tryonia's known range is not well documented. However, it likely extends along the entirety of the California coast, but only in suitable localities within this range that include areas with brackish waters. Suitable habitat for this species occurs within brackish areas within the South, Isthmus, Central, and North Areas. Focused surveys were not performed for this species; however, it is expected to occur throughout the proposed program area where suitable habitat is present.

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly is a candidate for listing under FESA. It is a large orange and black butterfly; whose flight season extends from late February to mid-September. The monarch butterfly's known range extends along the California coast from the cape region of Baja California to Mendocino County. In the spring, they move inland in search of areas containing their primary host plant, milkweed. The species roosts in tree groves along the coast of California during the winter. Suitable overwintering habitat for this species occurs within the South, Isthmus, Central and North Areas within tree groves. Focused surveys were not performed for this species; however, it may occur throughout the proposed program area where suitable roosting habitat is present.

Sandy Beach Tiger Beetle (*Cicindela hirticollis gravida*), Senile Tiger Beetle (*Cicindela senilis frosti*), Western Beach Tiger Beetle (*Cicindela latesignata latesignata*), and Wester Tidal-Flat Tiger Beetle (*Cicindela gabbii*)

The sandy beach tiger beetle, senile tiger beetle, western beach tiger beetle and western tidal-flat tiger beetle are closely related insects that have similar habitat preferences and are therefore discussed simultaneously. All four species of tiger beetle are considered locally rare, though they are not a state- or federally-listed species or a California Species of Special Concern. These predatory beetles inhabit mudflats and salt pannes where they make burrows in the intertidal zone. Suitable habitat for these species occur within the North Area (Steamshovel Slough), as well as, tidal marsh areas in the South Area, Isthmus Area, and Central Area. These species have not been documented within the proposed program area during the various surveys and habitat assessments that have been conducted.

Fish

Steelhead – Southern California DPS (*Oncorhynchus mykiss irideus* pop. 10)

The Southern California steelhead is listed under FESA as endangered. This species is generally found in south coast flowing waters. Known occurrences for the species are very limited within the region. The nearest known records for the species occur in 2013 in the Santa Ana River (Orange County) and 1972 in Aliso Creek (Orange County) respectively (CDFW 2019). This species has a low to moderate potential to occur within the North Area (Steamshovel Slough) and Central Area (San Gabriel River) although focused fish surveys have not been completed in program area.

Tidewater Goby (*Eucyclobobius newberryi*)

The tidewater goby is listed under CESA and FESA as endangered. This species is generally found in fairly shallow waters (except when migrating) in coastal lagoons and estuaries where brackish conditions occur. Known occurrences for the species are very limited within the region and tend to consist of old records. The nearest known records for the species occur in 1996 in Aliso Creek (Orange County) and 1995 in Malibu Creek (Los Angeles County) respectively (CDFW 2019). This species has a moderate potential to occur within the North Area (Steamshovel Slough), Central Area (San Gabriel River), Isthmus Area (Zedler Marsh) and South Area although focused fish surveys have not been completed in program area.

Amphibians

Special-status amphibian species were not determined to have potential to occur within the program boundary.

Reptiles

The following special-status wildlife species (reptiles) have been noted as having potential to occur within at least one of the four areas.

Coast Horned Lizard (*Phrynosoma blainvilli*)

The coast horned lizard is a California Species of Special Concern. The coast horned lizard occurs throughout much of the state in valley-foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats. Coast horned lizard forage primarily on ants but will consume other small insects. Foraging habitat occurs in the South Area, Isthmus Area, Central Area and North Area although the food source for the species is limited due to the abundance of the Argentine ant (*Linepithema humile*) which negatively affect coast horned lizard and displace favored and beneficial native ant species. Coast horned lizard has not been observed on site and may forage within upland habitats.

Coastal Whiptail (*Aspidoscelis tigris stejnegeri*)

The coastal whiptail is a California Species of Special Concern. The coastal whiptail occurs in deserts and semi-arid areas with sparse vegetation and open areas as well as in woodland and riparian habitats. Coastal whiptail forage on a number of invertebrates including grasshoppers, beetles, ants, termites and spiders. Foraging habitat occurs in the South Area, Isthmus Area, Central Area and North Area. Coastal whiptail has not been observed on site and may forage within upland habitats.

Orange-Throated Whiptail (*Aspidoscelis hyperythra*)

The orange-throated whiptail is a California Species of Special Concern. The orange-throated whiptail occurs in the coastal zone west of the crest of Peninsular Ranges from Orange and southern San Bernardino Counties to San Diego County and in northern Baja California in open areas within coastal scrub, chaparral, and valley-foothill hardwood habitats. Orange-throated whiptail forages primarily on small arthropods. Foraging habitat occurs in the South Area, Isthmus Area, Central Area and North Area. Orange-throated whiptail has not been observed on site and may forage within upland habitats.

Southern California Legless Lizard (*Anniella stebbinsi*)

The Southern California legless lizard is a California Species of Special Concern. The Southern California legless lizard occurs in the coastal zone south of the Transverse Ranges and west of the crest of Peninsular Ranges from southern Ventura and Los Angeles Counties to San Diego County and in northern Baja California. The species occurs in sandy or loose loamy soils under sparse vegetation. Southern California legless lizard forages primarily on small arthropods. Foraging habitat occurs in the South Area, Isthmus Area, Central Area and North Area. Southern California legless lizard has not been observed on site and may forage within upland habitats.

Western Pond Turtle (*Emys marmorata*)

The western pond turtle is a California Species of Special Concern. The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except along the Mojave River and its tributaries in the Mojave Desert. It can be found within riparian and freshwater marsh habitats where it consumes both plant and wildlife including pond lilies, beetles and other aquatic invertebrates. Western pond turtle has not been documented on site; however, there is a moderate potential for occurrence within the freshwater marsh at the South, Central and North Areas.

Birds

American Peregrine Falcon (*Falco peregrinus anatum*)

The American peregrine falcon is a state endangered species, and was federally delisted in 1999. Northwestern populations are year-round residents from central Mexico to Alaska. American peregrine falcons forage in a variety of habitats including grasslands, meadows, coastlines and wetlands where they hunt waterfowl and shorebirds. Organochlorine pesticides were a primary cause for decline before they were banned in the 1970s, but habitat loss due to development and human disturbance is also responsible for this raptor's decline. Habitat for prey occurs over much of the South, Isthmus, Central, and North Areas; however, the tidal salt marsh areas such as Steamshovel Slough exhibit the best foraging areas due to the highest concentrations of potential prey. No American peregrine falcons were observed on site during any surveys or site visits; however, residents in the vicinity and/or migrants are expected to forage occasionally on site.

California Black Rail (*Laterallus jamaicensis coturniculus*)

The California black rail is a state threatened species and California Fully Protected species. The California black rail is a year-long resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal Southern California at Morro Bay and a few other locations. Inland locations include the Salton Sea and lower Colorado River area. California black rail occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, California black rail is usually found in bulrushes, cattails, and saltgrass. California black rails forage on small invertebrates and seeds within wetland habitats. Breeding and foraging habitat occurs in the South Area, Isthmus Area, Central Area, and North Area. California black rail has not been observed on site during surveys; however, this species may forage within the North Area (Steamshovel Slough) and other tidal marshes within the South, Isthmus and Central Areas.

Coastal California Gnatcatcher (*Polioptila californica californica*)

The coastal California gnatcatcher is a federally listed threatened species and California Species of Special Concern. This species is a resident subspecies that occurs in arid coastal scrub below about 500 meters (1,500 feet) from eastern Ventura County to San Diego County and into Baja California, Mexico. The coastal California gnatcatcher is entirely dependent on coastal scrub habitats for nesting and foraging. Limited foraging and nesting habitat occurs in upland areas within the South Area, Isthmus Area, Central Area, and North Area. Coastal California gnatcatcher has not been observed on site.

Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*)

The Southern California rufous-crowned sparrow is a California watch list species. This species is a resident subspecies that occurs in arid coastal scrub and chaparral in Southern California. The Southern California rufous-crowned sparrow is entirely dependent on coastal scrub and chaparral habitats for nesting and foraging. Limited foraging and nesting habitat occurs in upland areas within the South, Isthmus, Central, and North Areas. Southern California rufous-crowned sparrow has not been observed on site.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is listed under CESA as threatened and under FESA as endangered. The southwestern willow flycatcher is a rare, local summer resident in Southern California. Southwestern willow flycatcher nests and forages in willows and other low, dense riparian habitat feeding on insects. Foraging habitat occurs in the Isthmus Area. Suitable breeding habitat is limited due to the relatively small amount and composition of tree riparian habitat that is present. Moreover, southwestern willow flycatcher has not been observed within the proposed program area (including the Isthmus Area), but may forage within freshwater riparian habitats in the vicinity.

Tri-Colored Blackbird (*Agelaius tricolor*)

The tri-colored blackbird is listed under CESA as threatened and is a California Species of Special Concern. The tri-colored blackbird is a permanent resident of California and ranges from the Central Valley and from Sonoma County to San Diego County along the coast. Tri-colored blackbird nests in freshwater marshes typically dominated by cattails (*Typha* ssp.) or tules (*Scirpus* spp.) and forages in freshwater marshes and surrounding upland habitats habitat feeding on insects. Foraging habitat occurs in the proposed program area; however, there is no suitable breeding habitat present. This species has not been observed within the program area during various biological surveys.

Western Snowy Plover (*Charadrius alexandrinus nivosus*)

The western snowy plover is listed as federally endangered and is a California Species of Special Concern that nests on coastal beaches from southern Washington to southern Baja California, Mexico. The breeding season extends from March through September. Nests occur in flat, open areas with sandy substrates without much vegetation. The western snowy plover forages on invertebrates along the shore and along the edges of salt marshes. Habitats used by this species include sandy coastal beaches, salt pannes, coastal dredged spoils sites, dry salt ponds, salt pond levees, gravel bars, salt marshes, and lagoons. Major threats are loss of suitable nesting habitat and, where habitat remains, disturbance from human activity near nesting sites, including general

maintenance practices necessary to maintain beaches and recreational activity. The western snowy plover has not been observed, but potential foraging occurs on the mudflats within the South, Isthmus, Central, and North Areas. Suitable breeding areas for western snowy plover occur on salt flats within the Central Area.

Yellow Rail (*Coturnicops noveboracensis*)

The yellow rail is a California Species of Special Concern. The yellow rail is a year-round resident that prefer freshwater marshes in northern and eastern California. Sedges (*Carex* spp. and *Dulichum* spp.), bulrush (*Scirpus* spp.), rush (*Juncus* spp.) and reedgrasses (*Calamagrostis* spp.) are among the preferred species for nesting. The freshwater marsh at the South, Central and North Areas exhibit the highest potential for supporting this species; this species has not been documented within the proposed program area during the various surveys and habitat assessments that have been conducted.

Yellow Warbler (*Dendroica petechia brewsteri*)

The yellow warbler is a California Species of Special Concern. The yellow warbler is an uncommon summer resident and migrant in coastal California and in foothills of the Sierra Nevada and eastern California from Lake Tahoe through Inyo County. Yellow warbler nests and forages in riparian deciduous habitats containing cottonwoods, willows, alders and other small trees and shrubs feeding on insects and spiders. Foraging habitat occurs in the Isthmus Area. Breeding habitat is absent due to the small size and composition of the riparian habitat. Yellow warbler has not been documented within the proposed program area during the various surveys and habitat assessments that have been conducted.

Mammals

Pacific Pocket Mouse (*Perognathus longimembris pacificus*)

The Pacific pocket mouse is a federal endangered species and California Species of Special Concern. Pacific pocket mouse is a rare resident and is associated with fine grain, sandy substrates in coastal strand, coastal dunes, river alluvium and coastal sage scrub habitats within approximately 2.5 miles of the ocean in Southern California. The species primarily feeds on seeds. Suitable habitat occurs in the South, Isthmus, and Central Area, as well as in the North Areas within Steamshovel Slough (and other tidal areas). Pacific pocket mouse has not been observed on site, and has a low potential to be present, since there are no records of the species in Los Angeles County since 1938 and the closest population occurs in the Dana Point headlands located approximately 30 miles to the southeast (USFWS 2010).

South Coast Marsh Vole (*Microtus californicus stephensi*)

The south coast marsh vole is a California Species of Special Concern, and ranges from southwestern Oregon through much of California. This species prefers grassy meadow habitats and feeds on grasses and other green vegetation when available; piles of cuttings are found along its runways. It breeds from September to December. In winter, it eats mostly roots and other underground parts of plants. Major threats are non-native plants that have replaced the plants it needs to survive and introduced non-native animals such as the common house mouse and other non-natives that have displaced it through competition. The salt marsh areas in the North Area (Steamshovel Slough) and South, Isthmus and Central Areas provide suitable habitat for this species.

Southern California Salt Marsh Shrew (*Sorex ornatus salicornicus*)

The Southern California salt marsh shrew is a California Species of Special Concern that is endemic to Southern California's coastal marshes from Point Mugu, Ventura County to salt marshes around Anaheim Bay and Newport Beach in Orange County. This species appears to prefer coastal marshes. Based on studies of other similar shrews, the Southern California salt marsh shrew likely requires fairly dense ground cover, nesting sites above mean high tide free from inundation, and fairly moist surroundings. Major threats are loss of habitat due to development along the coast, and lack of refuge sites above the marshes to escape from flooding during seasonal high tides and periodic storms. The salt marsh areas in the North Area (Steamshovel Slough), South, Isthmus, and Central Areas provide suitable habitat for this species.

Western Mastiff Bat (*Eumops perotis californicus*)

The western mastiff bat is a California Species of Special Concern. Western mastiff bat is an uncommon resident in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through Southern California, from the coast eastward to the Colorado Desert. Western mastiff bat occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban areas where it feeds on insects. Western mastiff bat roosts in rock crevices, trees and buildings. The South Area, Isthmus Area, Central Area, and North Area provide suitable foraging habitat. Roosting may occur in the palm trees that are located within the proposed program area.

Western Yellow Bat (*Lasiurus xanthinus*)

The western yellow bat is a California Species of Special Concern. Western yellow bat is an uncommon resident known only in Los Angeles and San Bernardino Counties south to the Mexican border. Western yellow bat occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats where it feeds on insects. Western yellow bat roosts in trees. The South, Isthmus, Central and North Areas provide suitable foraging habitat. Roosting may occur in the palm trees that are located within the proposed program area.

Table 3.3-6, *Special-Status Wildlife with Potential to Occur within the Program Area*, provides a summary of all special-status wildlife species determined to be present or to have potential to occur within each of the four program areas.

TABLE 3.3-6
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR WITHIN THE PROGRAM AREA

Species	South Area	Isthmus Area	Central Area	North Area
Invertebrates				
Mimic tryonia (California brackish water snail)	H	H	H	H
Monarch—California overwintering population	H	H	H	H
Mudflat tiger beetle	H	H	H	P
Salt marsh tiger beetle	H	P	H	P
Salt marsh wandering skipper	P	P	P	P
Sandy beach tiger beetle	H	H	H	H

TABLE 3.3-6
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR WITHIN THE PROGRAM AREA

Species	South Area	Isthmus Area	Central Area	North Area
Senile tiger beetle	H	H	H	H
Western beach tiger beetle	H	H	H	H
Western tidal-flat tiger beetle	H	H	H	H
Fish				
Steelhead – Southern California DPS			H	H
Tidewater goby	H	H	H	H
Reptiles				
Coast horned lizard	H	H	H	H
Coastal whiptail	H	H	H	H
Orange-throated whiptail	H	H	H	H
Pacific green sea turtle	P		P	P
Red diamond rattlesnake	P	P	P	P
Southern California legless lizard	H	H	H	H
Western pond turtle	H		H	H
Birds				
American peregrine falcon	P	P	P	P
Belding's savannah sparrow	P	P	H	P
Black skimmer	P		P	P
Burrowing owl	H	P	H	H
California black rail	H	H	H	H
California Brown Pelican	P	P	P	P
California least tern	P	P	P	P
Coastal California gnatcatcher	H	H	H	H
Least Bell's vireo		P	H	H
Loggerhead shrike	P	P	P	P
Merlin	H	H	H	P
Northern harrier	P	P	P	P
Osprey	P	P	P	P
Ridgway's rail	H	H		H
Short-eared owl	H	H	P	P
Southern California rufous-crowned sparrow	H	H	H	H
Southwestern willow flycatcher		H	H	H
Tri-colored blackbird	H	H	H	H
Western snowy plover	H	H	H	H
White-tailed kite	P	P	P	P
Yellow rail	H		H	H
Yellow warbler		H		
Yellow-breasted chat	P	P	P	P

TABLE 3.3-6
SPECIAL-STATUS WILDLIFE WITH POTENTIAL TO OCCUR WITHIN THE PROGRAM AREA

Species	South Area	Isthmus Area	Central Area	North Area
Mammals				
Pacific pocket mouse	H	H	H	H
South coast marsh vole	H	H	H	H
Southern California salt marsh shrew	H	H	H	H
Western mastiff bat	H	H	H	H
Western yellow bat	H	H	H	H

H = habitat present; P = species present

3.3.2.6 Common Wildlife

Birds

The program area supports a wide range of avifauna, both residents and migrants as well as a high diversity of wintering waterfowl and shore birds including those listed in **Table 3.3-7**, *Common Birds Observed within the Los Cerritos Wetlands Program Area*.

TABLE 3.3-7
COMMON BIRDS OBSERVED WITHIN THE LOS CERRITOS WETLANDS PROGRAM AREA

Species	Species	Species
Allen's Hummingbird *Selasphorus sasin*	Common Raven *Corvus corax*	Orange Bishop *Euplectes franciscanus*
American Avocet *Recurvirostra americana*	Common Yellowthroat *Geothlypis trichas*	Pacific Loon *Gavia pacifica*
American Bittern *Botaurus lentiginosus*	Cooper's Hawk *Accipiter cooperii*	Pacific-slope Flycatcher *Empidonax difficilis*
American Coot *Fulica americana*	Double-crested Cormorant *Phalacrocorax auritus*	Pied-billed Grebe *Podilymbus podiceps*
American Crow *Corvus brachyrhynchos*	Downy Woodpecker *Picoides pubescens*	Red-breasted Merganser *Mergus serrator*
American Goldfinch *Spinus tristis*	Eared Grebe *Podiceps nigricollis*	Reddish Egret *Egretta refescens*
American Kestrel *Falco sparverius*	Elegant Tern *Thalasseus elegans*	Red-necked Phalarope *Phalaropus lobatus*
American Pipit *Anthus rubescens*	European Starling *Sturnus vulgaris*	Red-shouldered Hawk *Buteo lineatus*
American White Pelican *Pelecanus erythrorhynchos*	Forster's Tern *Sterna forsteri*	Red-tailed Hawk *Buteo jamaicensis*
American Widgeon *Anas Americana*	Gadwall *Anas strepera*	Red-winged Blackbird *Agelaius phoeniceus*
Anna's Hummingbird *Calypte anna*	Great Blue Heron *Ardea herodias*	Ring-billed Gull *Larus delawarensis*
Ash-throated Flycatcher *Myiarchus cinerascens*	Great Egret *Ardea alba*	Rock Pigeon *Columba livia*

TABLE 3.3-7
COMMON BIRDS OBSERVED WITHIN THE LOS CERRITOS WETLANDS PROGRAM AREA

Species	Species	Species
Barn Owl *Tyto alba*	Great Horned Owl *Bubo virginianus*	Ruby-crowned Kinglet *Regulus calendula*
Barn Swallow *Hirundo rustica*	Greater Scaup *Aythya marila*	Ruddy Duck *Oxyura jamaicensis*
Belted Kingfisher *Megaceryle alcyon*	Greater Yellowlegs *Tringa semipalmatus*	Say's Phoebe *Sayornis saya*
Black Phoebe *Sayornis nigricans*	Great-tailed Grackle *Quiscalus mexicanus*	Semipalmated Plover *Charadrius semipalmatus*
Black-bellied Plover *Pluvialis squatarola*	Green Heron *Butorides virescens*	Short-billed Dowitcher *Limnodromus griseus*
Black-chinned Hummingbird *Archilochus alexandri*	Green-winged Teal *Anas crecca*	Snowy Egret *Egretta thula*
Black-crowned Night-heron *Nycticorax*	Heermann's Gull *Larus heermanni*	Song Sparrow *Melospiza melodia*
Black-headed Grosbeak *Pheucticus melanocephalus*	Hermit Thrush *Catharus guttatus*	Sora *Porzana Carolina*
Black-necked Stilt *Himantopus mexicanus*	Hooded Oriole *Icterus cucullatus*	Spotted Sandpiper *Actitis macularia*
Blue-gray Gnatcatcher *Polioptila caerulea*	Horned Grebe *Podiceps auritus*	Surf Scoter *Melanitta perspicillata*
Blue-winged Teal *Anas discors*	House Finch *Haemorhous mexicanus*	Turkey Vulture *Cathartes aura*
Bonaparte's Gull *Larus philadelphia*	House Wren *Troglodytes aedon*	Violet-green Swallow *Tachycineta thalassina*
Brant *Branta bernicla*	Killdeer *Charadrius vociferus*	Western Bluebird *Sialia mexicana*
Brewer's Blackbird *Euphagus cyanocephalus*	Least Sandpiper *Calidris minutilla*	Western Grebe *Aechmorphus occidentalis*
Bufflehead *Bucephala albeola*	Lesser Goldfinch *Spinus psaltria*	Western Gull *Larus occidentalis*
Bullock's Oriole *Icterus bullockii*	Lesser Scaup *Aythya affinis*	Western Kingbird *Tyrannus verticalis*
California Gull *Larus californicus*	Long-billed Curlew *Numenius americanus*	Western Meadowlark *Sturnella neglecta*
California Towhee *Melozone crissalis*	Long-billed Dowitcher *Limnodromus scolopaceus*	Western Sandpiper *Calidris mauri*
Canada Goose *Branta canadensis*	Mallard *Anas platyrhynchos*	Western Scrub-jay *Aphelocoma californica*
Caspian Tern *Hydroprogne caspia*	Marbled Godwit *Limosa fedosa*	Whimbrel *Numenius phaeopus*
Cassin's Kingbird *Tyrannus vociferans*	Marsh Wren *Cistothorus palustris*	White-crowned Sparrow *Zonotrichia leucophrys*
Cedar Waxwing *Bombycilla cedrorum*	Mourning Dove *Zenaida macroura*	Willet *Tringa semipalmatus*
Cinnamon Teal *Anas cyanoptera*	Northern Flicker *Colaptes auratus*	Wilson's Phalarope *Phalaropus tricolor*
Clark's Grebe *Aechmorphus clarkii*	Northern Mockingbird *Mimus polyglottos*	Wilson's Warbler *Cardellina pusilla*

TABLE 3.3-7
COMMON BIRDS OBSERVED WITHIN THE LOS CERRITOS WETLANDS PROGRAM AREA

Species	Species	Species
Cliff Swallow *Petrochelidon pyrrhonota*	Northern Pintail *Anas acuta*	Wilson's Snipe *Gallinago delicata*
Common Loon *Gavia immer*	Northern Rough-winged Swallow *Stelgidopteryx serripennis*	Yellow-rumped Warbler *Setophaga coronate*
Common Poorwill *Phalaenoptilus nuttallii*	Northern Shoveler *Anas clypeata*	

SOURCES: Glenn Lukos Associates Inc., 2017a; Coastal Restoration Consultants, 2019.

Mammals

Mammals detected in the proposed program area, either by direct observation or by physical evidence, include coyote (*Canis latrans*), domestic dog (*Canis lupus familiaris*), American opossum (*Didelphis virginiana*), house mouse (*Mus musculus*), harbor seal (*Phoca citulina*), raccoon (*Procyon lotor*), western harvest mouse (*Reithrodontomys megalotis limicola*), California ground squirrel (*Spermophilus beechyi*), Audubon's cottontail (*Sylvilagus audubonii*), brush rabbit (*Sylvilagus bachmani*), Botta's pocket gopher (*Thomomys bottae*) and California sea lion (*Zalophus californianus*).

Reptiles and Amphibians

Herpetofauna observed in the proposed program area include California toad (*Anaxyrus boreas halophilus*), garden slender salamander (*Batrachoseps major major*), southern alligator lizard (*Elgaria multicarinata*), California kingsnake (*Lampropeltis californiae*), gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), Baja California treefrog (*Pseudacris hypochondriaca*) and side-blotched lizard (*Uta stansburiana*).

Marine Fish

Marine fish observed in the proposed program area include topsmelt (*Atherinops affinis*), arrow goby (*Clevelandia ios*), California killifish (*Fundulus parvipinnis*), staghorn sculpin (*Leptocottus armatus*), striped mullet (*Mugil cephalus*), bay pipefish (*Synganthus leptorhynchus*), and round sting ray (*Urobatis haleri*).

3.3.2.7 Sensitive Natural Communities

Sensitive natural communities are of limited distribution statewide or within a county or region. These communities may or may not contain special-status species or their habitat, and are independently considered sensitive by CDFW. For purposes of this PEIR, sensitive natural communities include vegetation communities identified in the List of Natural Communities with Holland Types (CDFW 2018a) with a CNDDB state rank of S1, S2, or S3, as provided in **Table 3.3-8**, *Sensitive Natural Communities Observed within the Los Cerritos Wetlands Program Area*.

TABLE 3.3-8
SENSITIVE NATURAL COMMUNITIES OBSERVED WITHIN THE LOS CERRITOS WETLANDS PROGRAM AREA

Sensitive Natural Community	CNDDB State Rank	South Area	Isthmus Area	Central Area	North Area
Anemopsis californica – Helianthus nuttallii – Solidago spectabilis Herbaceous Alliance	S2			X	
Arthrocnemum subterminale Herbaceous Alliance	S3	X	X	X	X
Baccharis salicina Provisional Shrubland Alliance	S2		X		X
Cressa truxillensis – Distichlis spicata Herbaceous Alliance	S2	X	X	X	X
Frankenia salina Herbaceous Alliance	S3	X	X	X	X
Isocoma menziesii Shrubland Alliance	S3	X	X	X	X
Leymus cinereus – Leymus triticoides Herbaceous Alliance	S3			X	
Salicornia pacifica Herbaceous Alliance	S3	X	X	X	X
Salix gooddingii Woodland Alliance	S3			X	X
Schoenoplectus californicus – Typha (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance	S3			X	
Schoenoplectus californicus (*acutus*, *californicus*) Herbaceous Alliance	S3			X	
Spartina foliosa Herbaceous Alliance	S3.2				X

CNDDB State Rank

S1: Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2: Imperiled – Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state. S3: Vulnerable — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S3: Vulnerable — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

3.3.2.8 Potential Environmentally Sensitive Habitat Areas

The proposed program has the potential to impact areas that could potentially meet the definition for ESHA as defined under the CCA. The CCA protects important coastal biological resources including wetlands, riparian habitats, and other areas defined as ESHA by the CCC in accordance with the CCA. The CCA Section 30107.5 defines an ESHA as:

> *"… any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."*

For purposes of this PEIR, criteria used to determine extent of potential ESHA are as follows:

- The habitat consists of predominantly native vegetation that supports or is likely to support state- or federally listed threatened or endangered animal species, California Fully Protected species, or other special-status animal species (e.g., listed by CDFW as Species of Special Concern or have a CNDDB state rank of S1, S2, or S3);

- The habitat consists of predominantly native vegetation that supports or is likely to support state- or federally listed threatened or endangered plant species or species designated as 1B or 2B by the CRPR; or
- The native vegetation alliance has a rarity ranking of S1, S2, or S3 by the CNDDB.

Based on the criteria identified above, the habitats listed below have been documented in the proposed program area and have the potential to be considered ESHA, because of their potential to support one of more of the following special-status species: western snowy plover, American peregrine falcon, white-tailed kite, Belding's savannah sparrow, least Bell's vireo, California least tern, Pacific green sea turtle, Coulter's goldfields, estuary seablite and southern tarplant.

- *Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance (S2)
- *Arthrocnemum subterminale* Herbaceous Alliance (S2)
- *Baccharis salicina* Provisional Shrubland Alliance (S2)
- *Cressa truxillensis – Distichlis spicata* Herbaceous Alliance (S2)
- *Distichlis littoralis* Herbaceous Alliance (SNR)
- *Distichlis spicata* Herbaceous Alliance (S4)
- *Frankenia salina* Herbaceous Alliance (S3)
- *Isocoma menziesii* Shrubland Alliance (S3)
- *Leymus cinereus – Leymus triticoides* Herbaceous Alliance (S3)
- *Salicornia pacifica* Herbaceous Alliance (S3)
- *Salix gooddingii* Woodland Alliance (S3)
- *Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance (S3)
- *Schoenoplectus californicus* (*acutus, californicus*) Herbaceous Alliance (S3)
- *Spartina foliosa* Herbaceous Alliance (S3.2)
- *Ulva lactuca* algal mat (SNR)
- Tidal channel
- Unvegetated salt flat
- Unvegetated tidal flat

Table 3.3-9, *Potential Environmentally Sensitive Areas*, provides a summary of potential ESHA's within the proposed program area that have been confirmed based on various field surveys, as well as unconfirmed ESHA areas that have the potential to be present based on the presence of habitat characteristics and the potential for special-status species to be present, but were not surveyed. Furthermore, **Figure 3.3-3a**, *Environmentally Sensitive Habitat Areas – South Area*, through **Figure 3.3-3d**, *Environmentally Sensitive Habitat Areas – North Area*, depicts the extent of ESHA within the proposed program area.

TABLE 3.3-9
POTENTIAL ENVIRONMENTALLY SENSITIVE AREAS

ESHA Classification	South (acre)	Isthmus (acre)	Central (acre)	North (acre)	Total (acre)
Potential ESHA (confirmed)	69.64	17.20	69.09	43.03	**198.96**
Potential ESHA (unconfirmed)	54.39	0	0	2.68	**57.07**
Total	**124.03**	**17.20**	**69.09**	**45.71**	**256.03**

3.3.2.9 Critical Habitat/Essential Fish Habitat

The United States Fish and Wildlife Service (USFWS) has not designated critical habitat for any species listed as threatened or endangered within any portions of the proposed program area. Essential Fish Habitat (EFH), which is regulated by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and includes bay, estuarine, and eelgrass habitats (Habitats of Particular Concern [HAPC]) occurs in the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel) (Tidal Influence 2012). Eelgrass, which is a food source for the federally-threatened Pacific green sea turtle, is considered a HAPC for this species. Conversely, the San Gabriel River and Haynes Cooling Channel do have connectivity with open water or marshes and provide movement corridors to fish, marine mammals, and reptiles; therefore, these waters provide EFH.

3.3.2.10 Potential Jurisdictional Resources

The South, Isthmus, Central, and North Areas each contain aquatic resources that potentially meet the definition of waters of the United States pursuant to Clean Water Act (CWA) Section 404. All potential waters of the United States associated with the individual areas are also considered waters of the state, and impacts would require a Water Quality Certification from the RWQCB pursuant to CWA Section 401. There are no "isolated" or "non-federal" waters that would be subject to waste discharge requirements under the Porter Cologne Water Quality Control Act (GLA 2017b, CRC 2019).

CDFW has not published specific guidance for delineating jurisdictional features within tidally influenced waters and habitats. The limits of potential CDFW jurisdiction within the program area were mapped to include open water and linear waters features, as well as the surrounding vegetation which "occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG ESD 1994). Therefore, all channels, sloughs and open water were mapped as potential CDFW jurisdictional areas, as well as the vegetation communities surrounding these waters that were determined to occur in the program area due to the presence and proximity of the waters. For the purposes of this PEIR, potential CDFW jurisdictional areas are synonymous with CCC wetlands in the program area.

The CCC has defined wetlands using the presence of a single criteria/parameter (i.e., wetland vegetation or hydric soils or wetland hydrology) as sufficient to make a presumptive finding for the presence of wetlands. As such, wetlands defined under the CCC are more extensive in the non-tidal areas of the site as compared to potential waters of the United States.

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SOURCE: Mapbox, LCWA, CRC

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Figure 3.3-3a
Environmentally Sensitive Habitat Areas
South Area

ESA

SOURCE: Mapbox, LCWA, CRC

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Figure 3.3-3b
Environmentally Sensitive Habitat Areas
Isthmus Area

ESA

SOURCE: Mapbox, LCWA, CRC

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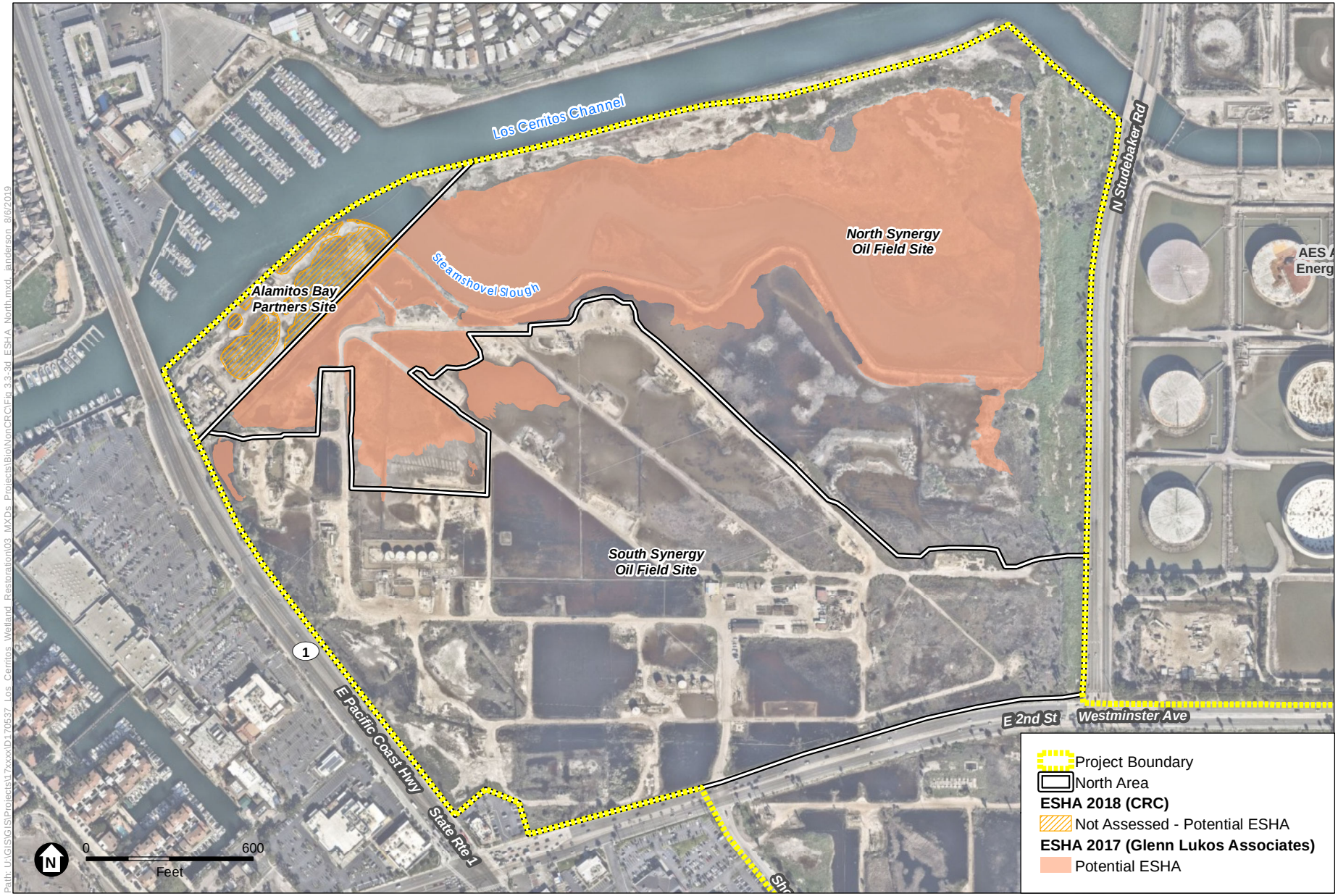
Figure 3.3-3c
Environmentally Sensitive Habitat Areas
Central Area

ESA



SOURCE: Mapbox, LCWA, CRC, Glenn Lukos Associates

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Figure 3.3-3d

Environmentally Sensitive Habitat Areas
North Area

ESA

Portions of the South, Central, and North Areas are subject to Rivers and Harbors Act Section 10, and all four areas include "streams" potentially subject to CDFW jurisdiction pursuant to California Fish and Game Code Section 1602 and potential CCC wetlands pursuant to the CCA.

A summary of the jurisdictional resources is provided below for each area determined partially by on the results of a jurisdictional delineation and partially by the results of a jurisdictional assessment based on vegetation communities and hydrology (GLA 2017b, CRC 2019 [Appendix C1]). **Table 3.3-10**, *Potential Jurisdictional Waters within the Program Area*, provides a summary of potential federal jurisdictional waters which include those regulated by the USACE and RWQCB as well as potential state jurisdictional waters which include those regulated by CDFW and CCC.

TABLE 3.3-10
POTENTIAL JURISDICTIONAL WATERS WITHIN THE PROGRAM AREA

Program Area	Potential Federal Jurisdictional Waters (acres)	Potential Section 10 Waters (acres)	Potential State Jurisdictional Waters (acres)
South Area	52	47	54
Isthmus Area	9	0	11
Central Area	68	10	70
North Area	41	6	100
Total	**170**	**63**	**235**

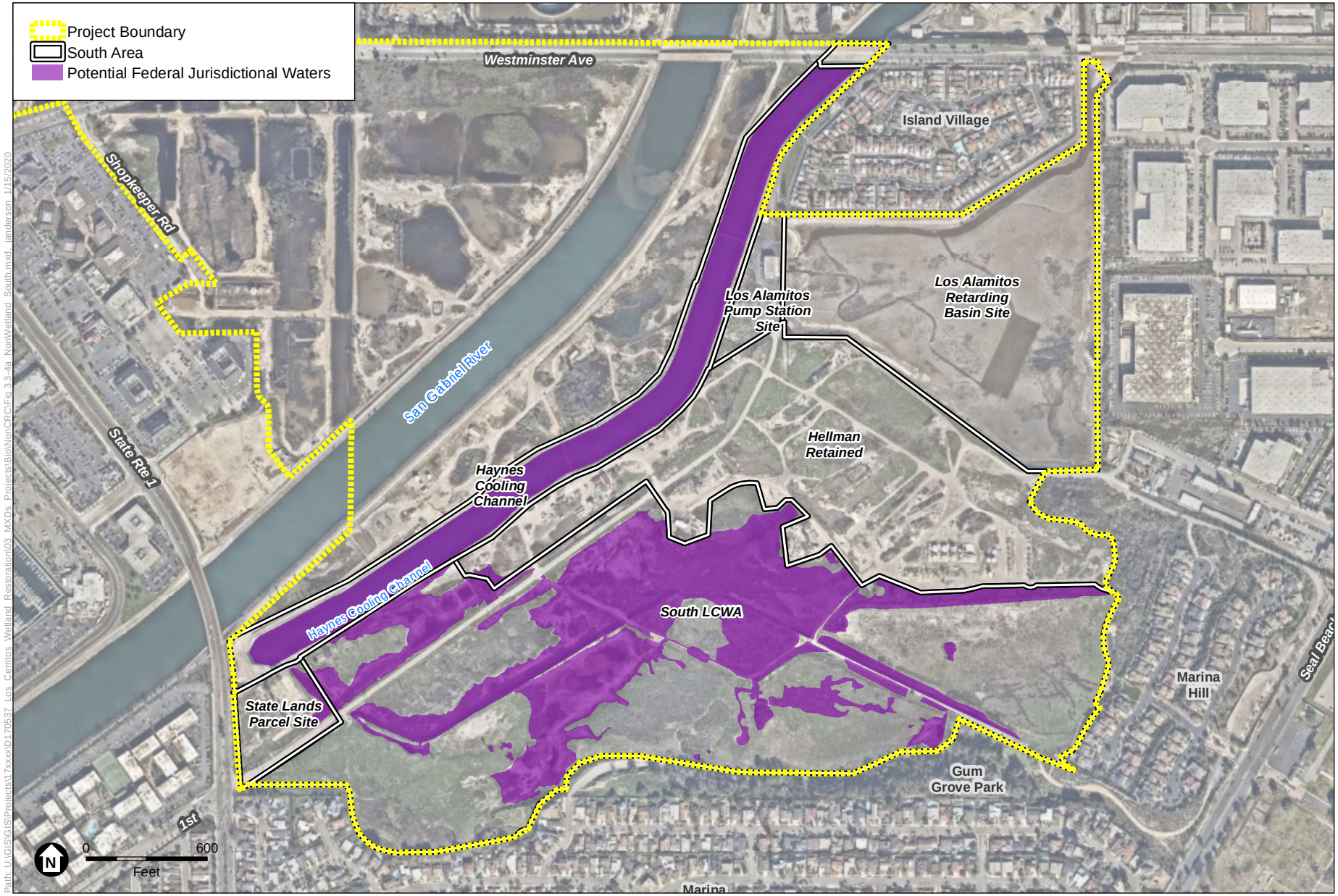
Potential Federal Jurisdictional Waters

Areas potentially subject to USACE and RWQCB jurisdiction (waters of the United States and state-regulated waters, respectively) pursuant to CWA Sections 404 and 401 occur within the South, Isthmus, Central, and North Areas. Potential federal jurisdictional waters within the program area includes 170 acres. **Figure 3.3-4a**, *Potential Federal Jurisdictional Waters – South Area*, through **Figure 3.3-7b**, *Potential State Jurisdictional Waters – North Area*, depict the extent of potential federal jurisdictional waters in the program area. Approximately 57 acres were not assessed due to inaccessibility but may contain potentially jurisdictional waters of the United States.

The extent of potential state jurisdictional areas within the program area is shown in Figures 3.3-4a through 3.3-7b and is described below in its respective section.

USACE Section 10 Waters

The program area contains 63 acres that are potentially subject to USACE jurisdiction pursuant to Rivers and Harbors Act Section 10. The limits of potential Section 10 Waters are determined solely through the use of elevation data. Specifically, all areas falling below the elevation for mean high water (MHW), which is recorded at 2.12 feet National Geodetic Vertical Datum (NGVD) at this site, meet the USACE definition for "Navigable Waters" pursuant to Rivers and Harbors Act Section 10. The Los Alamitos Retarding Basin site, Haynes Cooling Channel, San Gabriel River and Steamshovel Slough comprise the majority of areas identified as Section 10 Waters based on elevation alone.



SOURCE: Mapbox, LCWA, Coastal Restoration Consultants

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Figure 3.3-4a
Potential Federal Jurisdictional Waters
South Area

ESA

Path: U:\GIS\G1\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\Bio\NonCRC\Fig_3.3-4b_WatersUS_State_South.mxd, janderson, 1/15/2020

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants

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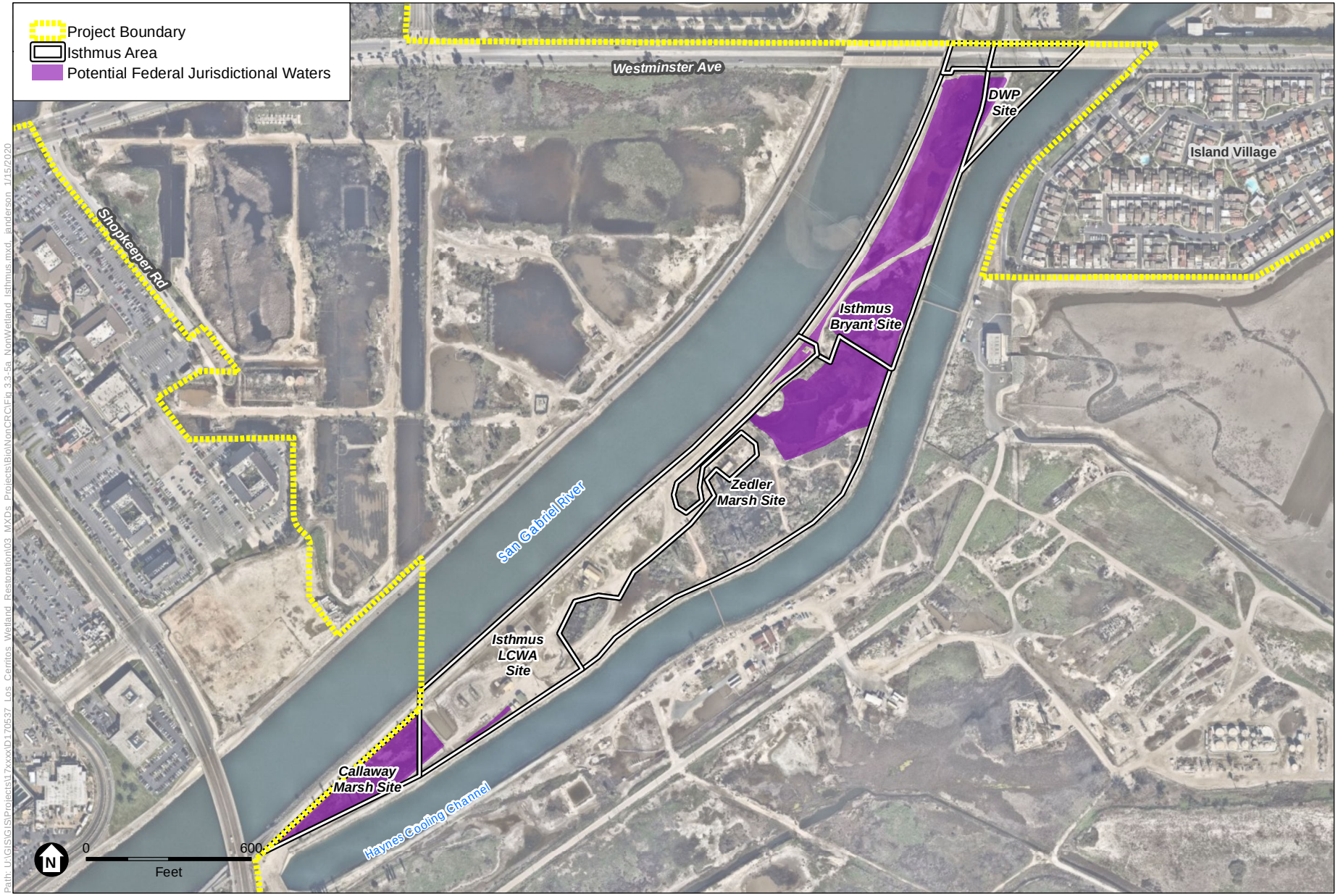
Figure 3.3-4b
Potential State Jurisdictional Waters
South Area

ESA



SOURCE: Mapbox, LCWA, Coastal Restoration Consultants

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Figure 3.3-5a
Potential Federal Jurisdictional Waters
Isthmus Area

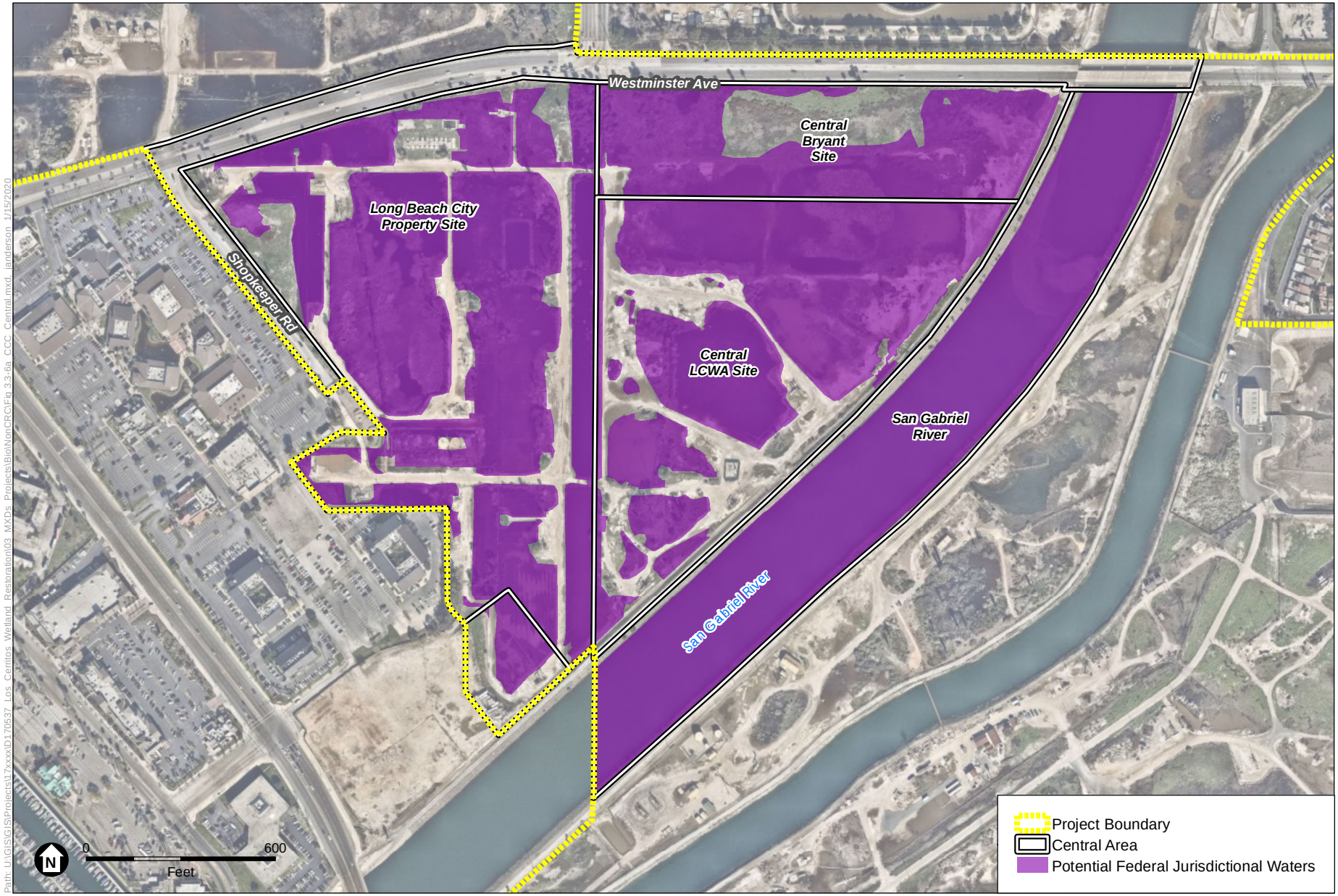
ESA

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-5b
Potential State Jurisdictional Waters
Isthmus Area

ESA



Path: U:\GIS\G1\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\Bio\NonCRC\Fig_3.3-6a_CCC_Central.mxd, janderson, 1/15/2020

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Glenn Lukos Associates

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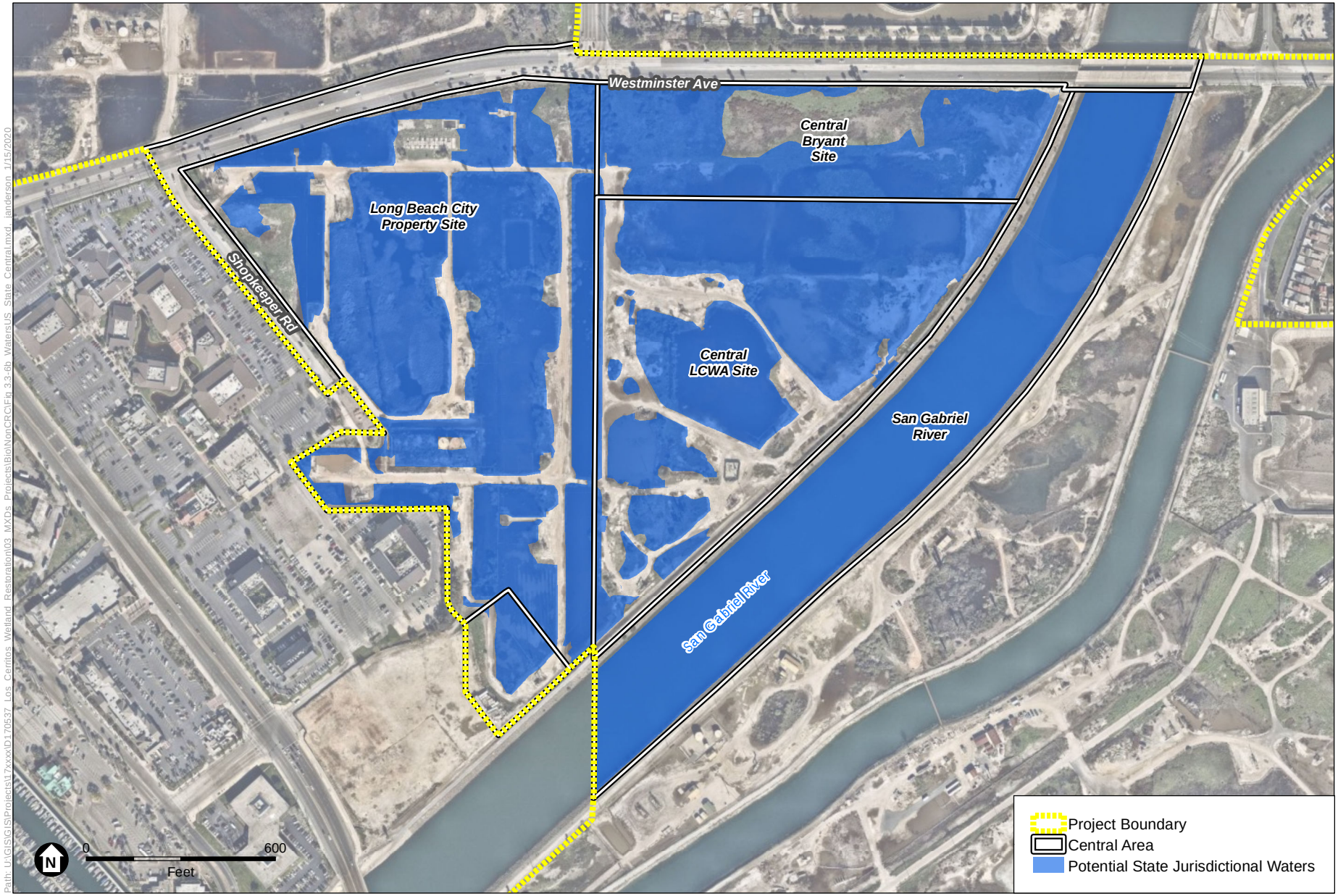
Figure 3.3-6a
Potential Federal Jurisdictional Waters
Central Area

ESA



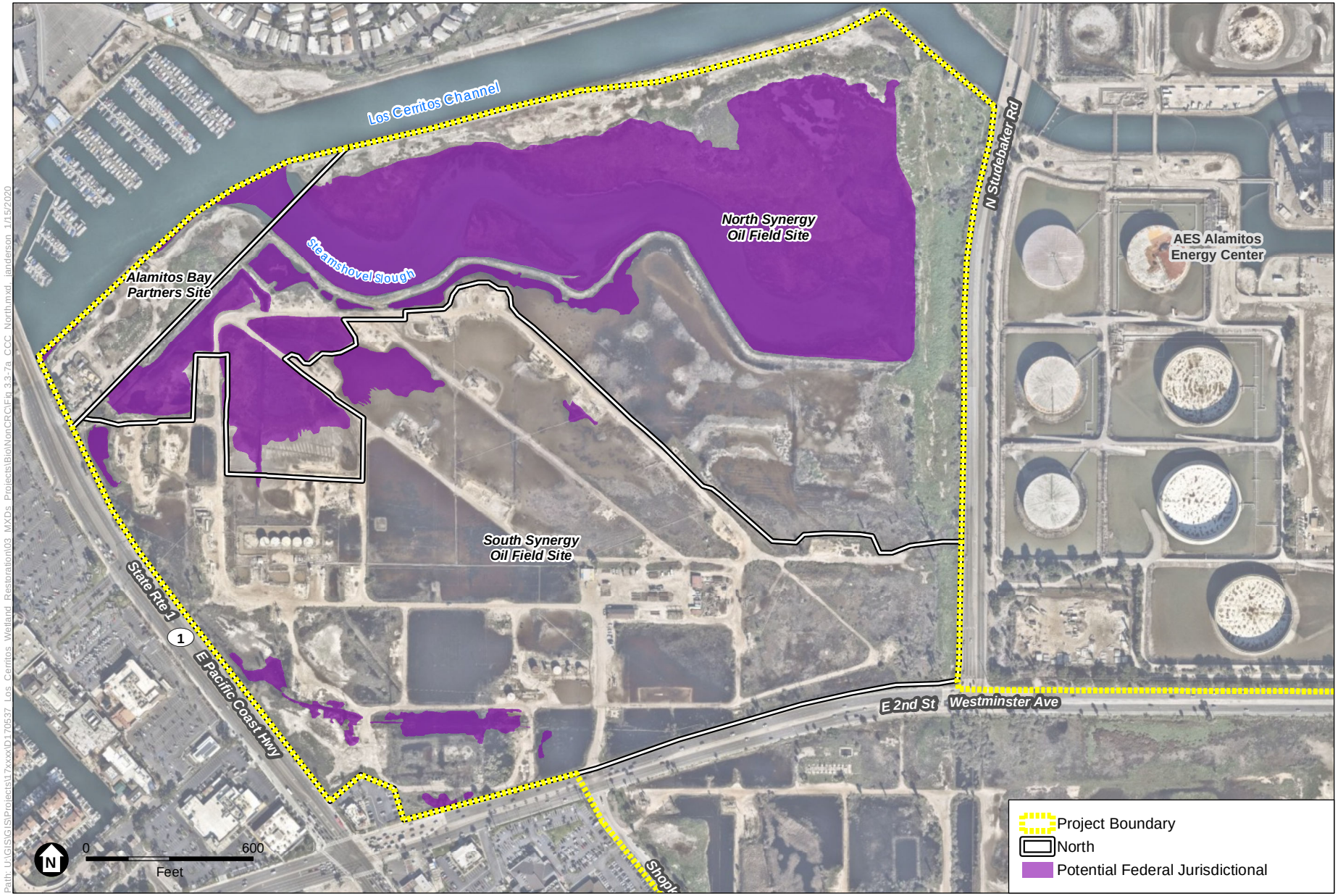
Path: U:\GIS\G1\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\Bio\NonCRC\Fig_3.3-6b_WatersUS_State_Central.mxd janderson 1/15/2020

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-6b
Potential State Jurisdictional Waters
Central Area

ESA



Path: U:\GIS\G1\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\Bio\NonCRC\Fig_3.3-7a_CCC_North.mxd janderson 1/15/2020

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Glenn Lukos Associates

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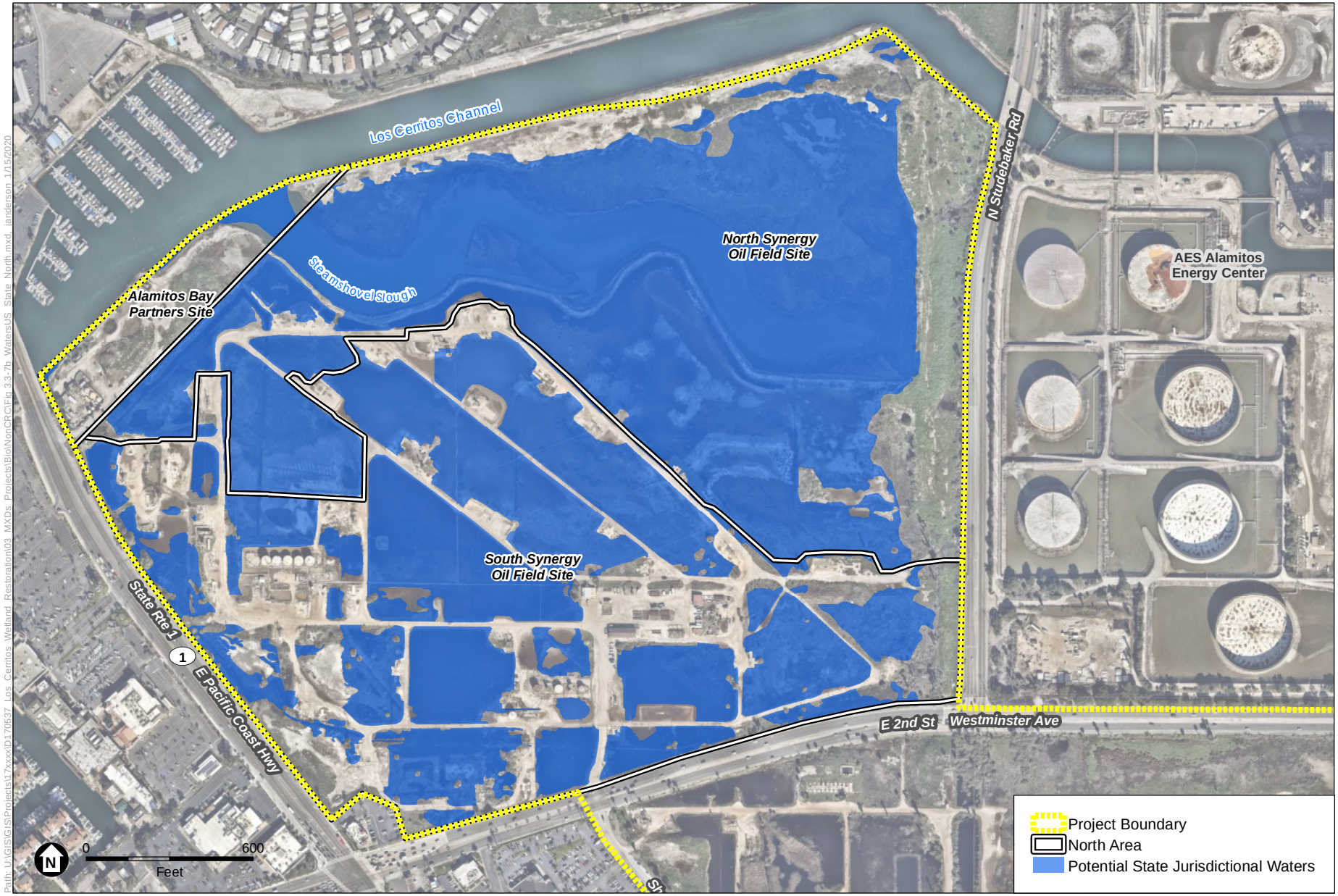
Figure 3.3-7a
Potential Federal Jurisdictional Waters
North Area

ESA



SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Glenn Lukos Associates

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Figure 3.3-7b
Potential State Jurisdictional Waters
North Area

ESA

Potential State Jurisdictional Waters

Areas potentially subject to CDFW and CCC jurisdiction associated with the program area are limited to tidal channels and associated herbaceous riparian/wetland habitat within the South, Isthmus, Central and North Areas. Potential state jurisdictional waters within the program area includes 234 acres (Figures 3.3-4a through 3.3-7b). It should be noted that approximately 57 acres were not assessed due to inaccessibility but may contain potentially state jurisdictional waters based on review of aerial imagery (Google Earth Pro, 2019). Also, for this PEIR, mud flats are included in areas identified as tidal waters and are considered wetlands under the CCA definition.

3.3.3 Regulatory Framework

3.3.3.1 Federal

Endangered Species Act (USC Title 16, Sections 1531 through 1543)

The purpose of FESA and subsequent amendments is to protect and recover imperiled species and the ecosystems upon which they depend. FESA is administered by the USFWS and the Commerce Department's NMFS. USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under FESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Under provisions of FESA Section 9(a)(1)(B), it is unlawful to "take" any listed species. "Take" is defined in FESA Section 3(18): "… harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

FESA Section 7 stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS/NMFS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 United States Code (USC) 1536(a)(2).

FESA Section 10 provides the basis for non-federal entities to obtain take authorization. For those actions for which no federal nexus exists, non-federal entities that wish to conduct otherwise lawful activities that may incidentally result in the take of a listed species must first obtain a Section 10 permit from USFWS/NMFS. The non-federal entity is required to develop a Habitat Conservation Plan (HCP) as part of the permit application process. Upon development of an HCP, the USFWS/NMFS can issue incidental take permits for listed species where the HCP specifies, at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

In addition to the prohibitions on the take of listed species, USFWS/NMFS are also required to designate areas of "Critical Habitat" for species listed under FESA. FESA defines critical habitat

as “the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary to be essential for the conservation of the species.”

Marine Mammal Protection Act (16 USC 31)

The MMPA prohibits, with certain exceptions, the "take" of marine mammals in United States waters and by United States citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States.

Jurisdiction for MMPA is shared by USFWS and the NMFS. The USFWS’s Branch of Permits is responsible for issuing take permits when exceptions are made to MMPA.

Migratory Bird Treaty Act (16 USC Sections 703 through 711)

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Fish and Wildlife Coordination Act (16 USC Sections 661–666c)

The Fish and Wildlife Coordination Act (FWCA) authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The amendments enacted in 1946 require consultation with USFWS and the fish and wildlife agencies of states where the “waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted … or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources.” The 1958 amendments expanded the instances in which diversions or modifications to water bodies would require consultation with USFWS. These amendments permitted lands valuable to the Migratory Bird Management Program to be made available to the state agency exercising control over wildlife resources.

Magnuson-Stevens Fishery Conservation and Management Act (16 USC Sections 1801 et seq.)

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) is the primary law governing marine fisheries management in United States federal waters. Magnuson-Stevens Act Section 305(b), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires federal agencies to consult with NMFS on activities that may

adversely affect EFH for species that are managed under federal fishery management plans in United States waters. The statutory definition of EFH includes those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity, which encompasses all physical, chemical, and biological habitat features necessary to support the entire life cycle of the species in question.

Federal Clean Water Act (33 USC 1251 through 1376) Sections 401 and 404

The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires the Applicant to obtain a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. Section 404 establishes a permit program administered by the USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands.

Federal Clean Water Rule

In 2015, the USACE and the United States Environmental Protection Agency (USEPA) issued the Clean Water Rule detailing the process for determining CWA jurisdiction over waters of the United States (WOTUS) (USACE 2015). The rule is currently in effect in California and 21 other states. The 2015 Clean Water Rule includes a detailed process for determining which areas may be subject to jurisdiction under the Clean Water Act, and broadly classifies features into three categories: those that are jurisdictional by rule (Category A below), those that excluded by rule (Category C below) and those features that require a "significant nexus test" (Category B below).

The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as those described in Category B below, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and USEPA will apply the significant nexus standard to assess the flow characteristics and functions of a potential WOTUS to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered WOTUS and are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

2015 Clean Water Rule Key Points Summary

(A) The USACE and USEPA will assert jurisdiction over the following waters (jurisdictional by rule):

- TNWs.
- Interstate waters and wetlands.
- Territorial seas.
- Impoundments of waters (reservoirs, etc.).
- Tributaries with the following attributes:
  - Contributes flow to a TNW.
  - Contain bed, banks, and ordinary high water mark.
  - Can be natural, man-altered, or man-made.
  - Can have constructed breaks (culverts, pipes, etc.) or natural breaks.
- Waters "adjacent" to TNW and their tributaries, including:
  - Waters that are bordering, contiguous, or neighboring a TNW, interstate water, territorial sea, impoundment, or tributary. Includes waters separated from other ''waters of the United States'' by constructed dikes or barriers, natural river berms, beach dunes, or similar.
  - Waters within 100 feet of the OHWM of a TNW, interstate water, territorial sea, impoundment, or tributary.
  - Waters within the 100-year floodplain and within 1,500 feet of a TNW, interstate water, territorial sea, impoundment, or tributary.
  - Waters within 1,500 feet of the high tide line or OHWM of a TNW or territorial sea.

(B) The USACE and USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW unless excluded by rule (significant nexus test):

- Vernal pools that have a significant nexus to a TNW or territorial sea.
- Waters within the 100-year floodplain of a TNW, interstate water or territorial sea.
- Waters within 4,000 feet of the high tide line or OHWM of a TNW, interstate water, territorial sea, impoundment or tributary.

(C) The USACE and USEPA will not assert jurisdiction over the following features (excluded by rule):

- Waste treatment facilities including basins and percolation ponds.
- Prior converted cropland.
- The following types of ditches:
  - Ephemeral ditches that are not a relocated tributary or excavated in a tributary.
  - Intermittent ditches that are not a relocated tributary, excavated in a tributary, or drain wetlands.
  - Ditches that do not flow, either directly or through another water, into a TNW, interstate waters, territorial sea.

- Artificially irrigated areas that would revert to upland.
- Artificial, constructed lakes and ponds created in dry land such as stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, cooling ponds
- Swimming pools or reflecting pools in dry land.
- Small ornamental waters created in dry land.
- Water-filled depressions created in dry land from mining or construction activities including pits for fill, sand, or gravel.
- Erosional features including gullies and rills that are not tributaries, non-wetland swales and constructed grass waterways.
- Puddles.
- Groundwater.
- Storm water control features created in dry land.
- Wastewater recycling structures created in dry land, including detention and retention basins, groundwater recharge basins, percolation ponds, and water distributary structures.
- USACE and the USEPA have issued a set of guidance documents detailing the process for determining Clean Water Act (CWA) jurisdiction over waters of the United States following the 2008 Rapanos decision. The USEPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court's decision in Rapanos that addresses the jurisdiction over waters of the United States under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the USEPA and the USACE to determine CWA jurisdiction over the proposed program and to complete the "significant nexus test" as detailed in the guidelines.
- Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the United States. The State Water Resources Control Board (State Water Board) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the state or appropriate interstate water pollution control agency in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.
- The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as those described in point B below, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and USEPA will apply the significant nexus standard to assess the flow characteristics and functions of the tributary drainage to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

- Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered waters of the United States and are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Rapanos Guidance Key Points Summary

(A) The USACE and USEPA will assert jurisdiction over the following waters:

- TNWs
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent (flows three months or longer)
  - Wetlands that abut such tributaries

(B) The USACE and USEPA will decide jurisdiction over the following waters based on whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

(C) The USACE and USEPA will not assert jurisdiction over the following waters:

- Swales or erosional features (gullies, small washes characterized by low volume, infrequent, or short-duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

Rivers and Harbor Act of 1899 Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the ordinary high water (OHW) elevation of navigable waters of the United States be approved/permitted by the USACE. Regulated activities include placement and removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Navigable waters of the United States are those that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past or may be susceptible to use to transport interstate or foreign commerce. Navigable waters of the United States are not necessarily the same as state navigable waterways. Tributaries and backwater areas associated with navigable waters of the United States, and located below the OHW elevation of the adjacent navigable waterway, are also regulated under Section 10.

3.3.3.2 State

California Endangered Species Act (California Fish and Game Code Sections 2050 et seq.)

CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the Applicant would have to apply for a take permit under Section 2081(b).

California Fully Protected Species

California fully protected species are described in California Fish and Game Code Sections 3511, 4700, 5050, and 5515. These statutes prohibit take or possession of fully protected species. The CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

California State Fish and Game Code Sections 2080 and 2081

California Fish and Game Code Section 2080 states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act.". Pursuant to Sections 2080.1 or 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California State Fish and Game Code Sections 3503, 3503.5, 3513, and 3800

California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. California Fish and Game Code Section 3800 affords protection to all nongame birds, which are all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. California Fish and Game Code Section 3513 upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

California State Fish and Game Code Section 1602

Under this section of the California Fish and Game Code, a project proponent is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake.

Clean Water Act Section 401

Under CWA Section 401, the local RWQCB must certify that actions receiving authorization under CWA Section 404 also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state is required.

California Coastal Act

The state legislature enacted the CCA (PRC Sections 30000 et seq.) to provide for the conservation and planned development of the state's coastline. The CCA defines the "coastal zone" as the area of the state which extends 3 miles seaward and generally about 1,000 yards inland; however, the inland extent of the coastal zone can extend in certain circumstances to a maximum of 5 miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland.

The CCC approves coastal development permits (CDPs) for areas within its original and retained jurisdiction, such as waters of the state and tidelands, energy projects, and federal (federally approved, conducted, or funded) projects consistent with CCA policies. Local jurisdictions may obtain permitting authority under the CCA once a local coastal program has been certified by the CCC.

Applicable CCA policies regarding biological resources include:

> **Section 30230.** Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.
>
> **Section 30231.** The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.
>
> **Section 30233.** (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible

mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30240.

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

3.3.3.3 Local

City of Seal Beach Municipal Code (Section 9.40)

The City of Seal Beach Public Works Department is responsible for administering Seal Municipal Code (Tree Maintenance Policy), which is to preserve and protect the community's urban forest and to promote the health and safety of City trees, from the time they are planted through maturity.

The City's Tree Maintenance Policy stipulates guidelines for planting, maintenance and removal of street trees[4] located in the public rights-of-way. A permit must be obtained from the Director of Public Works prior to removal of trees from City property.

City of Seal Beach General Plan

Hellman Ranch Specific Plan

Project goals have been established for the development of the Hellman Ranch Specific Plan that essential to achieving balance and sustainable development. These goals that are applicable to the project include:

- Maintain significant acreage for restoration/creation of wetlands and plan for long-term retention of viable wildlife habitat and biodiversity on the site.
- Create/restore a wetlands and environmental ecosystem that provides a meaningful contribution to the regional system of coastal wetlands and open space along the Pacific Flyway.

Open Space/Recreation/Conservation Element

A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year deed-restricted time period does not commence until cessation of the oil production activities. It is the intent and goal of the City to address future uses for these areas and cooperate with the property owner, state, local, and private agencies, as well as the community, to provide the means to accomplish this goal.

City of Long Beach Municipal Code (Section 14.28)

The City of Long Beach Public Works Department is responsible for administering Long Beach Municipal Code (Tree Maintenance Policy), which is to preserve and protect the community's urban forest and to promote the health and safety of City of Long Beach trees, from the time they are planted through maturity.

[4] Street trees are those included in the City of Long Beach's Approved Street Tree List 2012 (City of Long Beach 2017).

The City of Long Beach's Tree Maintenance Policy stipulates guidelines for planting, maintenance and removal of street trees[5] located in the public rights-of-way. A permit must be obtained from the Director of Public Works prior to removal of trees from City of Long Beach property. The City also requires that the trees' condition be determined by a City-employed certified arborist prior to removal.

City of Long Beach General Plan

Conservation Element

Vegetation Management Goals

- To provide protective controls for lands supporting distinctive native vegetation and wildlife species that can be used for ecological, scientific and educational purposes.
- To locate, define, and protect other beneficial natural habitats in and about the City.

Wildlife Management Goals

- To promote measures and plans which protect and preserve distinctive types of wildlife including mammals, birds, marine organisms and especially endangered species.

Southeast Area Development and Improvement Plan

The Wetlands

1. The wetlands and associated habitats, and all fresh, brackish and tidal water supply and control systems, shall be constructed at the expense of the developers of Areas 11a, 25 and 26, unless otherwise provided for by agreements between landowners and the managing agency. The developer(s) of Areas 11a and 25 shall be responsible for wetlands development of Areas 23 and 33. The developer(s) of Area 26 shall be responsible for wetlands development of Area 27.

7. Owing to the need to make connections with the existing tidal marsh, the major wetlands restoration project between Los Cerritos Channel and Westminster Avenue shall be accomplished at one time. Restoration of wetlands north of the Los Cerritos Channel and south of the San Gabriel River need not be accomplished concurrently with the major restoration project, or with each other. Prior to the issuance of permits for residential, commercial or industrial development, each applicant shall develop a detailed phasing plan that assures that restoration of wetlands will be completed prior to or concurrently with the completion of urban development on related parcels as specified above. Said detailed phasing plans shall be submitted for approval to the agency responsible for granting the coastal permit.

8. The standard of wetlands restoration is that it shall be completed prior to or concurrently with upland development on related areas. This standard may be satisfied by using one of the following options: (a) Percentage Option: whenever part of the development acreage is built upon, an equal percentage of the future wetland acreage will be developed as wetlands; and (b) Acre-for-Acre Option: for every acre of wetland identified for fill and/or consolidation under the Local Coastal Plan that will be covered by the development, the developer shall improve 1 acre of wetland.

9. Exceptions to this standard may arise in Areas 25, 26, and 27 where continuing oil operations and/or leasing problems may make it impossible to fulfill part of a permanent wetlands

[5] Street trees are those included in the City of Long Beach's Approved Street Tree List 2012 (City of Long Beach 2017).

obligation in connection with upland developments. In such instances (and only in such instances), the following method of fulfilling the wetland obligation may be utilized.

a. The developer must first develop wetlands on all areas designated for wetlands, which are not encumbered, by active oil operations and/or leases.

b. If the full wetlands obligation is not satisfied thereby, the remainder of his obligation may be fulfilled by construction of interim wetland areas as a temporary wetlands restoration measure. If such an interim restoration alternative is needed, an interim wetlands restoration program may be developed for up to 8 acres of the total wetlands obligation for development of Parcel 26, and up to 8 acres for development of Parcel 25, where continuing oil operations and/or leasing problems may interfere with the total restoration program as set forth in the Wetlands Enhancement Plan. Such a program shall be subject to review and approval by the Executive Director of the California Coastal Commission in consultation with the Department of Fish and Game.

   This alternate interim wetlands restoration program, limited for up to 16 acres total, shall at minimum, include provisions that:

   (1) Identify location and size of affected developable areas and proposed interim wetland areas, and provide for the construction of interim wetlands equal in productivity and size to areas filled. They shall be maintained for wildlife by the developer until such time as the major restoration program can be accommodated on encumbered lands.

   (2) Provide for a monitoring system undertaken in conjunction with Department of Fish and Game, assuring biological values of the interim wetlands.

   (3) Where legally possible, place deed restrictions over the interim wetlands prohibiting development in such areas until the implementation of the primary restoration program.

   (4) Provide for the construction of the interim wetlands prior to or concurrently with the development of wetland areas of Areas 25 and 26 that cannot be directly mitigated by the acre-for-acre restoration option set forth in the land use plan.

   (5) Ensure that interim wetlands are to be viewed as temporary and shall not in any way be construed to increase the total wetland obligation within the study area. These areas may be converted to upland areas for development purposes upon completion of the primary restoration project.

   (6) When sufficient on-site acreage is not available, use of off-site acreage within the San Gabriel River Wetlands system may be permitted for interim wetlands, with such location of off-site interim wetlands being subject to the approval of the Executive Director of the California Coastal Commission in consultation with the Department of Fish and Game.

10. If an owner/developer elects to utilize the temporary wetlands option to obtain permits and proceed with development, it is necessary to provide a mechanism, which will assure that monies for future construction of permanent wetlands to replace the temporary wetlands will be available when such permanent construction is imminent. This is particularly important in view of the fact that many years may separate the construction of the temporary and permanent wetlands, and that during that span of time, title may change several times and the obligation for permanent wetlands construction may become clouded or lost. Therefore, when an owner/developer utilizes the temporary wetlands option (in the limited circumstances described in #4 above), he/she must deposit monies in a Wetlands Restoration Fund, under

the terms described below, (or provide other means to guarantee development of the permanent wetlands):

a. The construction assurance funds shall be deposited at the time the developer applies for construction permits for a temporary wetlands program;

b. The amount of the funds to be deposited shall be derived from the cost estimate referred to in Item 5c, below;

c. The first developer shall be responsible for the preparation of construction drawings, specifications, and cost estimates for the total wetland plan in his area. Such cost estimates shall include a contingency factor, which is normal and customary in projects of this magnitude and complexity. These shall be approved by the engineer of the local jurisdiction in consultation with the Department of Fish and Game;

d. The Wetlands Restoration Fund shall be established by the City of Long Beach when the first assurance payment is imminent. The fund shall be established in an interest-bearing account. Interest shall accrue to the account. As much as possible, the account shall be managed to earn sufficient annual interest to match the annual increases in the Consumer Price Index for Southern California. Monies shall be withdrawn from the fund to pay for the construction of permanent wetlands deferred through use of the temporary option. Any monies remaining in the fund, including interest, after all wetlands are totally restored, shall be utilized for on-going maintenance of the wetlands. When an agency or non-profit corporation accepts permanent management responsibilities of the wetlands, the Fund may be transferred to that agency or corporation.

e. Wetlands in those areas for which assurance funds were deposited shall be developed at the first available opportunity. When an agency or non-profit corporation accepts permanent management responsibilities of the wetlands, the Fund may be transferred to that agency or corporation.

11. Overall custodial and interpretive management and financial responsibility for maintenance of Los Cerritos Wetlands shall be vested in an appropriate governmental agency or private non-profit corporation upon the initiation of the first wetlands restoration project. Prior to issuance of any permits for any projects related to wetlands construction, nomination of the managing agency shall be made by the City of Long Beach with the concurrence of the state Department of Fish and Game.

The Buffers

1. The wetlands are to be separated from urban developments by "buffers". In the context of this LCP, the buffers are treated as a part of the adjacent urban developments, as they will form a part of the amenities. Construction and maintenance of the buffers, therefore, falls entirely on the developers and their successors in interest. The reader should note that buffers are constructed only north of Westminster Avenue. The restored wetlands south of Westminster Avenue will have no buffers, owing to the fact that they will be separated from other uses by natural barriers.

7. Buffers between subareas 11a and 33 shall be created by developer(s) of 11a prior to or concurrently with development of upland areas. The berm between wetlands and development shall be created as a part of the grading operation of the wetland. If build out is phased over a period longer than two years, then the landscaping and irrigation system for the buffer can be phased with each phase of landscaping for the development with this exception; that at the beginning of each phase, prior to finish grading for that phase, a row of shrubs shall be planted at the top of the berm to offer protection during construction. Provisions must be made to deny public access to all portions of areas not included in the current building

program. Design of the buffers must conform to the standards set forth in the certified Local Coastal Plan for the Los Cerritos Wetlands.

8. If urban development remains the property of landowners and/or developers, they shall be responsible for continuous maintenance of the buffers. This responsibility shall run with the land. If urban development becomes condominiums, the buffers shall become a part of the area held in common, and continuous maintenance shall be the responsibility of the property owner's association(s). The agency in charge of the management of the restored wetlands may provide comments and recommendations to those responsible for maintenance of the buffers if lack of proper maintenance is causing the buffers to fail in their primary mission to prevent visual and physical access to the wetlands habitats. Breeches in the buffer which seriously threaten habitat values in the wetlands, and which have been reported by the wetlands management agency and have not been repaired in a timely fashion by the individual or agency responsible for maintenance, may be repaired by the wetlands management agency. Costs for such repairs shall be collected from the property owner's association.
9. Where property owners' associations are formed, the requirement for continuous buffer maintenance shall be included in their Articles of Incorporation, and monthly dues shall be sufficient for this purpose.
10. The primary mission of the buffer is to prevent physical access into the wetlands and to prevent visual disturbances of wetland wildlife. The buffer, as shown in the Local Coastal Plan, consists of a berm of mounded soil, a fence, and plant material. Plant material will be chosen to be (in descending order of priority):
    a. Of a growth form that supports the primary mission (i.e., of assistance in preventing access and/or screening development from the wetlands);
    b. Compatible with soil, water and climate conditions of the immediate site;
    c. Fast growing;
    d. Compatible with adjacent development;
    e. Low maintenance; and
    f. of wildlife food and/or cover value.

South East Area Specific Plan 2060[6]

5.8 Wetlands Delineations

New projects within the Coastal Habitat, Wetlands, and Recreation designation require the preparation of a biological study to determine in the location and extent of wetlands resources on a site, if any. When a wetland delineation is required by the City for a new development application or permit, one of two options may be provided by the applicant:

1. A preliminary jurisdictional delineation approved by the U.S. Army Corps of Engineers showing the location and extent of wetlands or sensitive resources, or
16. A letter signed by a qualified biologist declaring that no wetlands or sensitive resources will be impacted by the proposed development.

[6] The City is in the process of replacing the existing PD-1 (SEADIP) with the proposed South East Area Specific Plan (SEASP) 2060. The proposed SEASP 2060 was adopted by the City Council on September 19, 2017. Note that the time of writing this PEIR, the CCC has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program.

5.9 Wetland Conservation and Monitoring Fund

The City shall establish a Wetland Conservation and Monitoring Fund and establish fees pursuant to a Property Analysis Record (PAR). Each development or redevelopment shall contribute its fair share based on the size of the development to this fund, which will be created to provide restoration and long-term management to the publicly owned wetlands within the SEASP Plan area.

Mitigation for impacts for water of the state and United States will be provided pursuant to Coastal Commission and regulatory agency permits.

5.10 Wetland Buffers

Buffers are typically required 100 feet from a wetland resources. However, due to site-specific conditions, a smaller buffer may be approved. Any portion of the buffer less than 100 feet shall require contribution to the Wetland Conservation and Monitoring Fund at the current market rate per each quarter of an acre as established by the City. At a minimum, the applicant must incorporate a 25-foot vegetated "habitat separation" area within the buffer which shall be approved by the City. The habitat separation area must be designed to shield the existing wetland from lighting, noise, urban runoff, and human intrusion resulting from the project. Buffers should:

- Minimize the disturbance to a wetland from adjacent development.
- Be designed, where necessary, to help minimize the effect of erosion, sedimentation and pollution arising from urban, industrial, and agricultural activities; however, to the extent possible, erosion sedimentation, and pollution control problems should be dealt with at the source not in the wetland or buffer area.
- Allow for passive recreational uses within the area, only if it can be shown that these uses will not adversely impact the wetland ecosystem or the buffer's function. These uses may include bird watching, walking, jogging, and bike riding, and may include the construction of paths and interpretive signs and displays. All access, trails, or paths should be constructed to minimize impact to plants and animals.

Buffers are intended to serve as a transition from urbanized areas to natural areas. No new residential, commercial, or industrial buildings will be located within 100 feet of a delineated wetland. Public facilities or buildings (utilities, interpretive centers, etc.) and uses in compliance with the CHWR land use designation may be allowed within the 100-foot buffer. Existing roadways are allowed within buffers. In addition, the future alignment of the completion of Shopkeeper Road between 2nd Street and Studebaker Road, as described in Chapter 6, Mobility, Section 6.6.8, shall be designed so that it does not impact any delineated wetland.

Developments with wetland buffers will be required to prepare and record covenants regarding maintenance obligations of buffer areas. The agency in charge of the management of the restored wetlands may provide comments and recommendations to those responsible for maintenance of the buffers if lack of proper maintenance is causing the buffers to fail in their primary mission to prevent visual and physical access to the wetlands habitats. Breaches in the buffer which seriously threaten habitat values in the wetlands, and which have been reported by the wetlands management agency and have not been repaired in a timely fashion by the individual or agency

responsible for maintenance, may be repaired by the wetlands management agency. Costs for such repairs shall be collected from the property owner's association.

5.11 Standards Applicable to All Areas Adjacent to Jurisdictional Waters and Wetlands

Development projects in proximity to jurisdictional waters or habitat for special status species and all land within the Coastal Habitat, Wetlands, and Recreation land use shall comply with the following:

- Prior to approval of a trails/access plan within or adjacent to jurisdictional waters, the location, design, and text for urban-open space interface signage shall be developed. The signage shall be located at all pedestrian access points. The signage shall educate users on the responsibilities associated with the open space interface and shall address relevant issues, including the role of natural predators in the wildlands and how to minimize impacts of human and domestic pets on native communities and their inhabitants.
- Prior to approval of any development adjacent to jurisdictional waters or habitat for special status species and all land within the Coastal Habitat, Wetlands, and Recreation land use, the project applicant shall submit a photometric plan demonstrating that the project will be designed and shielded so that the nighttime lighting shall be no greater than 0.10 foot-candles at the edge of the habitat. This would ensure that spill light does not result in exposure of artificial light at levels exceeding the intensity of moonlight (approximately 0.5 foot-candles).
- Prior to the issuance of building permits, the project applicant and/or subsequent builder shall prepare an urban-open space interface brochure to be approved by the Long Beach Development Services Department to educate residents on the responsibilities associated with living near sensitive biological habitat. The brochure shall address relevant issues, including the role of natural predators in the wildlands and how to minimize impacts of human and domestic pets on native communities and their inhabitants. The approved brochure, along with attachments, shall be included as part of the rental/lease agreements and as part of the sales literature for future developments.

7.3.14 Bird-Safe Treatments

In deference to the presence of significant wetlands areas in the SEASP area, new projects should be sensitive to the interface and transition between urban areas and natural areas. Many of these areas provide habitats for birds and therefore special design considerations should be applied to three primary areas: lighting, landscaping, and façade treatments.

The reflectivity and transparency of glass are the primary hazards to birds. Highly reflective surfaces falsely imitate the sky, clouds, or nearby trees or vegetation. Sheets of transparent glass are invisible to birds and become dangerous barriers to migration routes, shelter, and food. Lights may also disorient and confuse birds by inhibiting their ability to see navigational markers such as the stars and the moon.

In particular, the Los Cerritos Wetlands conservation area attracts a variety of bird species that utilize this unique coastal habitat. The endangered California Least Terns and several populations of Belding's Savannah Sparrows have been documented as present in the study area. The proximity of new development to the Los Cerritos Wetlands warrants bird-safe treatments.

All new buildings, and major renovations of existing buildings, shall be required to provide bird-safe building treatments for the façade, landscaping, and lighting consistent with the standards of this section.

The following standards and guidelines were derived from bird-safe building standards identified by the cities of San Francisco and Oakland, the Audubon Society, and Leadership in Energy and Environmental Design (LEED) documents.

Bird-Safe Façade Treatments

All new buildings and major renovations of existing buildings shall be required to provide bird-safe building façade treatments to reduce the potential for bird strikes.

A. Glass treatment or architectural design visible to birds shall be used to reduce the amount of untreated glass or glazing to less than 10 percent of the building façade above the ground floor. These treatments are also required for the portions of ground floors that face the Los Cerritos Wetlands. Figure 7-10, Bird-Safe Treatments for Transparent Surfaces, depicts a range of surfaces from the greatest to the least threat for strike potential. Treatment options for glass and architectural building design ideas include, but are not limited to:

- **Film and Art Treatment of Glass.** This option may be used to reflect the community or type of use occupying the building through art. This method allows the windows to be used as art creating an attractive scene for the community that deters bird strikes.
- **External Screens.** Screens can be used as an inexpensive and effective method of preventing bird strikes. Screening or netting, stretched several inches over windows or entryways to create a visual barrier and prevent birds from hitting the glass.
- **Architectural Design Features.** The use of architectural features such as overhangs, louvers, and awnings can be used to block the view of glass from birds. They should be combined with window treatments to eliminate reflections.
- **Fritted and Frosted Glass.** Fritting is a commonly used and inexpensive solution that is most successful when the frits are applied on the outside surface. Ceramic dots—or frits—applied between layers of insulated glass can also be used to reduce transmission of light. Frits can be applied in different colors and patterns and can commonly be seen on commercial buildings.
- **Angled Glass.** Design buildings with angled glass at 20 to 40 degrees, most appropriate for low-scaled buildings with smaller panes and a limited amount of glass; generally, this technique is not effective for large buildings.
- **Ultra-Violet Glass.** Use glass that reflects ultra-violet light, this type of light is primarily visible to birds but not to people. Insulated glass is also available with ultra-violet patterns that are designed to deter birds while largely being imperceptible to humans.
- **Window Signage.** Similar to film and art treatments, window signage could be used to deter bird strikes as long as consistent with Chapter 21.44, On-Premises Signs, of the Long Beach Municipal Code.

B. Where applicable, vertical elements within the treatment pattern should be at least one-quarter inch (1/4") wide at a maximum spacing of four inches (4") and horizontal elements should be at least one-eighth-inch (1/8") wide at a maximum spacing of two inches (2").

C. No glazing shall have a "Reflectivity Out" coefficient exceeding 30 percent. The fraction of radiant energy that is reflected from glass or glazed surfaces shall not exceed 30 percent.

D. Building features such as freestanding glass walls, wind barriers, balconies, and greenhouses are also required to comply with these glazing treatments. See Figure 7-10 for acceptable levels of treatment for transparent surfaces.

E. Equivalent treatments recommended by a qualified biologist may be used if approved by the City and/or the Coastal Commission.

F. Building and site designs such as transparent passageways, corners, atria, or courtyards that can trap birds are prohibited.

Bird-Safe Landscaping

Landscaped areas next to buildings, including patios and interior courtyards, shall be designed and sited to avoid or minimize bird-strike hazards caused by reflective building surfaces. Landscaping shall be designed to keep birds away from the building's façade through the following standards:

A. Trees and other vegetation shall be sited so that the plants are not reflected on building surfaces.

B. To obscure reflections, trees and other vegetation planted adjacent to a reflective wall or window shall be planted close to (no further than three feet from) the reflective surface.

C. For exterior courtyard and recessed areas, building edges shall be clearly defined by using opaque materials or non-reflective glass.

D. Walkways constructed of clear glass shall be avoided.

E. Plant material shall comply with Appendix D, Plant Palette.

Lights Out for Birds

A. The City shall encourage building owners and operators to participate in "Lights Out for Birds" programs or similar initiatives by turning off lighting at night, particularly during bird migration periods.

Bird-Safe Building Interiors

A. Light pollution from interior lighting shall be minimized through the utilization of automated on/off systems and motion detectors.

Bird-Safe Lighting Design

Buildings shall be designed to use minimal external lighting (limited to pedestrian safety needs) and to minimize direct upward light, spill light, glare, and artificial night sky glow. Buildings shall also be designed to minimize light pollution from interior lighting to the maximum feasible extent.

A. Nighttime lighting shall be minimized to levels necessary to provide pedestrian security.

B. Buildings shall be designed to minimize light spillage and maximize light shielding to the maximum feasible extent.

C. Building lighting shall be shielded and directed downward, up-lighting is prohibited. Use of "event" searchlights or spotlights shall be prohibited.

D. Landscape lighting shall be limited to low-intensity and low-wattage lights.

E. Red and blue lights shall be limited to only that necessary for security and safety warning purposes, warm-white lights or filtered LEDs designed to minimize blue emissions shall be used.

F. See Chapter 5, Development Standards, Section 5.11, Standards Applicable to All Areas Adjacent to Jurisdictional Waters and Wetlands, for additional lighting requirements.

Wetland Proximity

In addition to the standards above, buildings located 100 feet from delineated wetlands shall also comply with the following:

A. Limited height.

B. Minimize the number of and, whenever possible, co-locate rooftop antennas and other rooftop structures.

C. Monopole structures or antennas shall not include guy wires.

9.4.2 Regional Plans, Programs, and Agencies

LCWA Wetlands Conceptual Restoration Plan

The restoration plan is a future vision of the wetlands and consists of two reports—Opportunities and Constraints Report and Watershed Impacts Report. Six goals guide implementation of the plan:

- Restore tidal wetland processes and functions to the maximum extent possible.
- Maximize contiguous habitat areas and maximize the buffer between habitat and sources of human disturbance.
- Create a public access and interpretive program that is practical, protective of sensitive habitat and ongoing oil operations, and economically feasible, and that will ensure a memorable visitor experience.
- Incorporate phasing of implementation to accommodate existing and future potential changes in landownership and usage, and as funding becomes available.
- Strive for long-term restoration success. » Integrate experimental actions and research into the project, where appropriate, to inform restoration and management actions for this project.

Although, funding has not been obtained for the restoration, the plan identifies funding opportunities such as mitigation credits as well as possible state and/or federal grants.

3.3.4 Significance Thresholds and Methodology

The following discussion examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the proposed program.

3.3.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or United States Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or United States Fish and Wildlife Service;

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

As detailed in the Initial Study (refer to Appendix A of this PEIR), the proposed program would result in no impact to threshold “f”. Although not required, evaluation of the proposed program’s impact to threshold “f” was conducted in this section.

3.3.4.2 Methodology

Although specific impacts are not described in this PEIR, project-related impacts can be direct or indirect and can occur during construction or operation of future, proposed projects within the program area. This includes impacts associated with ecosystem restoration activities such as grading and revegetation as well as impacts associated with flood risk and stormwater management, public access and visitor facilities development and infrastructure and utility modifications as described in the project description.

Direct impacts are considered to be those that involve the loss, modification, or disturbance of plant communities, which in turn directly affect the flora and fauna of those habitats. Direct impacts also include the destruction of individual plants or wildlife, which may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and population stability.

Other impacts, such as loss of foraging habitat, can occur although these areas or habitats are not directly removed by project activity (i.e., indirect impacts). Indirect impacts can also involve the effects of increases in ambient levels of noise or light, competition with exotic plants and

animals, and increased human disturbance. Indirect impacts may be associated with the subsequent day-to-day activities associated with some projects, such as increased traffic use, exotic ornamental plantings that provide a local source of seed, which may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of native plants by exotics, and changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to the program area.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to biological resources were identified.

3.3.5 Program Impacts and Mitigation Measures

Impact BIO-1: The proposed program would result in a significant impact if the proposed program would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or United States Fish and Wildlife Service.

Construction

Special-Status Plants

Suitable habitat is present or individuals have been observed in the proposed program area for 31 special-status plant species, including within the South, Isthmus, Central and North Areas (refer to Table 3.3-4). Many of these species have not been documented in the program area, but they have the potential to occur there. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications may impact these species should they be present. The loss of any of these species, should they be present, would be significant. Implementation of Mitigation Measure BIO-1 would reduce impacts to these species to a less-than-significant level by requiring avoidance and/or re-establishment of special-status plants, and restoration of any impacts to these special-status species, respectively. Implementation of Mitigation Measure BIO-2 would further reduce impacts to these species through the implementation of a Worker Education Awareness Program (WEAP) and monitoring of initial work efforts by a qualified biological monitoring.

Special-Status Invertebrates

Mudflat Tiger Beetle, Wandering Skipper, Sandy Beach Tiger Beetle, Senile Tiger Beetle, Western Beach Tiger Beetle, and Western Tidal-Flat Tiger Beetle

Mudflat tiger beetle and salt marsh tiger beetle have been documented in the North Area. Suitable habitat for these special-status invertebrates occur within program area, including the South, Isthmus, Central, and North Areas. Focused surveys have not been performed; however, it is expected that these invertebrates may occur within and/or adjacent to the salt marsh habitats throughout the program area including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities would result in temporary loss of suitable habitat for these species. However, given the

phased approach to minimize impacts across the program area, and the amount of suitable mudflat habitat that would be restored, impacts from restoration activities (i.e., grading) would be minimized, and the proposed program would result in a long-term benefit to invertebrate species. The temporary loss of existing mud flat habitat during the restoration process is not expected to cause a special-status invertebrate species to drop below self-sustaining levels, since a substantial amount of mudflat area will be preserved. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including special-status invertebrate species. Therefore, impacts to special-status invertebrates would be less than significant.

Mimic Tryonia

Suitable habitat for mimic tryonia occurs within program area, including the South, Isthmus, Central, and North Areas. Focused surveys have not been performed; however, it is expected that this species may occur within the aquatic habitats throughout the program area including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities would result in temporary loss of suitable habitat for these species. However, given the phased approach to minimize impacts across the proposed program area, and the amount of suitable aquatic habitat that would be restored, impacts from restoration activities (i.e., grading) would be minimized, and the proposed program would result in a long-term benefit to the species. The temporary loss of existing aquatic habitat during the restoration process is not expected to cause the species to drop below self-sustaining levels, since a substantial amount of aquatic habitat within the program area will be preserved and an abundance of aquatic habitat occurs outside the program area. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including special-status invertebrate species. Therefore, impacts to mimic tryonia would be less than significant.

Monarch Butterfly

The monarch butterfly was not observed in the program area during any general biological surveys and is not known to occur in the program boundary; however, the stands of palm and eucalyptus trees associated with the program areas provide suitable habitat for this species including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access and infrastructure and utility modifications has the potential for limited impacts on this species; however, given the phased restoration approach and implementation of Mitigation Measures BIO-2 and BIO-8 that requires a WEAP, biological monitoring, preconstruction surveys and relocation, impacts to monarch butterfly would be less than significant. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including monarch butterfly; as such, implementation of the proposed program would have a net benefit on this species.

Special-Status Mammals

Pacific Pocket Mouse

The Pacific pocket mouse was not observed in the program area during any general biological surveys and is not known to occur in the program boundary; however, the salt marsh associated

with the program areas provides suitable habitat for this species including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications has the potential for limited impacts on this species; however, given the phased restoration approach and implementation of Mitigation Measures BIO-2 and BIO-8 that requires a WEAP, biological monitoring, preconstruction surveys and relocation, impacts to Pacific pocket mouse would be less than significant. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including Pacific pocket mouse; as such, implementation of the proposed program would have a net benefit on this species.

South Coast Marsh Vole and Southern California Salt Marsh Shrew

The south coast marsh vole and Southern California salt marsh shrew were not observed in the program area during any general biological surveys; however, the salt marsh areas associated with the program area provide suitable habitat for these species including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications have the potential for limited impacts on these species; however, given the phased restoration approach and implementation of Mitigation Measures BIO-2 and BIO-8 that require implementation of a WEAP, biological monitoring, preconstruction surveys and relocation, impacts to these vole and shrew species would be less than significant. Moreover, the loss of suitable habitat during grading will be limited and is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including south coast marsh vole and Southern California marsh shrew; as such, implementation of the proposed program would have a net benefit on these species.

Western Mastiff Bat and Western Yellow Bat

The western mastiff bat and western yellow bat were not observed in the program area during any general biological surveys; however, all four areas may provide suitable habitat for these species and palm trees may provide roosting habitat including within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access and infrastructure and utility modifications exhibits potential for limited impacts on this species; however, given the phased restoration approach and the extensive area of suitable habitat preserved and restored, potential habitat impacts would not cause this species to drop below self-sustaining levels. Restoration activities would not be expected to result in the direct loss of individuals and the implementation of the proposed program would improve the condition and extent of these species' preferred habitat following completion of the proposed program. Implementation of Mitigation Measures BIO-2, BIO-7 and BIO-8 would ensure that these mammals would be unharmed if encountered and result in a less-than-significant impact.

Special-Status Aquatic and Reptile Species

Pacific Green Sea Turtle

Pacific green sea turtle has either been observed in or potential habitat has been identified within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel). Pacific green sea turtle has not been observed within the Isthmus Area and

suitable habitat does not occur within the Isthmus Area. There is low potential for ecosystem restoration activities and flood risk and stormwater management activities to impact this species if impacts within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel) occur. Impacts to Pacific green sea turtle are not anticipated to occur within the Isthmus Area. In accordance with Mitigation Measures BIO-2 and BIO-8, potential impacts on Pacific green sea turtle would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys and specific avoidance measures.

Steelhead – Southern California DPS

Steelhead has not been observed within the South, Isthmus, Central or North Areas; however, focused surveys have not been conducted. Suitable habitat for steelhead occurs within the North Area (Steamshovel Slough) and Central Area (San Gabriel River). There is low potential for ecosystem restoration activities and flood risk and stormwater management associated with the proposed program to impact this species within the Central and North Areas. In accordance with Mitigation Measures BIO-2 and BIO-8, potential impacts on steelhead would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys and specific avoidance measures.

Tidewater Goby

Tidewater goby has not been observed within the South, Isthmus, Central or North Areas; however, focused surveys have not been conducted. Suitable habitat for tidewater goby occurs within the North Area (Steamshovel Slough), Central Area (San Gabriel River), Isthmus Area (Zedler Marsh), and South Area (Haynes Cooling Channel). There is low potential for ecosystem restoration activities and flood risk and stormwater management associated with the proposed program to impact this species within the South, Central and North Areas. In accordance with Mitigation Measures BIO-2 and BIO-8, potential impacts on tidewater goby would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys and specific avoidance measures.

Western Pond Turtle

Western pond turtle has not been observed in the program area and is unlikely to occur; however, potentially suitable habitat has been identified within the South, Central, and North Areas. There is low potential for ecosystem restoration activities and flood risk and stormwater management program activities to impact this species if impacts to freshwater marsh occur. In accordance with Mitigation Measures BIO-2 and BIO-8, potential impacts on western pond turtle would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys and specific avoidance measures.

Coast Horned Lizard, Coastal Whiptail, Red Diamond Rattlesnake, and Southern California Legless Lizard

The coast horned lizard, coastal whiptail, and Southern California legless lizard were not observed in the program area during any general biological surveys. The red diamond rattlesnake was observed in the program area. The upland areas within the South, Central, Isthmus, and North Areas provide suitable habitat for these species. Ecosystem restoration activities,

development of public access and infrastructure, and utility modifications could have limited impacts on this species; however, given the phased restoration approach and the extensive area of suitable habitat within the program area that would be preserved and restored, the restoration activities associated with the proposed program would not cause this species to drop below self-sustaining levels (if present). Moreover, direct impacts during grading activities would be less than significant through the implementation of Mitigation Measures BIO-2 and BIO-8 that requires implementation of a WEAP, biological monitoring, focused habitat assessment, pre-construction surveys, capture and relocation of special-status wildlife, including these special-status reptile species, and analysis and mitigation of impacts in a project-level CEQA document. Also, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for these reptile species; therefore, implementation of the proposed program would have a net benefit on these species.

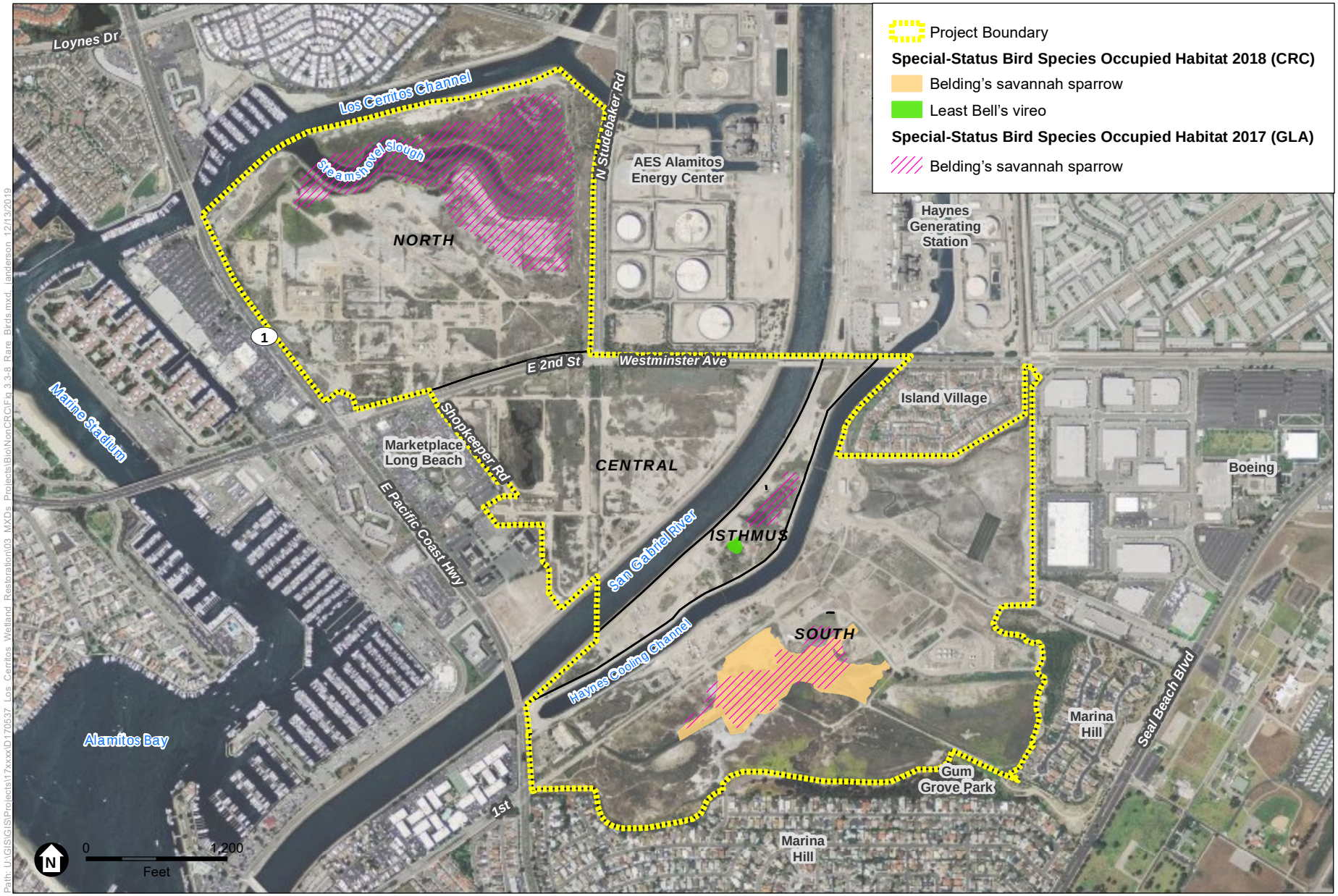
Special-Status Avian Species

American Peregrine Falcon

American peregrine falcon has been observed within the program area. The South, Isthmus, Central, and North Areas contain suitable foraging habitat for the peregrine falcon, which is expected to forage at least occasionally within the proposed program area, particularly during the wintering period when populations of waterfowl and shorebirds are highest. No suitable breeding habitat for this species has been documented within the program area. Ecosystem restoration activities, flood risk and stormwater management, development of public access and infrastructure, and utility modifications may temporarily prevent American peregrine falcons from foraging within the program area; however, the proposed program would improve the overall habitat conditions, which includes foraging habitat for American peregrine falcon. Therefore, impacts to peregrine falcon and its foraging habitat would be less than significant following the implementation of the proposed program.

Belding's Savannah Sparrow

Habitat occupied by Belding's savannah was observed in the South, Isthmus, and North Areas and was not observed in the Central Area as depicted in **Figure 3.3-8**, *Special-Status Bird Species Occupied Habitat*. The South, Central, Isthmus, and North Areas provide suitable foraging and nesting habitat for the species. Ecosystem restoration activities would result in potentially significant direct impacts on the Belding's savannah sparrow from grading activities and removal of suitable nesting and foraging habitat, as well as indirect impacts from noises, vibrations and dust generated from heavy equipment. The proposed program would improve and expand the existing habitat conditions following the completion of restoration activities. However, temporary impacts to existing habitat from implementation of the restoration impacts would be less than significant with the implementation of Mitigation Measures BIO-2 and BIO-3, which requires implementation of a WEAP, biological monitoring, a minimum habitat replacement ratio of 1:1 (created:impacted); Mitigation Measure BIO-4 that requires minimization and avoidance measures for preserving active bird nests; and Mitigation Measure BIO-9, which requires re-establishment of permanent and temporary impacts to CDFW Sensitive Natural Communities.



Path: U:\GIS\GIS\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\Bio\NonCRC\Fig 3.3-8_Rare_Birds.mxd landerson 12/13/2019

SOURCE: Mapbox, LCWA, Coastal Restoration Consultants, Glenn Lukos Associates

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.3-8

Special-Status Bird Species Occupied Habitat

ESA

Black Skimmer

Black skimmer has been observed foraging within the program area and is expected to forage in the South, Central, and North Areas; however, there are no potential breeding areas present in the program boundary. The Isthmus Area does not contain suitable habitat for the species. Ecosystem restoration activities, flood risk and stormwater management, and infrastructure and utility modifications along aquatic areas within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel) may temporarily affect foraging activities for brief periods; however, given that expansive areas of foraging areas that exist elsewhere within these waterways, such short-term and localized impacts on black skimmer would not be considered significant.

Burrowing Owl

Wintering burrowing owls have been observed in the Isthmus Area; however, they have not been observed in the South, Central, or North Areas or during the breeding season in the program area. Nevertheless, suitable habitat is present in the South, Isthmus, Central, or North Areas. Ecosystem restoration activities, development of public access and visitor facilities, and infrastructure and utility modifications exhibit potential for direct and indirect impacts on wintering individuals; should a burrowing owl or owls occupy the program area prior to program activities. In accordance with Mitigation Measures BIO-2 and BIO-5, potential impacts on burrowing owl would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys and specific avoidance measures.

California Black Rail

California black rail has not been observed in the program area and is not expected to occur within the South, Isthmus, Central, and North Areas. However, suitable habitat is present in the North Area (Steamshovel Slough) and other marsh areas in the South, Isthmus, and Central Areas. Ecosystem restoration activities and infrastructure and utility modifications exhibit potential for direct impacts. In addition, indirect impacts on California black rail could occur through disruption of breeding and nesting from construction noise and dust. Impacts on California black rail would be less than significant following implementation of a WEAP and biological monitoring as identified in Mitigation Measure BIO-2 and pre-construction nesting bird surveys and avoidance as identified in Mitigation Measure BIO-4. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including California black rail; therefore, implementation of the proposed program would have a net benefit on this species.

California Brown Pelican

California brown pelican have been observed foraging within the program area and is expected to forage in the South, Central, and North Areas; however, there are no potential breeding areas in the program boundary. The Isthmus Area does not contain suitable habitat for the species. Ecosystem restoration activities, flood risk and stormwater management and infrastructure and utility modifications along aquatic areas within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel) may temporarily affect foraging activities for brief periods; however, given that expansive foraging areas exist elsewhere

within these waterways, such short-term and localized impacts on California brown pelicans would not be considered significant.

California Least Tern

California least tern have been observed foraging within the South, Isthmus, Central, and North Area; however, there are limited potential breeding areas on salt flats located within the proposed program. Ecosystem restoration activities, flood risk and stormwater management, and infrastructure and utility modifications along aquatic areas within the North Area (Steamshovel Slough), Central Area (San Gabriel River), and South Area (Haynes Cooling Channel) exhibits potential for affecting foraging activities for brief periods; however, given that expansive foraging areas exist elsewhere within these waterways, such short-term and localized impacts on California least tern foraging habitat is considered temporary and not significant. Potential impacts on California least tern would be avoided and minimized through implementation of a WEAP and biological monitoring as identified in Mitigation Measure BIO-2 and pre-construction bird surveys and avoidance as identified in Mitigation Measure BIO-4. Since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including California least tern; implementation of the proposed program would have a net benefit on this species.

Coastal California Gnatcatcher

Coastal California gnatcatcher has not been observed within the program area; the potential for this species to occur is considered low. However, there is suitable foraging and breeding habitat present within the program area. Suitable habitat is present in the South, Isthmus, Central, and North Areas. To ensure that this species is not impacted during ecosystem restoration activities, development of public access, and infrastructure and utility modifications activities, implementation of a WEAP and biological monitoring as identified in Mitigation Measure BIO-2 and pre-construction nesting avian surveys and avoidance as identified in Mitigation Measure BIO-4 shall be conducted. Implementation of this mitigation measure would reduce potential impacts to coastal California gnatcatcher to a level of less than significant.

Least Bell's Vireo

Least Bell's vireo has been observed foraging within the Isthmus Area and suitable foraging habitat also occurs in the Central and North Areas; however, no breeding behavior or nesting territories have been documented in the program area and nesting habitat within the program area is considered marginal at best. The species has been documented breeding just south of the program area in the Heron Pointe Bioswale. Suitable foraging habitat exists in the Isthmus, Central, and North Areas. Nevertheless, ecosystem restoration activities that would occur near potential riparian foraging and nesting habitat may temporarily impact this species, which could result in significant impacts. However, potential impacts would be reduced to a level of less than significant through implementation of Mitigation Measures BIO-2 and BIO-4, which requires implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance measures.

Loggerhead Shrike

Loggerhead shrike have been observed foraging within the program area and is expected to forage within the South, Isthmus, Central and North Areas. Ecosystem restoration activities,

development of public access, and infrastructure and utility modifications could result in significant direct and indirect impacts on the loggerhead shrike if this species was found to be nesting on site. Potential nesting impacts to loggerhead shrike will be avoided and minimized through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4; therefore, impacts to this species is considered less than significant.

Merlin

Merlin have been observed within the program area; however, there is no potential breeding habitat on site within the South, Isthmus, Central and North Areas. Suitable foraging habitat occurs within the South, Isthmus, Central and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications exhibit potential for affecting foraging activities for brief periods; however, given that expansive areas of foraging areas both on site and off site are available, such short-term and localized impacts would not be considered significant.

Northern Harrier (Nesting)

Northern harrier have occasionally been observed foraging within the program area; however, there are no records of this species nesting within the program area. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications associated with the proposed program could result in significant impacts on the northern harrier if this species was found to be nesting within the program area. However, such impacts to northern harrier would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Osprey

Osprey have occasionally been observed foraging within the program area; however, there are no records of this species nesting within the program area. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications associated with the proposed program could result in significant impacts on the osprey if this species was found to be nesting within the program area. However, such impacts to osprey would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Ridgway's Rail

The Ridgway's rail has not been observed within the program area, but had potential to occur within the North Area where suitable Pacific cordgrass habitat is present in Steamshovel Slough as well as within the Isthmus and South Areas. They have never been documented nesting within the proposed program as suitable breeding habitat does not exist due to lack of tall cordgrass or brackish marsh vegetation. Ecosystem restoration activities, flood risk and stormwater management, and development of public access associated with the proposed program could result in potential direct impacts should a Ridgway's rail be nesting within or adjacent to areas that will be disturbed from grading activities. In addition, indirect impacts on Ridgway's rail could occur through

disruption of nesting or other essential behaviors from construction noise and dust. Potential impacts on Ridgway's rail would be avoided and minimized through implementation of a WEAP, biological monitoring, pre-construction nesting bird surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including Ridgway's rail; therefore, implementation of the proposed program would have a net benefit on this species.

Short-Eared Owl

Short-eared owl has been observed foraging within the program area; however, there are no records of this species nesting within the program area. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications activities associated with the proposed program could result in significant impacts on the short-eared owl if this species was found to be nesting on site. However, potential impacts to nesting short-eared owls would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow have not been observed within the program area during various surveys and site assessments; therefore, the potential for this species to occur is considered low. However, there is suitable foraging and breeding habitat present within the program area, including the South, Isthmus, Central, and North Areas. To ensure that this species is not impacted during ecosystem restoration activities, development of public access and infrastructure and utility modifications activities, implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4 shall be conducted. Implementation of these mitigation measures would reduce potential impacts to Southern California rufous-crowned sparrow to a level of less than significant.

Southwestern Willow Flycatcher

Southwestern willow flycatcher has not been observed foraging within the program area and there is no suitable breeding habitat present within the program area. Suitable foraging habitat is limited to the Isthmus, Central, and North Areas. Because suitable riparian woodland breeding habitat is absent in the program area, the potential for this species to occur is considered low. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications activities associated with the proposed program could result in potential direct impacts to migrants that may forage within the program area. However, potential impacts on southwestern willow flycatcher would be avoided and minimized through the implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4 shall be conducted. Implementation of these mitigation measures would reduce potential impacts to southwestern willow flycatcher to a level of less than significant.

Tri-Colored Blackbird

Tri-colored blackbird has not been observed within the program area and there is potential for the species to nest and forage on marshland located within the Central Area. Suitable foraging habitat is present in the South, Isthmus, Central, and North Areas. As such, the potential for this species to occur is considered low. Ecosystem restoration activities, including development of public access, infrastructure and utility modifications activities associated with the proposed program, could result in potential direct impacts to foraging and nesting tri-colored blackbird, if present. Potential impacts on tri-colored blackbird would be avoided and minimized through the implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4 shall be conducted. Implementation of these mitigation measures would reduce potential impacts to tri-colored blackbird to a level of less than significant.

Western Snowy Plover

The western snowy plover has not been observed foraging or nesting within the program area but there is potential for the species to nest on salt flats located within the Central Area. It is not expected to nest within the South, Isthmus, or North Areas. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities and flood risk and stormwater management activities associated in the North Area (Steamshovel Slough) and other tidal areas in the South, Isthmus and Central Areas would temporarily remove potential foraging and nesting habitat. Potential impacts on western snowy plover would be avoided and minimized through implementation of a WEAP, biological monitoring, pre-construction bird surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including western snowy plover; therefore, implementation of the proposed program would have a net benefit on this species.

White-Tailed Kite

White-tailed kite have been observed foraging within the program area and there are limited potential nesting sites located on eucalyptus trees located in the South, Isthmus, Central and North Areas. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modifications activities within the South, Isthmus, Central, and North Areas could result in significant impacts on white-tailed kite if this species was found to be nesting on site. However, potential impacts to would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Yellow Rail

Yellow rail has not been observed within the program area; however, suitable freshwater marsh habitat is present within the South, Central and North Areas. Ecosystem restoration activities, including flood risk and stormwater management and development of public access associated with the proposed program, could result in potential direct impacts should a yellow rail be nesting within or adjacent to areas that will be disturbed from these activities. In addition, indirect

impacts on yellow rail could occur during nesting from adjacent noise, vibrations and dust generated during construction activities. However, potential impacts on yellow rail would be avoided and minimized through implementation of a WEAP, biological monitoring, pre-construction nesting bird surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4. Moreover, the loss of suitable habitat during grading is considered temporary and less than significant, since the purpose of the proposed program is to enhance and restore habitat that is suitable for wildlife, including yellow rail; therefore, implementation of the proposed program would have a net benefit on this species.

Yellow Warbler

Yellow warbler has not been observed nesting or foraging within the program area and nesting habitat is not present; however, suitable foraging habitat occurs within the Isthmus Area. Ecosystem restoration activities, including development of public access and infrastructure and utility modification activities associated with the proposed program, could result in potential impacts on the foraging yellow warblers. However, potential impacts would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Yellow-Breasted Chat

Yellow-breasted chat has been observed foraging within the program area; however, there are no records of this species nesting within the program area and there is no nesting habitat present. Suitable foraging habitat occurs within the South, Isthmus, Central, and North Areas. Ecosystem restoration activities, development of public access, and infrastructure and utility modification activities associated with the proposed program could result in significant impacts on the yellow-breasted chat if this species was found to be nesting on site. However, potential impacts to would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Nesting Birds

Habitat within the South, Isthmus, Central, and North Areas has the potential to support a variety of nesting birds. Impacts to migratory and resident nesting avian species are prohibited under the MBTA as well as provisions of the California Fish and Game Code. Ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities, and infrastructure and utility modifications associated with the proposed program could result in potential impacts to nesting birds and raptors. However, impacts would be less than significant through implementation of a WEAP, biological monitoring, pre-construction nesting avian surveys, and avoidance as identified in Mitigation Measures BIO-2 and BIO-4.

Marine Mammals

Harbor seal and California sea lion have both been observed within the program area and the Central and North Areas provide open water habitat for these species; however, suitable habitat does not occur within the South or Isthmus Areas as open waters which occur are either blocked by culverts that are too small to allow passage or contain grates which prevent entry. Impacts to marine mammal species are prohibited under the MMPA. There is low potential for ecosystem restoration activities and flood risk and stormwater management activities to impact marine

mammal species if impacts within the North Area (Steamshovel Slough) and Central Area (San Gabriel River) occur due to the limited size and scope of activities along the banks of areas containing open water. Although, work activities may occur along the open water-land interface, work activities will avoid deeper areas away from the banks where marine mammals are more likely to occur. Impacts to marine mammals are not anticipated to occur within the South or Isthmus areas. In accordance with Mitigation Measures BIO-2 and BIO-8, potential impacts on marine mammals would be less than significant through implementation of a WEAP, biological monitoring, pre-construction surveys, and specific avoidance measures.

Operation

Operational impacts associated with the ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities, and infrastructure and utility modifications could result in an adverse indirect minor impacts to special-status species, such as the introduction and spread of noxious, invasive weeds that could compete with native plants for water and nutrients and alter habitat conditions for some wildlife species. Such indirect impacts caused by the invasion of weed species would be reduced through implementation of Mitigation Measure BIO-1, which requires the preparation and implementation of weed management, maintenance, and monitoring procedures.

Operation impacts associated with nighttime lighting of the visitor center and parking lot areas include disruption to nocturnal wildlife species that could affect their breeding and foraging habits. Without proper placement and/or shielding, light trespass and/or glare onto wildlife habitat areas from these nighttime lighting sources could occur. Implementation of Mitigation Measure BIO-6 would minimize nighttime lighting impacts on wildlife by requiring the preparation of a lighting plan and requiring that nighttime lighting is shielded downward to minimize spillage onto adjacent areas; therefore, impacts would be less than significant.

Lastly, the proposed program would not have an effect on tidal-influenced or storm-generated water levels based on modeling of sea-level rise scenarios (see Section 3.8, *Hydrology and Water Quality*, of this PEIR); therefore, no impacts to tidal marsh-dependent species would occur following the installation and/or relocation of the ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities and infrastructure and utility modifications.

Mitigation Measures

Mitigation Measure BIO-1: Avoidance of Special-Status Plants. Prior to ground-disturbing activities (e.g., vegetation removal and grading), a qualified botanist/biologist shall conduct a habitat assessment to determine the presence or absence of suitable habitat for special-status plant species. If suitable habitat is determined to be present, focused plant surveys should be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, March 20, 2018). The locations of any special-status plants within 25 feet of proposed disturbance areas shall be identified and mapped. Individual plants shall be flagged for avoidance and an avoidance buffer of at least 10 feet shall be established around the plant(s).

If special-status plants cannot be avoided, they shall be incorporated into the proposed program's restoration design at a minimum ratio of 1:1 (one plant planted for every one plant removed, or 1 square foot of absolute cover planted for every 1 square foot of absolute cover removed). Special-status plants that cannot be avoided shall be salvaged prior to impacts using species-specific propagation methods, such as transplanting, seed and cuttings. Seed collection shall occur during the appropriate time of year for each species. Seeds shall be propagated by a qualified horticulturalist or in a local nursery, and shall be incorporated into habitat-specific seed mixes that will be used for revegetation of the restoration areas.

Mitigation Measure BIO-2: Environmental Awareness Training and Biological Monitoring. Prior to commencement of activities within the program area, a qualified biologist shall prepare a Worker Environmental Awareness Program (WEAP) that provides a description of potentially occurring special-status species and methods for avoiding inadvertent impacts. The WEAP training shall be provided to all construction personnel. Attendees shall be documented on a WEAP training sign-in sheet.

Initial grading and vegetation removal activities shall be supervised by a qualified monitoring biologist. The biologist shall ensure that impacts to special-status plants and wildlife, including wetland vegetation, are minimized to the greatest extent feasible during implementation of program activities on the South, Isthmus, Central and North Areas. If any special-status wildlife species are encountered during construction and cannot be avoided, the monitoring biologist shall have the authority to temporarily halt construction activities until a plan for avoidance has been prepared and approved by CDFW, and implemented by the monitoring biologist. Relocation of a federal- or state-listed species shall not be allowed without first obtaining take authorization from USFWS and/or CDFW.

Mitigation Measure BIO-3: Belding's Savannah Sparrow Breeding Habitat. Prior to the commencement of activities within the program area, a qualified biologist shall map suitable Belding's savannah sparrow habitat as the location and amount of suitable habitat is anticipated to change over time. Project activities shall be limited to July 16 through February 14 within suitable costal marsh habitat to avoid impacts to breeding Belding's savannah sparrow. Suitable Belding's savannah sparrow breeding habitat that will be impacted by the proposed program shall be created within the program area at a minimum ratio of 1:1 (area created:area impacted). Restored breeding habitat shall consist of a minimum 60 percent absolute cover of salt marsh vegetation, and shall consist of a hydrologic regime similar to that currently present in the North Area or South Area, respectively. Other unique conditions within coastal salt marsh communities shall exist as well, such as, similar slope, aspect, elevation, soil, and salinity. A Mitigation, Maintenance and Monitoring Program shall be prepared and approved by CDFW prior to implementation. The proposed program shall be implemented by a qualified restoration ecologist, and at a minimum, shall include success criteria and performance standards for measuring the establishment of Belding's savannah sparrow breeding habitat, responsible parties, maintenance techniques and schedule, 5-year monitoring and reporting schedule, adaptive management strategies, and contingencies.

Mitigation Measure BIO-4: Nesting Bird and Raptor Avoidance. A qualified biologist shall identify areas where nesting habitat for birds and raptors is present prior to

the commencement of activities within the program area. To ensure the avoidance of impacts to nesting avian species, the following measures shall be implemented:

- Construction and maintenance activities shall be limited to the non-breeding season (September 1 through December 31) to the extent feasible. If construction or maintenance activities will occur during the avian nesting season (January 1 through August 31), a qualified biologist shall conduct pre-construction nesting avian surveys within no more than 5 days prior to the initiation of construction activities to identify any active nests. If a lapse in work of 5 days or longer occurs, another survey shall be conducted to verify if any new nests have been constructed prior to work being reinitiated.
- If active nests are observed, an avoidance buffer shall be demarcated by a qualified biologist with exclusion fencing and shall be maintained until the biologist determines that the young have fledged and the nest is no longer active.

Mitigation Measure BIO-5: Habitat Assessment and Pre-Construction Surveys for Burrowing Owl. A qualified biologist shall conduct a pre-construction burrowing owl survey of the program area within suitable habitat prior to construction activities. If burrowing owls are detected, a Burrowing Owl Management Plan shall be prepared and approved by CDFW, and implemented, prior to commencement of construction. The Burrowing Owl Management Plan shall be prepared in accordance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation and shall address specific minimization and avoidance measures for burrowing owls, such as avoidance of occupied habitat, translocation of individuals, and on site revegetation.

Mitigation Measure BIO-6: Minimization of Light Spillage. A Program Lighting Plan shall be designed to minimize light trespass and glare into adjacent habitat areas prior to the commencement of activities within the program area. Nighttime lighting associated with the visitor center, parking lot, and trails shall be shielded downward and/or directed away from habitat areas to minimize impacts to nocturnal species, including breeding birds.

Mitigation Measure BIO-7: Pre-Construction Bat Surveys. A qualified biologist shall conduct a pre-construction bat survey of the program area prior to construction activities. Prior to commencement of construction activities, a qualified biologist shall conduct a preconstruction clearance survey of suitable bat roosting habitat, such as mature palm trees. If bats are determined to be roosting, the biologist will determine whether it is a day roost (non-breeding) or maternity roost (lactating females and dependent young). If a day roost is determined, the biologist shall ensure that direct mortality to roosting individuals will not occur by requiring that trees with roosts are not directly impacted (e.g., removed) until after the roosting period.

If a maternity roost is determined to be present, the biologist shall determine a suitable buffer distance between construction activities and the roosting site. If direct disturbance to the maternity roost could occur, a Bat Exclusion Plan shall be prepared and approved by CDFW, and implemented, prior to impacting the roost. At a minimum, the Plan shall include avoidance and minimization measures to reduce potential impacts to breeding bats during construction activities and prescribed methods to safely and humanely evict bats from the roost to avoid mortality.

Mitigation Measure BIO-8: Focused Surveys for Special-Status Wildlife Species. Should suitable habitat occur, a qualified biologist shall conduct focused habitat assessments and focused surveys for special-status wildlife species listed in Table 3.3-4. Both habitat assessments and focused surveys shall occur prior to LCWA's approval of the project plans or the publication of subsequent CEQA documents for any project site that potentially contains special-status species. Agency-approved protocols shall be used for specific species where appropriate during the required or recommended time of year. For all other target (special-status) species, prior to initiating surveys, survey methods shall be verified and approved in writing by CDFW and USFWS for all state- and/or federally-protected species, respectively. If special-status species are detected, a Wildlife Avoidance Plan shall be prepared and approved by CDFW and USFWS prior to commencement of construction. The Wildlife Avoidance Plan shall include specific species minimization and avoidance measures, measures to minimize impacts to occupied habitat, such as avoidance and revegetation, as well as relocation/translocation protocols.

If special-status species cannot be avoided, Incidental Take Permits from the United States Fish and Wildlife Service and California Department of Fish and Wildlife will be required. If an incidental take permit is being obtained, compensatory mitigation for the loss of occupied habitat shall be provided through purchase of credit from an existing mitigation bank, private purchase of mitigation lands, or on-site preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce potential effects to less-than-significant levels.

Significance after Mitigation

Less than Significant with Mitigation

Impact BIO-2: The proposed program would result in a significant impact if the proposed program would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or United States Fish and Wildlife Service.

Construction

Direct impacts would be limited to grading necessary to reintroduce tidal flows, restore native plant communities, construction of the trails and berms, as well as temporary impacts associated with enhancement and development of berms and trails, and infrastructure and utility modifications. The following CDFW Sensitive Natural Communities and riparian habitats are present within the program area: *Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance, *Arthrocnemum subterminale* Herbaceous Alliance, *Baccharis salicina* Provisional Shrubland Alliance, *Cressa truxillensis – Distichlis spicata* Herbaceous Alliance, *Frankenia salina* Herbaceous Alliance, *Isocoma menziesii* Shrubland Alliance, *Leymus cinereus – Leymus triticoides* Herbaceous Alliance, *Salicornia pacifica* Herbaceous Alliance, *Salix gooddingii* Woodland Alliance, *Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance and *Spartina foliosa* Herbaceous Alliance. Impacts associated with implementation of the proposed program will consist of grading, berm installation, fill for the overlook terrace, berm/road removal, sidewalk grading, and relocation of infrastructure and utilities. These direct impacts would be temporary given that these areas would be restored to coastal salt marsh, transitional wetland, or

other native habitat as part of the proposed program. As such, there would be no net loss of habitat following implementation of the proposed program.

Signs would be installed along restored trails to inform the public of the sensitive habitats and to prohibit access into the restoration areas. Trails would be separated from the wetland areas by native upland buffer. A visitor center would be constructed on an existing raised building pad. In addition, temporary impacts would be mitigated with implementation of Mitigation Measure BIO-9 that requires reestablishment of Sensitive Natural Communities that will be impacted by restoration activities.

There are several aboveground pipelines and racks sited throughout the program boundary, many of which occur over wetland areas and will need to be removed. Based on the method of pipeline, rack, and tank removal, and the already disturbed areas that would be used to facilitate the removals, no impacts to CDFW Sensitive Natural Communities or riparian habitats are expected to occur. However, in the event that inadvertent and temporary impacts to Sensitive Natural Communities or riparian habitats occur, potentially significant impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure BIO-9.

Operation

Operational impacts associated with the ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities, and infrastructure and utility modifications could result in adverse direct impacts to Sensitive Natural Communities or riparian habitats, such as the introduction and spread of noxious, invasive weeds that could compete with native plants for water and nutrient and alter the composition of communities. Such direct impacts caused by the invasion of weed species would be reduced through implementation of Mitigation Measure BIO-1, which requires the preparation and implementation of weed management, maintenance and monitoring procedures and Mitigation Measure BIO-9 which requires the revegetation of sensitive natural communities.

Mitigation Measure

Mitigation Measure BIO-9: Revegetation of Sensitive Natural Communities. Sensitive natural communities located on the program area include: *Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance, *Arthrocnemum subterminale* Herbaceous Alliance, *Baccharis salicina* Provisional Shrubland Alliance, *Cressa truxillensis – Distichlis spicata* Herbaceous Alliance, *Frankenia salina* Herbaceous Alliance, *Isocoma menziesii* Shrubland Alliance, *Leymus cinereus – Leymus triticoides* Herbaceous Alliance, *Salicornia pacifica* Herbaceous Alliance, *Salix gooddingii* Woodland Alliance, *Schoenoplectus californicus – Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance and *Spartina foliosa* Herbaceous Alliance.

Prior to impacts to Sensitive Natural Communities, the area(s) that will be impacted shall be delineated and quantified using current Global Information System (ArcGIS) mapping software. Sensitive Natural Communities that will be impacted by the proposed program shall be created within the program area at a minimum ratio of 1:1 (area created:area impacted). Restored Sensitive Natural Communities shall consist of a minimum 60 percent absolute vegetation cover and shall include community-specific growing

conditions, such as, similar slope, aspect, elevation, soil, and salinity. A Mitigation, Maintenance and Monitoring Program shall be prepared and approved by CDFW prior to implementation. The Program shall be implemented by a qualified restoration ecologist, and at a minimum, shall include success criteria and performance standards for measuring the establishment of Sensitive Natural Communities, responsible parties, maintenance techniques and schedule, 5-year monitoring and reporting schedule, adaptive management strategies, and contingencies.

Significance after Mitigation

Less than Significant with Mitigation

Impact BIO-3: The proposed program would result in a significant impact if the proposed program would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means.

Construction

Direct impacts to jurisdictional waters and wetlands would occur on all four areas. However, the impacts that would occur are associated with the implementation of the proposed program, which would result in long-term preservation, restoration and enhancement of waters of the United States/state. As such, no compensatory mitigation for temporary loss of waters of the United States/state is required; however, permits and/or approvals from the USACE, RWQCB, CDFW, and the CCC would be required for impacts to resources under their jurisdiction.

Permanent and temporary impacts to wetlands and other waters of the United States/state, including features subject to CDFW jurisdiction and coastal wetlands, would be restored in accordance with a Restoration Plan and Mitigation Measure BIO-9. This includes temporary direct impacts to jurisdictional resources during the creation of tidal channels. The habitat types proposed for restoration will include coastal salt marsh and transitional wetland habitats, as well as establishment of upland scrub buffers. The primary goal of the proposed program is the restoration and expansion of coastal salt marsh throughout much of the program area including on existing oil production facilities, much of which includes jurisdictional waters. There will be a net increase in jurisdictional wetlands and waters following implementation of the proposed program.

Operation

The proposed program includes consolidation and abandonment of oil wells and associated racks and pipelines. Based on the guidelines set forth for removal by the California Geologic Energy Management Division (CalGEM) and the already disturbed areas that surround the wells that would be used to facilitate the removals, impacts to jurisdictional wetlands or waters are not anticipated. By restoring tidal connection, the proposed program could impact but is not anticipated to significantly affect wetland habitats by allowing rising sea levels to enter and flood the marsh. In some locations, such as in the South Area, the new tidal connection to the Haynes Cooling Channel would improve the hydrology in the wetlands with sea-level rise as compared to existing conditions, where drainage would be limited under sea-level rise. In the Central Area, the existing tidal

connection provides only minor inundation of the site, and the proposed program would expand this and create much more tidal salt marsh. With sea-level rise, there would still be more tidal marsh for a longer period of time and with more natural hydrology in the Central Area under the program than under Existing Conditions. However, it is also anticipated that portions of the restored habitat would eventually convert from tidal marsh to mudflat and eventually subtidal habitat. As part of the Hydrodynamics Modeling Technical Report (ESA 2020), State projections (OPC 2018) were used to develop sea-level rise scenarios for the program. The scenarios identify 1.7 feet of sea-level rise between 2040 and 2070 and 3.3 feet of sea-level rise between 2070 and 2110. The Hydrodynamic Modeling Technical Report also provides habitat elevation bands and how the elevations are expected to change over time with sea-level rise. Grading plans developed during the design phase of projects within the proposed program will evaluate the balance of marsh habitat today and into the future based on the habitat elevation bands. An in-depth analysis and discussion of sea-level rise can be found in Section 3.8, *Hydrology and Water Quality*, of this PEIR.

The primary goal of the proposed program is the restoration and expansion of coastal salt marsh throughout much of the program area including on existing oil production facilities, much of which includes jurisdictional waters. As indicated above, there will be a net increase in jurisdictional wetlands and waters following implementation of the proposed program. Any inadvertent impacts that may occur to jurisdictional wetlands during the oil operation abandonment period would be restored in accordance with a Restoration Plan and Mitigation Measure BIO-9. Impacts to jurisdictional waters and wetlands would be less than significant with the implementation of a Monitoring and Adaptive Management Plan and Mitigation Measure BIO-9, Mitigation Measure BIO-10 that requires a jurisdictional delineation and issuance of jurisdictional resources permits as well as Mitigation Measure BIO-11 that requires a functional assessment of the wetland areas that will be restored in the program area.

Mitigation Measure

Mitigation Measure BIO-10: Jurisdictional Resources Permitting. Prior to project construction, a jurisdictional delineation report shall be prepared that describes these jurisdictional resources and the extent of jurisdiction under the USACE, RWQCB, CDFW, and CCC. If it is determined during final siting that jurisdictional resources cannot be avoided, the project applicant shall be subject to provisions as identified below:

1. If avoidance is not feasible, prior to ground disturbance activities that could impact these aquatic features, the project applicant shall file the required documentation and receive the following.
    a. Nationwide Permit or equivalent permit issued from USACE;
    b. Water Quality Certification issued from the Los Angeles RWQCB;
    c. Streambed Alteration Agreement issued from CDFW; and
    d. Coastal Development Permit issued from CCC.
2. Compensatory mitigation for impacts to jurisdictional resources is not anticipated as the proposed program's goal is the restoration and expansion of coastal salt marsh within the proposed program.
3. The project proponent shall comply with the mitigation measures detailed in permits issued from the USACE, RWQCB, CDFW, and CCC.

Mitigation Measure BIO-11: Monitoring and Adaptive Management Plan. In conjunction with Section 3.8, *Hydrology and Water Quality*, a Monitoring and Adaptive Management Plan (MAMP) shall be prepared and implemented prior to commencement of construction or restoration activities. The MAMP shall provide a framework for monitoring site conditions in response to the proposed program implementation. The MAMP shall include provisions for conducting a pre-construction survey to collect baseline data for existing wetland function. The MAMP shall require that monitoring focus on the functional wetland values as well as sediment quality in areas subject to the greatest deposition from storm events and that are also not subject to regular tidal flushing, (e.g., the southwestern corner of the Long Beach Property site). The MAMP shall identify habitat functions, such as biotic structure and hydrology, that shall be monitored as part of the proposed program's monitoring and reporting requirements. The MAMP shall identify sediment quality monitoring requirements that shall be performed at a frequency that would capture the potential build-up of contaminants in the deposited sediment before concentration are reached that would impact benthic macro-invertebrates and other sensitive species. The MAMP shall require that the findings of the monitoring efforts be used to identify any source of functional loss of wetlands and water quality impairment, and if discovered, provide measures to improve wetland function and for remediation of the sediment source area(s). Upon completion of restoration activities, the proposed program shall demonstrate a no net loss of aquatic resource functions and demonstrate an increase in wetland functions and values throughout the entire site.

The MAMP shall be submitted for review and approval to responsible permitting agencies prior to commencement of construction or restoration activities.

Significance after Mitigation

Less than Significant with Mitigation

Impact BIO-4: The proposed program would result in a significant impact if the proposed program would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Construction

The San Gabriel River levees act as a terrestrial wildlife corridor and are the only terrestrial wildlife corridor within or adjacent to the program area. Terrestrial wildlife movement within the program area is primarily localized due to the surrounding urban landscape that includes Pacific Coast Highway, Studebaker Road, and Westminster Boulevard. The San Gabriel River levees will continue to be operated and maintained by the LACFCD and segments are anticipated to be directly impacted by construction activities to facilitate improvement of wildlife movement and nursery sites. Direct impacts to the San Gabriel River levees, which include breaching segments, are not considered significant as project impacts will restore habitats adjacent to the levees providing additional opportunities for terrestrial wildlife movement adjacent to the levees. Temporary increases in noise and dust may have a temporary indirect impact to terrestrial wildlife movement. However, such indirect impacts are not considered significant as an existing bike bath, Pacific Coast Highway and Westminster Boulevard provide a high level of disturbance to

terrestrial wildlife movement in the program area. Furthermore, future project impacts will restore habitats adjacent to the levees providing additional opportunities for terrestrial wildlife movement in the program area. The Alamitos Bay, Los Cerritos Channel, Steamshovel Slough, Haynes Cooling Channel and San Gabriel River could provide limited movement into and out of the program area for marine fish, mammals, or reptiles species (i.e., green sea turtle). However, the San Gabriel River and Alamitos Bay are the only waterways that have an outlet and have connectivity to other water bodies allowing a corridor for marine animals to move through the program area. Further, Alamitos Bay, Los Cerritos Channel, and Steamshovel Slough would be avoided during construction activities and no in-water work would occur within these waterways. Such potentially significant impacts would be reduced to a less-than-significant level with implementation of Mitigation Measure BIO-8.

Operation

Impacts to the San Gabriel River, its levees, or any other watercourses, would not occur following completion of ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities and infrastructure and utility modifications associated with the proposed program. In the event some minor improvements are required to be conducted and will interfere with aquatic wildlife movement, implementation of Mitigation Measure BIO-8 would reduce impacts to a less-than-significant level.

Mitigation Measure

Mitigation Measure BIO-8.

Significance after Mitigation

Less than Significant with Mitigation

Impact BIO-5: The proposed program would result in a significant impact if the proposed program would have a substantial adverse effect and conflict with biological resources protected by local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Construction

Protected Trees

Potential impacts to street trees protected by the City of Seal Beach's Protective Tree Ordinance and the City of Long Beach's Tree Maintenance Policy could include tree removal or trimming. Tree removal would result in a permanent impact, while trimming would be considered a temporary encroachment. A permit from the City of Seal Beach Department of Public Works or City of Long Beach Department of Public Works would be required prior to the removal or trimming of any street trees. In accordance with the City of Seal Beach's Protective Tree Ordinance and the City of Long Beach's Tree Maintenance Policy, trees that are removed must be replaced either within an approved 15-gallon tree or within an approved, minimum 24-inch box tree, respectively. Replacement trees shall be planted at a minimum 1:1 ratio (tree planted:tree impacted) and shall be located in an area appropriate for their prolonged growth.

ESHA

Pursuant to CCA Section 30240 of the CCA, impacts to ESHA are generally limited to activities such as habitat restoration as noted by the Coastal Commission Staff Report (GLA 2017d). Moreover, the CCA establishes a high standard for protection of areas that are identified as environmentally sensitive. Only resource-dependent uses, such as habitat restoration, are allowed within an ESHA. Implementation of Mitigation Measures BIO-1 through BIO-10 would ensure that impacts to existing EHSA are temporary and minimized, as well as less than significant.

Potential ESHA occur throughout the South, Isthmus, Central and North Areas based on the suitability to provide habitat for special-status species and/or the presence of a CDFW Sensitive Natural Community. Ground disturbing activities associated with ecosystem restoration activities, flood risk and stormwater management, development of public access and visitor facilities, and infrastructure and utility modifications would temporarily impact ESHA. These impacts, needed to implement the habitat restoration, can be allowed pursuant to Section 30240 and Section 30233(a)(b) of the CCA. Following completion of grading and restoration efforts, the overall ESHA would be expanded primarily due to the conversion of non-ESHA to ESHA. This would include the conversion of abandoned oil facilities to natural communities.

Operation

Tree Protection

No impacts to city-protected trees are anticipated to occur during the operation phase of the proposed program (i.e., post-restoration). Should street tree removal or trimming be required, it will be conducted in accordance with the City of Seal Beach's Protective Tree Ordinance and the City of Long Beach's Tree Maintenance Policy. Therefore, impacts to protected trees would be less than significant.

ESHA

Potential ESHA occur throughout the South, Isthmus, Central, and North Areas. Impacts during the operation of the proposed program (i.e., post-restoration) may occur during vegetation maintenance, irrigation, non-native plant removal, trash removal and maintenance of levees, berms, flood walls and water-control structures. However, these impacts would be negligible, and as described in the construction analysis above, the nature of the proposed program would expand the amount of ESHA within the program area over time. Any negligible impacts that occur by foot traffic from maintenance personnel, are permitted in accordance with Section 30240 and Section 30233(a)(b) of the CCA. Therefore, impacts to ESHA during the operational phase of the program area would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Based on a review of the California Department of Fish and Wildlife California Regional Conservation Plans, there are no Habitat Conservation Plans or other approved habitat conservation plans prepared for the program area (CDFW 2017b). Given that the program area is not subject to an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, no impacts would occur.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

3.3.6 Cumulative Impacts

3.3.6.1 Construction

The project that may contribute to a cumulative impact in the study area is the Los Cerritos Wetlands Oil Consolidation and Restoration Project (Cumulative Project No. 24), which occurs in portions of the Central and North Areas and contains sensitive biological resources. Other future projects in the cumulative study area are primarily located within urban, developed areas that are generally disturbed and do not support sensitive biological resources, although some of these projects may occur adjacent to open space areas that support sensitive biological resources, including the Seal Beach Residential Project (Cumulative Project No. 3), which occurs approximately 0.25 miles from the southwestern most portion of the program area in an undeveloped area surrounded by residential development. In addition, the Haynes Generating Station Intake Channel Infill Project (Cumulative Project No. 22) is located adjacent to the program area and may result in impacts to aquatic resources, including essential fish habitat.

The Los Cerritos Wetlands Oil Consolidation and Restoration Project is proposed in portions of the Central and North Areas and could result in significant impacts to special-status wildlife and plant species, riparian areas and sensitive natural communities, federally protected wetlands, and wildlife movement and nursery sites. However, construction-related impacts to sensitive biological resources associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project would primarily be temporary, such as 0.462 acres of permanent impacts and 1.12 acres of temporary impacts to waters of the U.S/state within the North and Central Areas. Impacts associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project would be mitigated to a less-than-significant level through the implementation of Mitigation Measures BIO-1 through BIO-11 described in its EIR which avoid, minimize or mitigate for impacts to sensitive biological resources such as special-status plants and wildlife and waters of the U.S. to name a few. Similar to the proposed program, the Los Cerritos Wetlands Oil Consolidation and

Restoration Project would restore, enhance, and create estuarine and associated habitats as well as provide long-term benefits for Belding's savannah sparrow and other special-status species which occur in the overlapping portions of the Central and North Areas. The Los Cerritos Wetlands Oil Consolidation and Restoration Project is the only known restoration project within the assessment area of cumulative impacts and as such will have an overall benefit to biological resources and impacts during construction would not be cumulatively considerable (Table 3-1). The majority of the proposed program's impacts to sensitive biological resources would be temporary, and permanent impacts have largely been avoided by design or are very limited in extent. Therefore, the proposed program's contribution to cumulative impacts during construction would not be cumulatively considerable.

The Seal Beach Residential Project is proposed on a large, vacant lot that could result in significant impacts to special-status wildlife species such as burrowing owl; therefore, development of this parcel could result in significant impacts to protected biological resources. The Haynes Generating Station Intake Channel Infill Project is proposed on primarily aquatic habitat partially within the South Area that could result in significant impacts to special-status aquatic species such as the Pacific green sea turtle and California least tern; therefore, the development of the project could result in significant impacts to biological resources. The construction-related impacts associated with restoration activities within the program area would be short-term, as the majority of area would be temporary impacts and will be largely avoided or enhanced by design and are very limited in extent. Therefore, cumulative impacts to biological resources during construction would not be cumulatively considerable.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.3.6.2 Operation

Upon completion of the proposed program and any nearby cumulative projects, including the Los Cerritos Wetlands Oil Consolidation and Restoration Project, the Seal Beach Residential Project, and the Haynes Generating Station Intake Channel Infill Project, the project would be required to comply with federal and state regulations, as well as applicable municipal codes, pertaining to the protection of biological resources. The Seal Beach Residential Project is not anticipated to have additional impacts to sensitive biological resources during its operation as undeveloped lands where sensitive biological resources could potentially occur would be developed during construction and replaced with residential uses. The Haynes Generating Station Intake Channel Infill Project is not anticipated to have additional impacts to sensitive biological resources during its operation as aquatic resources where sensitive biological resources could potentially occur would be filled in during construction. Therefore, the cumulative impacts to biological resources during operations of both the Seal Beach Residential Project and the Haynes Generating Station Intake Channel Infill Project would not be cumulatively considerable. Further, in conjunction

with the Los Cerritos Wetlands Oil Consolidation and Restoration Project the proposed program would have an overall net beneficial effect upon coastal wetlands and other sensitive biological resources as efforts to restore, enhance, and create estuarine and associated habitats will continue during operation. Mitigation Measures BIO-1, BIO-6, and BIO-8 through BIO-11 will continue to be implemented during operation to avoid, minimize and mitigate for impacts to sensitive biological resources. Therefore, the cumulative impacts to biological resources during operations would not be cumulatively considerable.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

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SECTION 3.4
Cultural Resources

3.4.1 Introduction

This section evaluates the potential for the proposed program to result in adverse cultural resources impacts related to historical resources, archaeological resources, and human remains. The analysis is based on a records search conducted at the California Historical Resources Information System – South Central Coastal Information Center (SCCIC); a Sacred Lands File (SLF) search through the Native American Heritage Commission (NAHC); a review of historic topographic maps and aerial photographs; a desktop geoarchaeological study; and a reconnaissance-level site visit. This section identifies the potential for both program-level and cumulative environmental impacts to occur, as well as feasible mitigation measures that would minimize or avoid the proposed program's impacts on cultural resources.

Information sources for the analysis presented in this section include the following:

- *Los Cerritos Wetlands Restoration Plan Program, Los Angeles County and Orange County, California: Cultural Resources Assessment Report* (ESA, 2019)
- *Staff Report: Coastal Development Permit for the Los Cerritos Wetlands Oil Consolidation and Restoration Project* (California Coastal Commission [CCC], 2018)
- *City of Long Beach Los Cerritos Wetlands Project: Historic Resources Assessment* (ESA, 2017)
- *Native American Heritage Commission Sacred Lands File Search* (Quinn, 2019)

All information sources used are included as citations within the text; sources are listed in Section 3.4.7, *References*.

3.4.2 Environmental Setting

3.4.2.1 Prehistoric Setting

The chronology of coastal southern California is typically divided into three general time periods: the Early Holocene (11,000 to 8,000 before present [B.P.]), the Middle Holocene (8,000 to 4,000 B.P.), and the Late Holocene (4,000 B.P. to A.D. 1769). Within this general timeframe, the archaeology of southern California is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture.

Early Holocene (11,000 to 8,000 B.P.)

While it is not certain when humans first came to California, their presence in southern California by about 11,000 B.P. has been well documented. At Daisy Cave, on San Miguel Island, cultural materials have been radiocarbon dated to between 11,100 and 10,950 years B.P. (Byrd and Raab, 2007). Radiocarbon evidence confirms occupation of the Orange County and San Diego County coast by about 9,000 B.P., primarily in lagoon and river valley locations (Gallegos, 2002). Similarly, the southern Channel Islands were inhabited by 8,000 B.P. as indicated by radiocarbon dates from the Eel Point site on San Clemente Island (Byrd and Raab, 2007). Early Holocene subsistence activities at Eel Point focused on maritime resources and included shellfish collection, as well as seal, sea lion, and dolphin hunting (Byrd and Raab, 2007).

During the Early Holocene, the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources (Horne and McDougall, 2003). The primary Early Holocene cultural complex in coastal southern California was the San Dieguito Complex. The people of the San Dieguito Complex (about 10,000–8,000 B.P.) inhabited the chaparral zones of southwestern California, exploiting the plant and animal resources of these ecological zones (Moratto, 1984; Warren, 1967). Leaf-shaped and large-stemmed projectile points are typical of San Dieguito Complex material culture.

Middle Holocene (8,000 to 4,000 B.P.)

Middle Holocene settlement and subsistence patterns identified in the archaeological record are referred to as the La Jolla Complex (about 8,000–4,000 B.P.), which appears to be a continuation of the Early Holocene San Dieguito Complex. La Jolla groups lived in chaparral zones or along the coast, often migrating between the two. Coastal settlement focused around the bays and estuaries where shellfish and plant resources (i.e., grass seeds and nuts) were the primary subsistence resource (Byrd and Raab, 2007). La Jolla peoples produced large, coarse stone tools, but also produced well-made projectile points and milling slabs. The La Jolla Complex represents a period of population growth and increasing social complexity; however, the archaeological record indicates abandonment of the coastline after 4,000 B.P. possibly due to estuary silting and declining shellfish populations (Byrd and Raab, 2007).

Work on the southern Channel Islands indicates potential Middle Holocene trade networks connecting the southern California La Jolla populations to the groups of the Mojave Desert and the Great Basin's western margins (Byrd and Raab, 2007). Excavations on Santa Catalina Island, San Clemente Island, and San Nicolas Island identified evidence for the manufacture of the distinctive Olivella grooved rectangle (OGR) bead dating to approximately 5,000 B.P. OGR bead distribution appears to be limited to the southern Channel Islands and neighboring mainland, as well as the northern and western Great Basin. Curiously, no evidence for the presence of OGR beads comes from the northern Channel Island region, indicating a Middle Holocene trade/migratory corridor that extended from the southern Channel Islands to the neighboring mainland and beyond to the Mojave Desert and Great Basin (Byrd and Raab, 2007)

Late Holocene (4,000 B.P. to A.D. 1769)

During the Late Holocene, native populations of southern California were becoming less mobile and populations began to gather in small sedentary villages with satellite resource-gathering camps. Evidence indicates that the overexploitation of larger, high-ranked food resources may have led to a shift in subsistence towards a focus on acquiring greater amounts of smaller resources, such as shellfish and small-seeded plants (Byrd and Raab, 2007). The reliance on intensively harvested lower-ranged resources likely placed Late Holocene groups in a precarious position in terms of food acquisition. The cultural complexity that emerges during this period, which is characterized by extensive trade networks, emergent political and social leadership, and the development of new technologies, may have been driven in part to reduce food shortages. Trade during the Late Holocene reached its zenith, with asphaltum (tar), seashells, and steatite being traded from southern California to the Great Basin.

3.4.2.2 Ethnographic Setting

The program area is located in a region traditionally occupied by the Gabrielino and Juaneño Native Americans. Each group is described below.

Gabrielino

The term "Gabrielino" is a general term that refers to those Native Americans who were sent by the Spanish to the Mission San Gabriel Arcángel. Prior to European colonization, the Gabrielino occupied a diverse area that included: the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers; the Los Angeles basin; and the islands of San Clemente, San Nicolas, and Santa Catalina (Bean and Smith, 1978). Their neighbors included the Chumash and Tataviam to the north, the Juañeno to the south, and the Serrano and Cahuilla to the east. The Gabrielino are reported to have been second only to the Chumash in terms of population size and regional influence (Bean and Smith, 1978). The Gabrielino language was part of the Takic branch of the Uto-Aztecan language family.

The Gabrielino Indians were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply. Subsistence consisted of hunting, fishing, and gathering. Small terrestrial game was hunted with deadfalls, rabbit drives, and by burning undergrowth, while larger game such as deer were hunted using bows and arrows. Fish were taken by hook and line, nets, traps, spears, and poison (Bean and Smith, 1978). The primary plant resources were the acorn, gathered in the fall and processed in mortars and pestles, and various seeds that were harvested in late spring and summer and ground with manos and metates. The seeds included chia and other sages, various grasses, and islay or holly-leafed cherry. Community populations generally ranged from 50 to 100 inhabitants, although larger settlements may have existed. The Gabrielino are estimated to have had a population numbering around 5,000 in the pre-contact period (Kroeber, 1925).

The Late Prehistoric period, spanning from approximately 1,500 years B.P. to the mission era, is the period associated with the florescence of the Gabrielino (Wallace, 1955). Coming ashore near Malibu Lagoon or Mugu Lagoon in October of 1542, Juan Rodriguez Cabrillo was the first European to make contact with the Gabrielino Indians.

Maps produced by early explorers indicate that at least 26 Gabrielino villages were within proximity to known Los Angeles River courses, while an additional 18 villages were reasonably close to the river (Gumprecht, 2001). The closest village to the program area was the village of *Puvungna*, located approximately 0.75 miles north of the program area (McCawley, 1996). The Kirkman-Harriman Pictorial and Historical Map of Los Angeles County (Los Angeles Public Library, 1938) depicts two unnamed villages located approximately 2 miles northwest and 5 miles southeast of the program area.

Puvungna is reported to be the birthplace of *Chingichngish*, the primary deity of a protohistoric and early historic belief system and ceremonial complex that spread throughout the Los Angeles basin, Orange County, western Riverside County, and northern San Diego County. Most ethnohistoric data suggest that the main village of *Puvungna* was located on Alamitos Mesa at Bixby Ranch. However, as villages often covered large areas and could move to meet changing needs, *Puvungna* may refer to the entire rim of Alamitos Bay (Cleland et al., 2007).

Juañeno

The Juaneño spoke a language belonging to the Cupan group of the Takic subfamily of the Uto-Aztecan language family. The Juaneño people were so called because of their association with Mission San Juan Capistrano, although some contemporary Juaneño identify themselves by the indigenous term *Acjachemen*. The Juaneño were linguistically and culturally related to the neighboring Luiseño (with whom they are often grouped; see Bean and Shipek, 1978), Cahuilla, and Cupeño. Juaneño territory extended from just above Aliso Creek in the north to San Onofre Canyon in the south and inland from the Pacific Ocean to Santiago Peak and the ridges above Lake Elsinore (Bean and Shipek, 1978).

The Juaneño lived in sedentary autonomous villages located in diverse ecological zones. Each settlement claimed specific fishing and collecting regions. Typically, villages were located in valley bottoms, along coastal strands and streams, and near mountain foothills. Villages were usually sheltered in coves or canyons, on the side of slopes near water and in good defensive spots. The are no reported ethnographic Juaneño village in the vicinity of the program area; the closest village sites are more than 20 miles south of the program area (O'Neil and Evans, 1980).

Trails, hunting sites, temporary hunting camps, quarry sites, and ceremonial and gaming locations were communally owned, while houses, gardens, tools, ritual equipment, and ornamentation were owned by individuals or families. Most groups had fishing and gathering sites along the coast that they visited annually from January to March when inland supplies were scarce. October to November was acorn-gathering time, when most of the village would settle in the mountain oak groves. Houses were conical in form, partially subterranean, covered with thatch, reeds, brush, or bark. Sweathouses were round and earth covered. Each village was enclosed with a circular fence and had a communal ceremonial structure at the center (Bean and Shipek, 1978).

3.4.2.3 Historic Setting

Spanish Period (1769–1821)

Although Spanish explorers made brief visits to the region in 1542 and 1602, sustained European exploration of southern California began in 1769, when Gaspar de Portolá and a small Spanish contingent began their exploratory journey along the California coast from San Diego to Monterey. This was followed in 1776 by the expedition of Father Francisco Garcés (Johnson and Earle, 1990). In the late 18th century, the Spanish began establishing missions in California and forcibly relocating and converting native peoples. In 1771, Fathers Pedro Benito Cambón and Angel Fernandez Somera y Balbuena founded the Mission San Gabriel Arcángel, located approximately 23 miles north of the program area (California Missions Resource Center, 2018). Disease and hard labor took a toll on the native population in California; by 1900, the Native Californian population had declined by as much as 90 percent (Cook, 1978). In addition, native economies were disrupted, trade routes were interrupted, and native ways of life were significantly altered (Castillo, 1978).

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At this time, unless certain requirements were met, Spain retained title to the land (State Lands Commission, 1982).

Mexican Period (1821–1846)

The Mexican Period began when Mexico won its independence from Spain in 1821. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico began the process of secularizing the missions, reclaiming the majority of mission lands and redistributing them as land grants. According to the terms of the Secularization Law of 1833 and Regulations of 1834, at least a portion of the lands would be returned to the Native populations, but this did not always occur (Milliken et al., 2009).

Many ranchos continued to be used for cattle grazing by settlers during the Mexican Period. Hides and tallow from cattle became a major export for Californios, many of whom became wealthy and prominent members of society. The Californios led generally easy lives, leaving the hard work to vaqueros and Indian laborers (Pitt, 1994; Starr, 2007).

American Period (1846–present)

In 1846, the Mexican-American War broke out. Mexican forces were eventually defeated in 1847 and Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo in 1848. California officially became one of the United States in 1850. While the treaty recognized the right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities, the claimant was required to prove their right to the land before a patent was given. The process was lengthy, and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr, 2007).

When the discovery of gold in northern California was announced in 1848, a huge influx of people from other parts of North America flooded into California. The increased population

provided an additional outlet for the Californios' cattle. As demand increased, the price of beef skyrocketed and Californios reaped the benefits. However, a devastating flood in 1861, followed by droughts in 1862 and 1864, led to a rapid decline of the cattle industry; over 70 percent of cattle perished during these droughts (McWilliams, 1946; Dinkelspiel, 2008). This event, coupled with the burden of proving ownership of their lands, caused many Californios to lose their lands during this period (McWilliams, 1946). Former ranchos were subsequently subdivided and sold for agriculture and residential settlement.

The first transcontinental railroad was completed in 1869, connecting San Francisco with the eastern United States. Newcomers poured into northern California. Southern California experienced a trickle-down effect, as many of these newcomers made their way south. The Southern Pacific Railroad extended this line from San Francisco to Los Angeles in 1876. The second transcontinental line, the Santa Fe, was completed in 1886 and caused a fare war, driving fares to an unprecedented low. Settlers flooded into the region and the demand for real estate skyrocketed. As real estate prices soared, land that had been farmed for decades outlived its agricultural value and was sold to become residential communities. The subdivision of the large ranchos took place during this time (Meyer, 1981; McWilliams, 1946).

History of the Program Area

The program area's historic-period use has largely focused on oil production and followed the overall trajectory of the Los Angeles Basin's oil industry. The Los Angeles Basin proved to be a hotbed for the oil industry; oil was found close to the surface and with railroads and ports nearby, it was easy to get California oil to market. Oil prospecting, production, and refinery activities were one of the main industries in the region, further stimulated by the rise in automobile traffic—demand for the product skyrocketed.

By the mid to late 1920s, the industry was fueling the local and national economies. The discovery of large deposits of oil in Huntington Beach (1920), Santa Fe Springs (1921) and Signal Hill (1921) immediately increased land values and black-gold fever spread throughout the Los Angeles Basin (Creason, 2010). The effects of the industry were apparent in Los Angeles area—by 1923, California was the number one oil-producing state, and was responsible for one-quarter of the world's oil output. Since the production of oil exceeded the domestic demand, much of the Los Angeles Basin oil was shipped out of the Port of Long Beach to overseas markets (Paleontological Research Institute, 2017). The landscape, economy, and culture of the Los Angeles Basin was transformed by the oil industry. The area became so well known for its oil production that it became the topic of Upton Sinclair's popular novel *Oil!*

Seal Beach Oil Production

In 1912, Geologist Dr. Ralph Arnold surveyed Rancho Los Alamitos and thought that the area would not be conducive to oil exploration and production. Because of Dr. Arnold's findings, Jotham Bixby did not support further exploration of oil drilling. However, the turning point for the Los Alamitos Land Company followed the death of the Los Alamitos Land Company's President, I.W. Hellman, in 1920. Fred H. Bixby, a rancher and co-owner of the Los Alamitos Land Company, was elected to take Hellman's place as President. Once elected, not believing Dr. Arnold's survey,

he began leasing tracts of land owned by the Alamitos Land Company to the Royal Dutch Shell Company and Standard Oil in 1921, and later to the Marland Oil Company in 1924 (Copp, 1927).

The first attempts at the discovery of oil began in 1921. Given that the oil field was within tide lands, significant preliminary work was necessary to prepare the area before drilling could commence. Roads were constructed through the excavation and piling of mud to create roadbeds above the high tide level. Derrick foundations were set on driven pilings (Copp, 1927).

Initial prospecting was conducted by Standard Oil Company. The company's Bixby No. 1 well was spudded on February 26, 1921 and drilled to 5,540 feet without penetrating an oil-bearing formation. The Alamitos No. 1 well was spudded on September 28, 1921 and drilled to a depth of 5,760 feet without encountering significant oil deposits. Other wells were drilled by various entities, such as the Seal Beach Oil Company, H.R. Dabney, Shell Company, Associated Oil Company, and Marland Oil Company, with varying degrees of success, though none proved commercially viable (Copp, 1927).

The discovery of commercial production finally came after five and a half years of wildcatting in various different locations of the Seal Beach Oil Field. On June 4, 1926, the Marland Oil Company began drilling Bixby No. 2, located on the Synergy Oil Field site, and by August 4th of the same year the Bixby No. 2 had sent the Seal Beach Oil Field into commercial production (Copp, 1927). After the success of Bixby No. 2, the Marland Oil Company began drilling four more new wells in 1926. Less than one year later, other companies began drilling leases at the Seal Beach Oil Field, including the Union Oil Company of California and the Superior Oil Company (Beyer et al., 1998). The Seal Beach Oil Field reached its peak production at 70,000 barrels per day in June of 1927 transforming the landscape from open ranch land to a field of oil derricks (Heck, 2017). A 1927 Subsurface Contour Map published in the *Mining and Metallurgy Journal* shows Tract Numbers 1077 and 1779, the McGrath Oil lease, and the Bixby lease dotted with oil wells, including the Marland Oil Company's Bixby No. 2 well.

After the opening of Seal Beach Oil Field, Fred H. Bixby directly benefited from its oil production – making him one of the wealthiest individuals in Long Beach. Bixby made over 404 acres of Rancho Los Alamitos land available for a naval hospital and Long Beach State College (Williams, 1962). He attributed much of his wealth to his business pursuits with the Los Alamitos Land Company.

Oil extraction continued in the Seal Beach Oil Field until the Postwar period when subsidence issues and three small earthquakes damaged a total of 518 wells across all Long Beach oil fields, causing a rapid decline. Major improvements in the mid-1950s lead many fields to adopt water flooding programs to help extract oil and fight subsidence, improving oil extraction output. In 1974, 80 percent of the wells (223 total) located in Seal Beach were still in production, but had minor production numbers due to the expansion of offshore drilling in San Pedro Bay at the Wilmington Field (California Department of Conservation: Division of Oil and Gas, 1974).

Long Beach Oil Production

Prosperity and growth came quickly to Long Beach in 1921, with the discovery of oil. The Royal Dutch Shell Oil Company discovered oil in a section of Rancho Los Cerritos, known as Signal Hill, which would dramatically impact Rancho Los Cerritos and the future of the City of Long Beach.

This oil boom triggered a sudden increase in housing. Signal Hill became the catalyst for a "$1 million per month" building boom in the downtown area, leading to the construction of high-rise buildings (Long Beach Area Convention & Visitors Bureau, 2017.) The oil industry became the central economic engine for the City of Long Beach. In 1936, oil was discovered in the Long Beach Harbor, and this production produced money for the City of Long Beach. Many of the oil companies offered to pay the City of Long Beach 85 percent royalties on their future oil production, and this in turn provided the City of Long Beach with money for a police and fire department, and infrastructure improvements to the City of Long Beach and its port (C-SPAN, 2017). By 1939, the Long Beach Oil Development Company was the primary oil operator and "bringing in revenues of more than $10 million a year" (Heck, 2017). By 1940, 19 million barrels of oil annually were coming from the 400 oil wells in the harbor, and by 1953, 720 wells were along the shoreline. The City of Long Beach would benefit from these oil royalties until the late 1950s, when the State of California demanded revenues from the oil production in Long Beach. Up until 1965, oil production and export covered the entire cost of harbor development in the City of Long Beach.

In the Postwar Period, Long Beach experienced a resurgence in oil production when the development of offshore oil fields at Wilmington Beach were developed. In 1963, the Wilmington Field was estimated to have 1.16 billion barrels of oil, but it wasn't until three years later, that the increase in oil "recoverability caused by water flooding" increased that value to three billion barrels (Tennyson, 2005). Many of the land-based drilling sites in Long Beach were soon over-shadowed by off-shore drilling ventures. Seal Beach, Signal Hill, and Wilmington Beach Oil Fields are all significant to the growth and development of the City of Long Beach, and still remain important economic drivers.

3.4.2.4 Archaeological Setting

A number of archaeological resources are located in the vicinity of the program area. Two areas in particular – Landing Hill, an elevated L-shaped landform that abuts and partially overlaps the South LCWA and Hellman Retained sites at the southern extremity of the program area, and Alamitos Mesa, an elevated landform located about a half mile north of the program area – contain rich assemblages of Native American archaeological sites[1].

Many of the sites on Landing Hill were first documented in the 1950s, including CA-ORA-256 through -265, all of which are prehistoric shell midden deposits. Four of the sites (CA-ORA-258, -259, -260, and -261) were subject to limited excavations in the 1950s prior to development. These sites yielded flaked and groundstone artifacts, including manos, metates, mortars, hammerstones, pestles, polishing stones, projectile points, and a variety of other items. Sites CA-

[1] Some sites or portions thereof may remain, but many sites have been destroyed or partially destroyed as a result of modern development.

ORA-256, -257, -258, and -259 were later impacted by the Marina Shores development, but remnants of the sites reportedly still exist, while sites CA-ORA-264 and -265 were impacted by development of the Boeing Company facility (Cleland et al, 2007).

In 2002-2004 data recovery efforts at sites CA-ORA-260, -261, -262, -263, -264, and -1472 uncovered 35 human burials and cultural materials dating to between about 5,600 cal B.P. to 3,000 cal B.P. Of note, Feature 2 at CA-ORA-263, a large secondary cremation feature, yielded a dense collection of "killed"[2] groundstone artifacts, stone and shell beads, fossil megafauna, and cremated human bone (Cleland et al., 2007). It should be noted that "the Heron Pointe development has mostly obliterated the remaining portion of the northern arm of the [Landing] hill, including ORA-260, -261, -262, -263, -264, and -1472" (Cleland et al., 2007: 5).

Sites at Alamitos Mesa were studied as early as the 1970s, with research largely focused on possible associations with *Puvungna*. Sites CA-LAN-234, -235, and -306 are reported to be the location of *Puvungna*. Excavations at site CA-LAN-270, a Late Prehistoric deposit situated within the lowlands a short distance to the north of Alamitos Mesa, yielded 21 human burials and a wide variety of utilitarian and ceremonial artifacts. Most sites on Alamitos Mesa have been heavily impacted by modern-day development, such as construction of the California State University – Long Beach campus and the U.S. Veterans Administration Hospital (Cleland et al., 2007).

3.4.2.5 Identification of Cultural Resources

Archival Research

SCCIC Records Search

A records search was conducted on May 15, 2019 by ESA staff. The records search included a review of all recorded archaeological resources and previous studies within the program area and a 1-mile radius, and historic architectural resources within the program area and a 0.25-mile radius (study area). The records search also included a review of the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), California Points of Historical Interest, California Historical Landmarks, Archaeological Determinations of Eligibility, and California State Historic Resources Inventory (HRI).

Previous Cultural Resources Investigations

The SCCIC records search results indicate that 112 cultural resources studies have been conducted within a 1-mile radius of the program area. Of these 112 previous studies, 86 included some form of field study, such as survey, excavation, or monitoring. Of the 86 previous field studies, 11 overlap the program area. Approximately 55 percent of the 1-mile records search radius and 100 percent of the program area have been included in previous cultural resources field studies.

Previously Recorded Cultural Resources

The records search results indicate that 40 archaeological resources have been previously recorded within a 1-mile radius of the program area, and 10 historic architectural resources have

[2] Artifacts that are intentionally broken as part of ceremonial activities.

been recorded within a 0.25-mile radius of the program area (**Table 3.4-1**, *Previously Recorded Cultural Resources within SCCIC Study Area*). Of the 40 archaeological resources, 35 are prehistoric archaeological sites, 3 are historic-period archaeological sites, and 2 are multicomponent[3] archaeological sites. The 10 historic architectural resources include 6 buildings associated with the Seal Beach Naval Weapons Station; the Long Beach Marine Stadium; the Bixby Ranch Field Office; the Los Alamitos Pump Station; and a fuel oil tank farm.

A total of 15 resources are located within or immediately adjacent to (within 150 feet of) the program area. Of these 15 resources, 8 are located within the program area and include 5 prehistoric archaeological resources (P-19-001821; P-30-000256, -000261, -000851, and -001473); 1 historic-period archaeological resource (P-19-004781); and 2 historic architectural resources (P-19-186926 [Los Alamitos Pump Station] and -187657 [Bixby Ranch Field Office]). The remaining 7 resources are located immediately adjacent to the program area and include 6 prehistoric archaeological resources (P-30-000257, -000258, -000259, -000262, -000850, and -001544) and 1 multicomponent archaeological site (P-30-001542).

TABLE 3.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN SCCIC STUDY AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Description	Date Recorded	Eligibility Status
Archaeological Resources				
19-000102	LAN-000102	Prehistoric archaeological site: shell midden containing lithic and groundstone artifacts	1966	Not evaluated
19-000231	LAN-000231	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000232	LAN-000232	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000233	LAN-000233	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000271	LAN-000271	Prehistoric archaeological site: shell midden	1959	Not evaluated
19-000273	LAN-000273	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000274	LAN-000274	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000275	LAN-000275	Prehistoric archaeological site: shell midden	1961	Not evaluated
19-000306	LAN-000306	Prehistoric archaeological site: village site containing shell midden	1951, 1964, 1972, 1973, 1997	Listed in NR
19-000702	LAN-000702	Prehistoric archaeological site: shell midden	1974	Not evaluated
19-001007	LAN-001007	Prehistoric archaeological site: shell midden	1979	Not evaluated
19-001821*	LAN-001821	Prehistoric archaeological site: shell midden	1990	Not evaluated

[3] Contains both prehistoric and historic-period elements.

TABLE 3.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN SCCIC STUDY AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Description	Date Recorded	Eligibility Status
19-003040	LAN-003040H	Historic-period archaeological site: remnants of oil tanks	2000	Not evaluated
19-004781*	LAN-004781H	Historic-period archaeological site: landfill	2017	Recommended ineligible for CR
30-000143	ORA-000143	Prehistoric archaeological site: shell midden	1964, 1965, 1969, 1997	Not evaluated
30-000256*	ORA-000256	Prehistoric archaeological site: shell midden	1969, 1996	Not evaluated
30-000257**	ORA-000257	Prehistoric archaeological site: shell midden	1969, 1996	Not evaluated
30-000258**	ORA-000258	Prehistoric archaeological site: shell midden	1969, 1996	Not evaluated
30-000259**	ORA-000259	Prehistoric archaeological site: shell midden	1969 and 1996	Not evaluated
30-000260	ORA-000260	Prehistoric archaeological site: shell midden	1969, 1996	Eligible for CR
30-000261*	ORA-000261	Prehistoric archaeological site: shell midden	1969, 1996	Eligible for CR
30-000262**	ORA-000262	Prehistoric archaeological site: shell midden	1969, 1996	Eligible for CR
30-000263	ORA-000263	Prehistoric archaeological site: shell midden	1969, 1996	Eligible for CR
30-000264	ORA-000264	Prehistoric archaeological site: shell midden	1969	Eligible for CR
30-000322	ORA-000322/H	Multicomponent archaeological site: prehistoric shell midden and historic-period structural remnants and refuse	1971, 1988, 1992, 1996, 2000	Listed in NR
30-000850**	ORA-000850	Prehistoric archaeological site: shell midden	1969, 1996	Not evaluated
30-000851*	ORA-000851	Prehistoric archaeological site: shell midden	1996	Not evaluated
30-001118	ORA-001118	Prehistoric archaeological site: shell scatter	1988, 1992, 1997, 2000	Not evaluated
30-001455	ORA-001455	Prehistoric archaeological site: shell scatter	1996,1997	Not evaluated
30-001472	ORA-001472	Prehistoric archaeological site: shell scatter	1996	Ineligible for CRHR
30-001473*	ORA-001473	Prehistoric archaeological site: shell midden	1996	Not evaluated
30-001537	ORA-001537	Prehistoric archaeological site: shell scatter	2000	Not evaluated
30-001540	ORA-001540	Prehistoric archaeological site: shell scatter	2000	Not evaluated
30-001542**	ORA-001542/H	Multicomponent archaeological site: prehistoric shell scatter and historic-period refuse scatter	2000	Not evaluated
30-001543	ORA-001543H	Historic-period archaeological site: refuse scatter	2000	Not evaluated

TABLE 3.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN SCCIC STUDY AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Description	Date Recorded	Eligibility Status
30-001544**	ORA-001544	Prehistoric archaeological site: shell scatter	2000	Not evaluated
30-001545	ORA-001545	Prehistoric archaeological site: shell scatter	2000	Not evaluated
30-001546	ORA-001546	Prehistoric archaeological site: shell scatter	2000	Not evaluated
30-001644	ORA-001644	Prehistoric archaeological site: shell midden deposits	2006	Not evaluated
30-001711	ORA-001711	Prehistoric archaeological site: shell scatter	2011	Not evaluated
Historic Architectural Resources				
19-186115	-	Historic architectural resource: Long Beach Marine Stadium constructed in 1932	1993, 1994, 2009	Listed in NR
19-186880	-	Historic architectural resource: petroleum storage farm constructed in the 1950s	2004	Recommended ineligible for CR
19-186926*	-	Historic architectural resource: flood control pump station constructed in 1957 (no longer extant)	2003	Not evaluated
19-187657*	-	Historic architectural resource: Bixby Ranch Field Office constructed prior to 1927	1996, 2016	Recommended eligible for CR
30-176506	-	Historic architectural resource: office building associated with Seal Beach Naval Weapons Station constructed in 1945	1992	Determined ineligible for NR; Not evaluated for CR
30-176507	-	Historic architectural resource: office building associated with Seal Beach Naval Weapons Station constructed in 1945	1992	Determined ineligible for NR; Not evaluated for CR
30-176508	-	Historic architectural resource: sentry structure associated with Seal Beach Naval Weapons Station constructed in 1945	1992	Determined ineligible for NR; Not evaluated for CR
30-176513	-	Historic architectural resource: water tower associated with Seal Beach Naval Weapons Station constructed in 1944	1992	Determined ineligible for NR; Not evaluated for CR
30-176515	-	Historic architectural resource: garages associated with Seal Beach Naval Weapons Station constructed in 1945	1992, 2007	Determined ineligible for NR; Not evaluated for CR
30-176516	-	Historic architectural resource: living quarters associated with Seal Beach Naval Weapons Station constructed in 1945	1992, 2007	Determined ineligible for NR; Not evaluated for CR

NOTES:
NR = National Register of Historic Places; CR = California Register of Historical Resources
* Denotes resource within the program area.
** Denotes resource immediately adjacent to (within 150 feet of) the program area.
SOURCE: Cleland et al., 2007; SCCIC, 2019.

Other Identified Resources

Synergy Oil Field (ESA-LCW-1) and Bixby No. 2 Discovery Well (ESA-LCW-2)

In addition to the Bixby Ranch Field Office (P-19-187657), there are two additional historic architectural resources within the program area not yet on file at the SCCIC. Synergy Oil Field (ESA-LCW-1) and Bixby No. 2 Discovery Well (ESA-LCW-2). These two resources were documented as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR, and evaluated for listing in the California Register and for designation as Long Beach Historic Landmarks (ESA, 2017). The Synergy Oil Field (ESA-LCW-1) was recommended ineligible for listing in the California Register. The Bixby No. 2 Discovery Well (ESA-LCW-2) was recommended eligible for individual listing in the California Register under Criterion 1 and for designation as a Long Beach Historic Landmark under Criterion A.

Tribal Cultural Landscape

In 2018, the CCC conducted consultation with the Gabrieleño Band of Mission Indians - Kizh Nation (Kizh Nation), Gabrieleno-Tongva San Gabriel Band of Mission Indians (Gabrieleno-Tongva), and a member of the Acjachemen Tribe. Consultation was conducted in support of a Coastal Development Permit for the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083), whose boundary includes the entirety of the North Area (North and South Synergy Oil Field sites), Long Beach City Property site, and Pumpkin Patch site[4], which are all within the program area. The CCC report states that representatives of the Kizh Nation "described the tribe's view that the Los Cerritos Wetlands area is a sacred land, just as all land, water and animals are sacred" (CCC, 2018: 125). The CCC report also states that representatives of the Gabrieleno-Tongva and Acjachemen Tribe "described the project site as Sacred Lands that are part of a larger area of connected tribal sites that constitute a Tribal Cultural Landscape that may be eligible for listing by the National Register as a Tribal Cultural Property" and that "this Tribal Cultural Landscape includes several significant tribal sites and resources in close proximity to the project site, including the site of *Puvungna*, Rancho Los Alamitos (Long Beach Area), and the Hellman Ranch property" (CCC, 2018: 125). The following discussion of the tribal cultural landscape is summarized from the Coastal Development Permit (CCC, 2018). It should be noted that the tribal cultural landscape was not and has not since been formally documented or evaluated for listing in the National Register or California Register.

Tribal representatives described the Los Cerritos Wetlands and its surroundings as sacred lands that encompass a larger area of connected tribal sites. Tribal representatives indicated that the Hellman Ranch area was an extension of *Puvungna* and was connected to a network of villages surrounding the area. They noted that during development of the Hellman Ranch property in the 2000s, approximately 35 prehistoric burials and numerous artifacts were discovered. Tribes believe these resources to be associated with a Gabrieleno-Tongva settlement in Seal Beach, known as *Motuucheyngna* (sometimes referred to as *Puvungna East*). Since the Los Cerritos Wetlands are located in between *Puvungna* and *Motuucheyngna*, the wetlands are thus considered by tribes to be part of the larger cultural landscape of *Puvungna* and the surrounding villages.

[4] Only the eastern portion of the Pumpkin Patch site is within the program area.

In addition to being culturally connected, the wetlands and surrounding area are connected biologically. These connections occur through the waterways and the plants and animals present. All the tribal members that were part of the CCC's consultation effort agreed that these biological resources are sacred to tribal people as an integral component of tribal resources.

Sacred Lands File Search

The NAHC maintains a confidential file which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on March 12, 2019 to request a search of the SLF. The NAHC responded to the request in a letter dated March 21, 2019, indicating that the SLF search was positive. The letter did not provide details on the resource(s) identified, but recommended that Native American groups be contacted for additional information regarding the resource(s). LCWA consulted with five California Native American Tribes (also sometimes referred to as "participating California Native American Tribes" in this PEIR). The results of consultation efforts are documented in Section 3.15, *Tribal Cultural Resources*, of this PEIR.

Historic Map and Aerial Photograph Review

Historic maps and aerial photographs were examined to provide historical information about land uses of the program area, to assist in the identification of potential historic architectural resources, and to contribute to an assessment of the program area's archaeological sensitivity. Available topographic maps include: the 1896, 1899, 1902, and 1943 Downey 15-minute quadrangles; the 1896 Las Bolsas 15-minute quadrangle; the 1925 Long Beach 7.5-minute quadrangle; the 1935, 1949, and 1964 Los Alamitos 7.5-minute quadrangles; and the 1935, 1949, and 1965 Seal Beach 7.5-minute quadrangles. A 1942 map depicting the Seal Beach Oil Field was also reviewed. Historic aerial photographs were available for the years 1938, 1952, 1954, 1956, 1958, 1960, 1962, 1965, 1968, 1974, 1975, 1994, and 2001 (UCSB, 2019).

Historic Topographic Maps

A review of historic topographic maps indicates that the entire program area was part of Alamitos Bay in 1896 (the date of the earliest available topographic map). The meandering course of the pre-channelized San Gabriel River is shown emptying into the bay. By 1925, the bay had been largely filled in. Naples Island had been created to the west of the program area by this time.

On the 1925 map, Steamshovel Slough and wetlands are present within the Northern Synergy Oil Field site. On the 1925 and 1935 maps, wetlands are depicted in portions of the Southern Synergy Oil Field site, South LCWA site, and Hellman Retained site. Two water retention basins are depicted in portions of the Southern Synergy Oil Field site and Long Beach City Property site. The pre-channelized San Gabriel River is shown cutting through the program area, and a manmade channel (Hellman Channel) is shown in the South LCWA site.

By 1949, the program area is largely developed with oil wells and tanks. Steamshovel Slough and wetlands are present within the Northern Synergy Oil Field site. The Southern Synergy Oil Field site, Long Beach City Property site, Central Bryant site, Central LCWA site, Zedler Marsh site, and Hellman Retained site appear fully devoted to oil extraction. The South LCWA site appears undeveloped, but the channel present in 1925 remains. The San Gabriel River had been

channelized by 1949, and a channel or creek was located in the approximate location of where the Haynes Cooling Channel would later be constructed.

The 1964/1965 maps depict similar conditions to those that existed in 1949. Steamshovel Slough and wetlands are still present within the Northern Synergy Oil Field site, and the Southern Synergy Oil Field, Long Beach City Property, Central Bryant, Central LCWA, Zedler Marsh, and Hellman Retained sites remain developed with oil extraction facilities. By this time, the Los Alamitos Retarding Basin had been created. A building is depicted in the State Lands Parcel site. The Haynes Cooling Channel had been constructed in its current course. The residential development on a portion of Landing Hill, located to the south of the program area, had been developed by this time.

1942 Seal Beach Oil Field Map

A review of the 1942 Seal Beach Oil Field map indicates that portions of the program area were under ownership or extraction by several different entities. The following list provides the companies in operation in 1942.

- Union Oil Co. of California (North Synergy Oil Field site)
- Continental Oil Co. (North Synergy Oil Field, South Synergy Oil Field, Long Beach City Property, and Pumpkin Patch sites)
- Tide Water Associated Oil Co. (South Synergy Oil Field, Long Beach City Property, Central Bryant, Central LCWA, Isthmus Bryant, Zedler Marsh, Isthmus LCWA, Los Alamitos Pump Station, Los Alamitos Retarding Basin, Haynes Cooling Channel, Hellman Retained, and South LCWA sites)

Historic Aerial Photographs

A review of historic aerials indicates that portions of the program area were in use as part of the oil industry as early as 1938 (date of oldest available aerial photograph) or were undeveloped. The San Gabriel River had been channelized to its current course by this time, and a channel or creek is shown in the approximate location of where the Haynes Cooling Channel would later be constructed. A human-made channel (Hellman Channel) is visible in the South LCWA site. A building and tanks are visible on the Long Beach Property site. Buildings and tanks are also visible on the Isthmus LCWA site, and buildings are visible on the Hellman Retained site.

The 1952 aerial photograph depicts similar conditions as present in 1938 throughout the program area, although there is additional oil infrastructure present. A building is shown within the State Lands Parcel site. Conditions are nearly identical in the 1956 aerial photograph, but the first indication of the culvert for Calloway Marsh is visible. The 1958 aerial photograph depicts the South Area, with the first indication of the culvert for Zedler Marsh visible. Construction of the housing development on Landing Hill to the south of the program area is evident. A basin had been created in the Los Alamitos Retarding Basin site by this time.

The 1960 aerial depicts similar conditions within the program area to those present in the 1950s. The housing development on Landing Hill to the south of the program area had been largely constructed by this time, and the Haynes Generating Station to the northeast of the program area

appears to be under construction. The 1960 aerial photograph depicts tanks within the Hellman Retained site. No significant changes are apparent in the 1965 aerial, with the exception of the construction of the Haynes Cooling Channel. The 1965 aerial also depicts additional buildings within the Hellman Retained site. No significant changes are apparent in the 1974 aerial photograph, but the building within the State Lands Parcel site had been demolished by this time.

Geoarchaeological Review

A geoarchaeological review of the program area and its surroundings was conducted to assess the archaeological sensitivity and the potential for the proposed program to encounter subsurface cultural materials. Literature reviewed included previous archaeological survey reports and site records, geological maps, geotechnical borings, hydrologic reports, and historic maps and photos.

Environmental and Geological Setting

The proposed program is located within the Los Cerritos Wetlands complex, situated within the Peninsular Ranges Geomorphic Province of California. Younger bedrock within this Province is composed of uplifted marine and terrestrial sedimentary rock dating from the Cretaceous period (approximately 80 million years ago [mya]) to the Pleistocene epoch (less than 2 mya). The program area is specifically located in the southeastern portion of the Los Angeles Basin on the coastal floodplain of the San Gabriel River, which is bounded generally by Bolsa Chica Mesa to the south, and Signal Hill and the Dominguez Hills to the north (CCC, 2018).

The Los Cerritos Wetlands are situated within the Alamitos Gap, an erosional feature, between Landing Hill to the south and Bixby Hills to the north (Earth Technology Corporation, 1988). The hills consist of uplifted late to middle Pleistocene shallow marine deposits including siltstone, sandstone, and conglomerate (Saucedo et al., 2016: Figure 1).

Evolution of the Los Cerritos Wetlands complex would have broadly followed a sequence similar to one observed in the well-studied Ballona Wetlands in Santa Monica Bay (see Altschul et al., 2005; also Homburg et al., 2014). During the last Ice Age, approximately 26,000 to 12,000 years ago, global sea level was substantially lower than current conditions and the edge of the coastal plain was well west of its present day location. Coastal drainages were progressively inundated as sea levels rose following the Late Glacial Maximum forming a series of bays and lagoons. Evidence from Ballona suggests that marine transgression reached its maximum around 7,000 years ago (Altschul et al., 2005); during this time, higher base level may have reduced the influx of terrestrial alluvium into coastal embayments. Stabilization of sea levels by around 4,000 years ago was followed by renewed deltaic building and sedimentation along the interior margins of embayments, and forming marsh and tidal mud flat environments (Cleland et al., 2007).

Historically, the program area was naturally a vegetated tidal wetland in Alamitos Bay. The wetland received fresh water from the meandering channel, Coyote Creek, as well as precipitation runoff from Landing Hill. In places, the tidal wetlands would have been bordered by freshwater marsh and willow swamp. An intertidal flat surrounded Steamshovel Slough, a tidal slough that is still present today. Prior to development of the area, the Los Cerritos Wetlands complex covered approximately 2,400 acres and extended up to 2 miles inland (CCC, 2018). However, starting in

the late 1800 and early 1900s, the wetlands were progressively filled and drained for oil production, agriculture, landfilling, and residential and commercial development.

Surface geology within the program area is mapped entirely as artificial fill, which includes deposits from a range of human activities. The greatest amount of fill is likely upland material imported to support development of the numerous oil wells that formerly operated within the program area. Large portions of the wetlands were also used at times as a landfill. Surface elevations within the program area range between 0 and approximately 15 feet above mean sea level (amsl); since natural elevation of the low-lying tidal marsh would have been a few inches to feet, high elevations likely mark the location of particularly thick fill.

Natural deposits directly underlying the artificial fill consist of paralic estuary material, surface manifestations of which are present to the north and south of the artificial fill. The estuary deposits, which consist of unconsolidated, interfingered terrestrial and marine fine-grained sand, silt, and clay, are late Holocene to late Pleistocene in age (Saucedo et al., 2016). The interfingering of marine and terrestrial deposits reflects the interplay of changes in sea level, tectonics, and climate. Beneath the estuary deposits are layers of alluvium. The results of geotechnical borings near the center of the program area suggest that estuary and alluvial deposits cumulatively are approximately 75 feet thick, and are underlain by Pleistocene-aged San Pedro Formation deposits (Camp et al., 1991; see also Earth Technology Corporation, 1988; Engineering Enterprises, 1989).

Soils within the program area are mapped as Bolsa series silty clay loam (NRCS, 2019). This soil series develops in mixed alluvium on alluvial fans. The silty clay loam and silt loam textures in a typical pedon are consistent with marsh deposits; the soil mapping does not appear to account for the presence of placed fill.

Archaeological Sites in the Vicinity of the Program Area

Archaeological sites recorded at the historic extent of the wetland complex suggest a subsistence pattern based largely on shellfish. Landing Hill (e.g., CA-ORA -256, -257, -258, -259, -260, -261, -262, -263, -264, -1472, -1473) and Bixby Hill (e.g., CA-LAN-102, -231, -232, -233, -271, -273, -274, -275, -306, -702, -1007) both contain multiple pre-contact sites overlooking the program area at elevations between approximately 20 and 60 feet amsl. At a minimum, the sites contain shell debris (chione and pectin) and, typically, dark, organic soils. These upland sites also contain varying quantities of groundstone and/or chipped stone artifacts. The sites have been classified as seasonal camps (e.g., McKinney, 1969a,b,c,d). Near the toe of Landing Hill at elevations of approximately less than 10 feet amsl, there is a second group of sites (e.g., CA-ORA-850, -851, -1542, -1543, -1544), some of which have been interpreted as temporary camps for exploiting estuary and marsh resources (Underwood, 2000a,b). The sites contain chione and pectin shell, as well as dark soil. No features are noted at these sites, and artifacts are generally absent.

Archaeological Sensitivity

The program area appears to have a high sensitivity for archaeological resources. The general vicinity of the program area was clearly a focus of prehistoric human activity prior to its

widespread conversion to oil production in the historic period. Fill layers have the potential to contain prehistoric archaeological resources, although such resources have a low likelihood of retaining sufficient archaeological context due to disturbances. Fill layers also have a high sensitivity for subsurface archaeological deposits associated with oil production, as well as agriculture and other historic uses; such deposits have the potential to be in context.

Use of marsh landforms for prehistoric resource procurement has the potential to have resulted in discernable accumulations of shellfish processing and other cultural materials within lowland wetlands. The low-lying, saturated environment is unlikely to have attracted occupation, so dense, rich cultural accumulations would not be expected. However, inadvertent loss of tools, as well as processing of subsistence resources, may have left traces of past activities in the uppermost portions of the soil stratum. Distinguishing shellfish procurement sites from naturally-occurring accumulations of shell, particularly in the absence of artifacts and features, could be challenging.

Alluvium underlying the estuary deposits reflects an earlier coastal plain environment. The coastal plain may have been more amenable to sustained human occupation than on later estuary landforms; if present, archaeological sites associated with camps would be expected to contain a more diverse artifact assemblage reflecting a greater range of human behaviors than those associated with temporary resource procurement sites.

Cultural Resources Reconnaissance Survey

A reconnaissance-level site visit of the program area was conducted on June 13, 2019 by ESA archaeologist Candace Ehringer, M.A., RPA, and ESA architectural historian Alison Garcia Kellar, M.S. During the site visit, staff documented the general cultural resources context and noted key features and resources that might warrant discussion in the existing conditions context of the PEIR. No resources were formally documented during the survey, but resources were noted on field maps, photographed, and assigned temporary field designations for ease of reference. Previously recorded resources were not visually inspected during the site visit.

A total of seven previously unrecorded cultural resources were noted during the survey, including five historic architectural resources (LCWA-CRE-002-B, LCWA-CRE-003-B, LCWA-CRE-005-B, LCWA-CRE-006-B, and LCWA-CRE-007-B) and two historic-era archaeological resources (LCWA-CRE-001-H and LCWA-CRE-004-H) (**Table 3.4-2**, *Cultural Resources Observed during Site Visit*).

TABLE 3.4-2
CULTURAL RESOURCES OBSERVED DURING SITE VISIT

Temporary Designation	Area	Site	Description	Notes
LCWA-CRE-001-H	Central	Long Beach City Property	Archaeological resource: foundation (unknown use)	Foundation with former structure visible in 1938 aerial.
LCWA-CRE-002-B	Central	Long Beach City Property	Historic architectural resource: tanks	Tanks visible in 1938 aerial as a much larger grouping.
LCWA-CRE-003-B	Isthmus	Isthmus LCWA	Historic architectural resource: 7 buildings/structures; 3 metal tanks; 1920s German equipment	Buildings and structures visible in aerials as early as 1938.
LCWA-CRE-004-H	South	State Lands Parcel	Archaeological resource: concrete pad related to the Airport Club/Marina Palace constructed in 1950.	Building is visible in 1952 and 1968 aerials, and is no longer extant by the 1974 aerial. The no longer extant building was a Quonset hut that served as a gambling house and music venue.
LCWA-CRE-005-B	South	Hellman Retained	Historic architectural resource: operations shed, workshops, and related equipment; decommissioned tank farm; decommissioned service tank	Several of these buildings and structures are visible in 1938 aerial. They appear in their current configuration in the 1965 aerial.
LCWA-CRE-006-B	South	Haynes Cooling Channel	Historic architectural resource: Haynes Cooling Channel	Visible in 1965 aerial photograph.
LCWA-CRE-007-B	South	South LCWA	Historic architectural resource: Hellman Channel	Hellman Channel visible on 1935 topo map.

3.4.3 Regulatory Framework

3.4.3.1 State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (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 which 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 by the lead agency, provided the lead agency's determination is supported by

substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* 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 in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA 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.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register; or
B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, 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

C. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) (Grimmer, 2017) is considered to have mitigated its impacts to historical resources to a less-than-significant level (*CEQA Guidelines* Section 15064.5(b)(3)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). 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-period property must be significant at the federal, state, and/or local level under one or more of the following four 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; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

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 on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the NAHC within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. The MLD has 48 hours from the time of being granted access to the site by the landowner to inspect the discovery and provide recommendations to the landowner for the treatment of the human remains and any associated grave goods (i.e., artifacts associated with human remains).

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

California Government Code Sections 6254(r) and 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to “Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

California Coastal Act

The California Coastal Act provides some guidance for addressing impacts to cultural resources in Article 3, Section 30344(2) and Article 5, Section 30244. Article 3, Section 30344(2) requires that manmade resources of cultural, historic, economic, and educational importance to the public be inventoried with a description of the resources' historic, educational, and technical notes of interest. Article 5, Section 30244 requires reasonable mitigation measures be implemented when coastal development would adversely impact archaeological resources as identified by the State Historic Preservation Officer.

3.4.3.2 Local

City of Seal Beach General Plan

The Seal Beach General Plan, Cultural Resources Element (2003), contains the following goal, policies, and implementation measures relevant to the program:

Goal 1: Preserve and protect historical, archaeological, and paleontological resources.

Policy 1: Balance the benefits of development with the project's potential impacts to existing cultural resources.

Policy 2: Identify, designate, and protect sites and buildings of historic importance.

Policy 3: Coordinate cultural resource programs and development project review with affected resources agencies and Native American representatives.

Policy 4: Identify funding programs to assist private and public property owners in the preservation of buildings and sites of historic importance.

Policy 5: Assess development proposal for potential impacts to significant archaeological resources pursuant to Section 15064.5 of the California Environmental Quality Act. Require a study conducted by a professional archaeologist for all development proposals located in areas known to be sensitive for cultural resources.

Implementation Measures

Protect Significant Archaeological Resources

Assess development proposal for potential impacts to significant archaeological resources pursuant to Section 15064.5 of CEQA. Require a study conducted by a professional archaeologist for all development proposal located in areas known to be sensitive for cultural resources. Guidance for such studies is provide within General Plan Appendix A. The objective of the study is to determine if significant archaeological resources are potentially present and if the project will significantly impact the resource if significant impacts are identified, either require the project to modified to avoid the impacts, or require measure to mitigate the impacts. Mitigation may involve archaeological investigation and resource recovery.

Preserve Significant Historic Resources

Assess development proposal for potential impacts to significant historic resources pursuant to Section 15064.5 of CEQA. For structures that potentially have historic significance, require a

study conducted by a professional architectural historian or historian to determine the actual significance of the structure and potential impacts of the proposed development. Require modification of project to avoid significant impacts, or require mitigation measures. Protect historical buildings and sites to the extent possible.

Historical, Archaeological, and Paleontological Resource Management Guidelines

Prepare and maintain guidelines for historic, archaeological, and paleontological resources management to guide review of the development proposals. Archaeological resources management guidelines are provided within Appendix A of the General Plan.

Establishment of Programs for Preservation of Historic/Archaeological/Paleontologic Resources

Identify and implement programs to assist and encourage private property owners to preserve historic, archaeologic, and paleontologic resources within the City of Seal Beach.

Inventory of Historic and Cultural Landmarks

Establish and update as needed a City Inventory of Historic and Cultural Landmarks using criteria and recorded standards consistent with state regulation for use in evaluating development proposals under CEQA.

City of Long Beach General Plan

The Historic Preservation Element of the City of Long Beach General Plan (2010) includes the following goals, as well as detailed policies and implementation measures.

> **Goal 1:** Maintain and support a comprehensive, citywide historic preservation program to identify and protect Long Beach's historic, cultural, and archaeological resources.
>
> **Goal 2:** Protect historic resources from demolition and inappropriate alterations through the use of the City's regulatory framework, technical assistance, and incentives.
>
> **Goal 3:** Maintain and expand the inventory of historic resources in Long Beach.
>
> **Goal 4:** Increase public awareness and appreciation of the City's history and historic, cultural, and archaeological resources.
>
> **Goal 5:** Integrate historic preservation policies into City's community development, economic development, and sustainable-city strategies.

Local Designation

The Long Beach Municipal Code (2.63.050) establishes criteria for designating local historic landmarks and landmark districts. A cultural resource may be recommended for designation as a Landmark if it retains integrity and manifests one or more of the following criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of the City's history; or

B. It is associated with the lives of persons significant in the City's past; or

C. It embodies the distinctive characteristics of a type, period or method of construction, or it represents the work of a master or it possesses high artistic values;

D. It has yielded, or may be likely to yield, information important in prehistory or history.

A group of cultural resources may be recommended for designation as a Landmark District if it retains integrity as a whole and meets the following criteria:

A. The grouping represents a significant and distinguishable entity that is significant within a historic context.

B. A minimum of sixty percent (60%) of the properties within the boundaries of the proposed landmark district qualify as a contributing property.

3.4.4 Significance Thresholds and Methodology

3.4.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on cultural resources if it would:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5;

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5; or

c) Disturb any human remains, including those interred outside of dedicated cemeteries.

3.4.4.2 Methodology

Historical Resources

Analysis of impacts to historic architectural resources that qualify as historical resources (as defined i*n CEQA Guidelines* Section 15064.5) requires that a lead agency shall first determine whether a building, structure, object or feature is a historical resource. If the lead agency determines a historic architectural resource is a historical resource, its significance may be materially impaired for the reasons outlined below. Typically, the significance of a historical resource of an architectural or structural nature is materially impaired through demolition or alteration. The resource may also be materially impaired by incompatible adjacent new construction that alters the setting of the resource, thereby diminishing its integrity and significance.

According to the *CEQA Guidelines*, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (*CEQA Guidelines* Section 15064.5(b)). A substantial adverse change means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings, resulting in material impairment of the historical resource (*CEQA Guidelines*

Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project:

- 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; or
- 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
- 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 as determined by a lead agency for purposes of CEQA.

A historic district must preserve the majority of its components to retain integrity as a whole. Typically, a district that retains a majority of its contributors is considered to have sufficient integrity to be eligible for listing in the California Register. A district that does not retain the majority of its contributors is considered to have lost integrity, and is no longer able to convey its historical significance or considered eligible for listing in the California Register.

In general, a project that complies with the Standards (Grimmer, 2017) is considered to have mitigated its impacts to historical resources to a less-than-significant level (*CEQA Guidelines* Section 15064.5(b)(3)). In some circumstances, documentation of a historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur (*CEQA Guidelines* Section 15126.4(b)(2)).

Archaeological Resources

Analysis of impacts to archaeological resources includes consideration of archaeological resources that qualify as historical resources (as defined in *CEQA Guidelines* Section 15064.5) and as unique archaeological resources (as defined in PRC Section 21083.2). Per *CEQA Guidelines* Section 15064.5(c), a lead agency shall first determine whether a site is a historical resource. If the archaeological site does not meet the criteria for historical resource, it is then assessed for significance as a unique archaeological resource.

If a lead agency determines an archaeological site is a historical resource, its significance may be materially impaired for the same reasons outlined above under the heading “Historical Resources.” Typically, the significance of a historical resource of an archaeological nature is materially impaired through ground-disturbing activities that destroy partially or in whole the surface and subsurface expression of the resource such that it no longer conveys its historical significance. However, the resource may also be materially impaired through the introduction of new visual elements that alter the setting of the resource, thereby diminishing its integrity. Other actions that can impact these types of resources include vandalism and unauthorized collection as a result of increased human presence during construction and/or operation of a project.

CEQA Guidelines Section 15126.4(b)(3) states that the lead agency should seek to avoid damaging effects on historical resources of an archaeological nature, and shall consider preservation in place as the preferred manner of mitigating impacts. If preservation in place is not feasible, mitigation must be developed to minimize significant adverse impacts. For resources eligible under California Register Criterion 4 (information potential), data recovery through excavation should be undertaken to recover the scientifically consequential information contained within the archaeological resource. For resources eligible under Criterion 1 (significant events), Criterion 2 (important persons), or Criterion 3 (design/workmanship) other types of mitigation may be necessary to address those elements of the resource. *CEQA Guidelines* Section 15370 provides guidance on the types of mitigation that may be considered, and includes: avoiding impacts altogether; minimizing impacts; rectifying impacts through repair, rehabilitation, or restoration; reducing impacts through preservation; and compensatin for impacts by providing substitute resources. For resources eligible under Criteria 1-3, applicable mitigation could include documentary/archival research, oral history, public interpretation, etc., depending on the nature of the resource and the type/degree of impact.

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of PRC Section 21083.2, which is as a unique archaeological resource. Similar to that described for historical resources of an archaeological nature, impacts to unique archaeological resource can occur from project-related ground disturbance, and vandalism and unauthorized collection as a result of increased human presence during construction and/or operation of a project. PRC Section 21083.2(b) states that if the project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. If avoidance is not feasible, then mitigation measures, such as data recovery excavation, shall be required (PRC Section 21083.2(c)). It should be noted that the time and cost limitations of PRC Section 21083.2 only apply to unique archaeological resources (*CEQA Guidelines* Section15064.5(c)(2)).

Human Remains

A project may also cause a significant environmental effect if it disturbs human remains, including those interred outside of formal cemeteries. As with archaeological resources, impacts to human remains occur mainly as a result of project-related ground disturbance. Impacts to human remains can be mitigated by following the procedures outlined in California Health and Safety Code Section 7050.5 and PRC Section 5097.98.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to cultural resources were identified.

3.4.5 Program Impacts and Mitigation Measures

Impact CUL-1: The proposed program would result in a significant impact if the proposed program would cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.

Construction

As described in Chapter 2, *Project Description*, of this PEIR, construction on the proposed program area would generally involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor centers, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms), and modification of existing infrastructure and utilities.

There are 23 potential historical resources within or immediately adjacent to the proposed program area, including 15 archaeological resources (11 prehistoric sites, 3 historic-period sites, and 1 multicomponent site) and 8 historic architectural resources. **Table 3.4-3**, *Known Cultural Resources within or adjacent to the Program Area*, lists the resources by area.

Of the 23 resources, only six have been evaluated for listing in the California Register. Resources P-19-004781 [City Landfill] and ESA-LCW-1 [Synergy Oil Field]) have been evaluated as ineligible for listing in the California Register, and they do not qualify as historical resources. These two resources require no further consideration or mitigation under CEQA. Resources P-19-187657 [Bixby Ranch Field Office] and ESA-LCW-2 [Bixby No. 2 Discovery Well]) have been evaluated as eligible for the California Register, and qualify as historical resources. These two resources were analyzed as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). Resources P-30-000261 and -000262 have been evaluated as eligible for the California Register and qualify as historical resources. The remaining 17 known resources have not been evaluated for listing in the California Register, and it is unknown if they qualify as historical resources.

In addition to the resources listed in the table, the Los Cerritos Wetlands is part of a tribal cultural landscape identified by some tribal representatives during consultation with the CCC. This tribal cultural landscape has not been formally documented or evaluated for listing in the California Register. In light of the information provided in the CCC Staff Report for the Coastal Development Permit for the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (CCC, 2018), LCWA has made a discretionary determination to treat this tribal cultural landscape as a historical resource for the purposes of this PEIR, consistent with *CEQA Guidelines* Section 15064.5(a)(4). The physical characteristics of the tribal cultural landscape that appear to convey its historical significance, as identified by the CCC's consultation efforts, include the village sites of *Puvungna* and *Motuucheyngna* (represented by prehistoric archaeological sites in the California State University – Long Beach and the Hellman Ranch areas, respectively), prehistoric archaeological sites within the Los Cerritos Wetlands, as well as the waterways, plants, and animals that are present in the area.

TABLE 3.4-3
KNOWN CULTURAL RESOURCES WITHIN OR ADJACENT TO THE PROGRAM AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Temporary Designation	Description	Eligibility Status	Site	Comments
South Area						
30-000256	ORA-000256	—	Prehistoric archaeological site: shell midden	Not evaluated	South LCWA	—
30-000257	ORA-000257	—	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA	—
30-000258	ORA-000258	—	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA	—
30-000259	ORA-000259	—	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA	—
30-000261	ORA-000261	—	Prehistoric archaeological site: shell midden	Eligible for CR	South LCWA	—
30-000262	ORA-000262	—	Prehistoric archaeological site: shell midden	Eligible for CR	Adj. South LCWA	—
30-000850	ORA-000850	—	Prehistoric archaeological site: shell midden	Not evaluated	Adj. Hellman Retained	—
30-000851	ORA-000851	—	Prehistoric archaeological site: shell midden	Not evaluated	Hellman Retained	—
30-001473	ORA-001473	—	Prehistoric archaeological site: shell midden	Not evaluated	South LCWA	—
30-001542	ORA-001542/H	—	Multicomponent archaeological site: prehistoric shell scatter and historic-period refuse scatter	Not evaluated	Adj. Los Alamitos Retarding Basin	—
30-001544	ORA-001544	—	Prehistoric archaeological site: shell scatter	Not evaluated	Adj. Los Alamitos Retarding Basin	—
—	—	LCWA-CRE-004-H	Historic-period archaeological site: building foundation	Not evaluated	State Lands Parcel	—
—	—	LCWA-CRE-005-B	Historic architectural resource: operations shed, workshops, and related equipment; decommissioned tank farm; decommissioned service tank	Not evaluated	Hellman Retained	—
—	—	LCWA-CRE-007-B	Historic architectural resource: Hellman Channel	Not evaluated	South LCWA	—

TABLE 3.4-3
KNOWN CULTURAL RESOURCES WITHIN OR ADJACENT TO THE PROGRAM AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Temporary Designation	Description	Eligibility Status	Site	Comments
Isthmus Area						
—	—	LCWA-CRE-003-B	Historic architectural resource: 7 buildings/structures; 3 metal tanks; 1920s German equipment	Not evaluated	Isthmus LCWA	—
Central Area						
19-001821	LAN-001821	—	Prehistoric archaeological site: shell midden	Not evaluated	Long Beach City Property	—
19-004781	LAN-004781H	—	Historic-period archaeological site: landfill	Previously recommended ineligible for CR	Pumpkin Patch	—
—	—	LCWA-CRE-001-H	Historic-period archaeological site: building foundation (unknown use)	Not evaluated	Long Beach City Property	—
—	—	LCWA-CRE-002-B	Historic architectural resource: tanks	Not evaluated	Long Beach City Property	—
—	—	LCWA-CRE-006-B	Historic architectural resource: Haynes Cooling Channel	Not evaluated	Haynes Cooling Channel	—
North Area						
19-187657	—	—	Historic architectural resource: Bixby Ranch Field Office constructed prior to 1927	Previously recommended eligible for CR	Northern Synergy Oil Field	Addressed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083)
—	—	ESA-LCW-1	Historic architectural resource: Synergy Oil Field	Previously recommended ineligible for CR	Northern and Southern Synergy Oil Fields	Addressed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083)
—	—	ESA-LCW-2	Historic architectural resource: Bixby No. 2 Discovery Well	Previously recommended eligible for CR	Southern Synergy Oil Field	Addressed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083)

SOURCES: ESA, 2019; SCCIC, 2019

Also, given that the entire program area was not systematically surveyed as part of this assessment, there could be additional as-yet-unidentified archaeological and historic architectural resources within the program area that would require evaluation for listing in the California Register to determine if they qualify as historical resources. In particular, portions of the program area have been used historically for oil extraction/production, and there may be historic architectural resources related to the oil industry that have not been documented or evaluated for listing in the California Register either individually or as part of a potential district or landscape.

Additionally, the program area is considered to have a high potential to encounter buried prehistoric and historic-period archaeological resources. Intact prehistoric resources could be encountered below depth of fill, although historic-period archaeological resources, particularly those associated with the oil industry, could be encountered within fill layers. Should buried archaeological resources be encountered, they would require evaluation for listing in the California Register to determine if they qualify as historical resources.

Actions that have the potential to adversely impact historical resources include:

- Demolition, alteration, or incompatible changes to the setting of eligible or unevaluated historic architectural resources
- Soil remediation, excavation, grading, or other ground-disturbing activities within or in the immediate vicinity of eligible or unevaluated archaeological resources or that unearth subsurface archaeological resources
- Demolition or material alteration in an adverse manner to those physical characteristics of the tribal cultural landscape that convey its historical significance. Construction-related impacts of the proposed program on each sub-category of historical resources are considered below.

Historical Architectural Resources

Potential impacts to historic architectural resources within the program area are considered significant and unavoidable. There are unevaluated historic architectural resources that could qualify as historical resources (i.e., be found eligible for the California Register) and that may be demolished or materially altered in an adverse manner as a result of the proposed program. Implementation of Mitigation Measures CUL-1 through CUL-3 would lessen the impact by requiring that qualified cultural resources personnel conduct future project-specific studies and develop appropriate treatment for significant resources. However, should a resource be found eligible for the California Register and subsequently be demolished or altered in such a manner that it no longer conveys its historical significance (i.e., is altered in a way that is inconsistent with the Standards), and the resource is no longer eligible for the California Register, it is possible that no feasible mitigation exists that would reduce this impact to a level of less than significant. Typically, impacts resulting from alteration of historic architectural resources can be mitigated to less than significant by following the Standards, which results in a resource that retains sufficient integrity to remain eligible for listing in the California Register. Impacts to historic architectural resources as a result of demolition are more difficult to mitigate to less than significant since the resource would no longer exist and would no longer be eligible for listing in the California Register. While documentation of the resources can lessen the impact from demolition, it does not in and of itself mitigate the impact to a level of less than significant. In

order to develop effective mitigation, the nature of the resource and its physical characteristics would need to be understood to develop measures that would lessen the impact. Since it cannot be predicted at the program level why a resource may be eligible, or what comprises its essential physical characteristics, or what mitigation would be appropriate, or if it would be possible to develop feasible mitigation that would sufficiently reduce the impact, the proposed program's impact on historic architectural resources qualifying as historical resources is considered significant and unavoidable.

Archaeological Resources

Potential impacts to archaeological resources within the program area are considered significant and unavoidable. There are unevaluated archaeological resources that could qualify as historical resources and that may be demolished or materially altered in an adverse manner as a result of the proposed program. Also, since the proposed program includes ground disturbance, there is a potential to encounter subsurface archaeological resources that could qualify as historical resources during construction. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact by requiring that qualified cultural resources personnel conduct future project-specific studies, develop appropriate treatment for significant resources, and conduct archaeological and Native American monitoring of ground disturbance. However, should a resource be found eligible for the California Register and subsequently be destroyed or altered in such a manner that it no longer conveys its historical significance, and the resource is no longer eligible for the California Register, it is possible that no feasible mitigation exists that would reduce this impact to a level of less than significant. This is especially true for archaeological resources that are eligible for non-scientific values under Criteria 1-3 since data recovery excavations only mitigate impacts to scientific values under Criterion 4. Since it cannot be predicted at the program level under what criteria a resource may be eligible, or what mitigation would be appropriate, or if it would be possible to develop feasible mitigation that would sufficiently reduce the impact, the proposed program's impact on archaeological resources qualifying as historical resources is considered significant and unavoidable.

Tribal Cultural Landscape

Potential impacts from the proposed program on the tribal cultural landscape could occur if the proposed program resulted in the demolition or material alteration to the essential physical characteristics that convey the historical significance of the tribal cultural landscape, such as the village sites of *Puvungna* and *Motuucheyngna*, Native American or prehistoric archaeological sites within or near the Los Cerritos Wetlands, waterways, plants, or animals.

With regards to potential impacts to *Puvungna* and *Motuucheyngna*, the archaeological manifestations of these two village sites that contribute to the landscape's historical significance would not be impacted. *Puvungna* is located about 0.75 miles to the north of the proposed program area, in the area of California State University – Long Beach and its vicinity. *Motuucheyngna* is on a portion of the former Hellman Ranch property that has since been developed as a residential subdivision. No impacts to the archaeological sites associated with these two villages are anticipated as a result of the proposed program.

With regards to potential impacts to other Native American or prehistoric archaeological sites within the Los Cerritos Wetlands, there are 12 prehistoric archaeological sites within or immediately adjacent to (within 150 feet of) the program area. These include five archaeological sites that are within or partially overlap the program boundary (CA-LAN-1821 and CA-ORA-256, -261, -851, and -1473). Of these five sites, only one site (CA-LAN-1821) is entirely within the program area. The remaining sites are on the fringes of the program boundary and some appear to only slightly overlap with the program area. There are also seven archaeological sites that are within 150 feet of the program boundary (CA-ORA-257, -258, -259, -262, -850, -1542, and -1544). Of the 12 prehistoric sites, only two (CA-ORA-261 and-262) have been previously evaluated as eligible for listing in the California Register, and as such they would likely contribute to the significance of the landscape, however, these sites were reportedly destroyed by construction of Heron Pointe. The remaining sites have not been subject to formal evaluations, but they are considered potential contributors to the significance of the landscape. In addition, there could be as yet unidentified prehistoric archaeological sites on the surface or subsurface within the program area that could contribute to the significance of the landscape. Therefore, the proposed program could result in the demolition or material alteration to Native American or prehistoric archaeological sites within the Los Cerritos Wetlands that convey the historical significance of the tribal cultural landscape. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape:

- Mitigation Measures CUL-1, CUL-4 through CUL-6, and CUL-8 require that qualified cultural resources personnel conduct future project-specific studies to identify archaeological resources and develop appropriate treatment for resources that contribute to the significance of the tribal cultural landscape.
- Mitigation Measure CUL-7 requires consideration of avoidance and preservation in place of archaeological resources, including those that contribute to the landscape's significance, to ensure that destructive treatment measures are a last resort.
- Mitigation Measures CUL-9 through CUL-11, CUL-14, and CUL-15 require establishment of a plan and procedures for avoidance and discoveries measures during construction, training construction personnel on the significance of the area and procedures to follow in the event of discoveries, monitoring of ground disturbance by archaeologists, and proper curation/disposition of recovered archaeological materials. These measures would ensure the protection, identification, and appropriate handling and treatment of archaeological resources that contribute to the landscape's significance.
- Mitigation Measures CUL-12 and CUL-13 require that LCWA consult with Native American representatives during the preparation of all cultural resources-related documents and that Native American groups are included in monitoring of ground disturbance. These measures would ensure that tribal values are considered in identification, evaluation, and treatment of archaeological resources that contribute to the landscape's significance.

Even with implementation of these measures, the destruction or material alteration of an archaeological resource that contributes to the landscape's significance would constitute a substantial adverse change since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or

prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level.

With regards to potential impacts to the waterways, plants, and animals, the purpose of the proposed program is to restore the natural waterways and habitat of the Los Cerritos Wetlands. These actions would have a beneficial effect on the waterways, plants, and animals. As noted in Chapter 2, *Project Description*, of this PEIR, the proposed program would restore the tidal wetland process by providing a more natural connection between the wetlands and surrounding water sources. This would increase estuarine habitat with a mix of tidal channels, mudflat, salt marsh, and brackish/freshwater marsh and ponds. The existing waterways within the wetlands are human-made and not natural, with the exception of Steamshovel Slough, and do not resemble the historical or pre-contact appearance of the Los Cerritos Wetlands. The proposed program would develop channels that resemble more natural waterways, such as the meandering channels to be excavated off of the Hellman Channel, and would breach the San Gabriel River levee. This would result in a more natural tidal influence between the saltwater/freshwater sources and the wetlands. As discussed in Section 3.3, *Biological Resources*, of this PEIR, the result would be a net increase in jurisdictional wetlands.

Also as noted in Chapter 2, *Project Description*, the proposed program would restore and maintain native habitat and maximize wildlife corridors. As discussed in Section 3.3, *Biological Resources*, of this PEIR, the creation of suitable habitat would have a net benefit on several special-status species (e.g., monarch butterfly, estuary sea-blite, black skimmer, California least tern, and others). Historically the wetlands provided natural resources to surrounding Native American village sites. The plants, animals, fish, and shellfish once present within the wetlands were gathered, hunted, and fished to provide sustenance, tools, ceremonial objects, and other materials for native populations. Restoration of native habitat would attract wildlife back to the area and would allow for a variety of species to again flourish within the wetlands, creating an ecosystem more closely resembling the one that existed historically and in pre-contact times.

The proposed program also includes several mitigation measures that would lessen potential construction-related impacts to plants and animals that are considered part of the tribal cultural landscape. Mitigation Measures BIO-1 through BIO-9 in Section 3.3, *Biological Resources*, of this PEIR, would require: avoidance of special-status plants or restoration of affected special-status plants; environmental awareness training for construction personnel and biological monitoring; restoration of affected breeding habitat for the Belding's savannah sparrow, nesting bird and raptor avoidance; pre-construction surveys for burrowing owl and creation of a management plan to minimize or avoid impacts to burrowing owls; pre-construction surveys for bat roosting habitat and creation of an exclusion plan to minimize or avoid impacts to breeding bats; focused surveys for special-status wildlife species and creation of an avoidance plan to minimize or avoid impacts to occupied habitat; and revegetation of sensitive natural communities. Implementation of these measures would ensure that any potential construction-related impacts to plants and animals are less than significant.

Potential impacts to the tribal cultural landscape would be further reduced by considering Native American tribal values ascribed to the Los Cerritos Wetlands throughout the course of

development and construction of the proposed program. Mitigation Measure CUL-16 would require that LCWA seek input from California Native American Tribes regarding development of project-level designs, planting selections/palettes, and educational/interpretive signage. This would ensure that tribal values ascribed to the Los Cerritos Wetlands as part of the tribal cultural landscape are considered as part of the design, restoration, and educational elements of the proposed program (see Section 3.15, *Tribal Cultural Resources*, of this PEIR, for a full discussion of input received from California Native American Tribes during consultation on the proposed program).

In summary, some of the essential physical features of the tribal cultural landscape would not be impacted (village sites of *Puvungna* and *Motuucheyngna*), or could be enhanced by the restoration elements of the proposed program (jurisdictional wetlands, plant and animal habitats). However, the proposed program includes ground disturbing activities that have the potential to result in a substantial adverse change to Native American or prehistoric archaeological resources within the Los Cerritos Wetlands. Since these types of resources contribute to the significance of the tribal cultural landscape, the proposed program could materially impair the landscape's ability to convey its historical significance, resulting in a substantial adverse change in the significance of the tribal cultural landscape even with the implementation of mitigation. Therefore, impacts to the tribal cultural landscape would be significant and unavoidable at the program level.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor centers and associated parking lots. These actions would have no impact to historic architectural resources. Any ground disturbance associated with these activities would occur within soils that have already been subject to ground disturbance and archaeological/Native American monitoring, and they are unlikely to unearth archaeological resources. Operation of the proposed program would include increased public access to the program area, and could potentially result in the vandalism of or disturbances to archaeological resources. However, the public access program would constrain visitors to pedestrian trails and bike paths, elevated perimeter pedestrian walkways, and designated viewing areas with overlooks. It would also include educational and interpretive features that would educate the public about the cultural significance of the area, and the implications of unauthorized tampering with resources. Impacts to historic architectural resources and archaeological resources from operation of the proposed program would be less than significant.

The actions described above could also impact to the tribal cultural landscape. As discussed above, no impacts to the archaeological sites associated with *Puvungna* and *Motuucheyngna* are anticipated as a result of the proposed program. Any ground disturbance associated with operational activities would occur within soils that have already been subject to ground disturbance and archaeological/Native American monitoring, and they are unlikely to unearth Native American or prehistoric archaeological resources associated with the landscape. As discussed in Section 3.3, *Biological Resources*, of this PEIR, operational impacts to plants and animals would be minimal or would be lessened by implementation of BIO-1, BIO-6, and BIO-8

though BIO-11, which require restoration of affected special-status plants; preparation of a lighting plan and requiring that nighttime lighting is shielded downward to minimize spillage onto adjacent area; preparation of a Mitigation, Maintenance and Monitoring Program to ensure successful revegetation of sensitive natural communities; and a functional assessment of the wetland areas that will be restored in the program area. Also, resulting modification to existing waterways or creation of new waterways would result in a net increase in jurisdictional wetlands, and with implementation of BIO-10, operational impacts on the wetlands would be assessed. With implementation of these mitigation measures, impacts to the tribal cultural landscape from operation of the proposed program would be less than significant.

Mitigation Measures

Mitigation Measures BIO-1 through BIO-11, as provided in Section 3.3, *Biological Resources*.

Mitigation Measure CUL-1: Cultural Resources Personnel Professional Qualifications Standards. Cultural resources consulting staff shall meet, or be under the direct supervision of an individual meeting, the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 Code of Federal Regulations [CFR] Part 61; 48 FR 44738-44739).

Mitigation Measure CUL-2: Historic Resources Assessment. For each near-term, mid-term, and long-term project, LCWA shall retain an SOI-qualified architectural historian (Qualified Architectural Historian) to conduct a historic resources assessment including: a records search at the South Central Coastal Information Center; a review of pertinent archives and sources; a pedestrian field survey; recordation of all identified historic resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the assessment. The report(s) shall be submitted to LCWA for review and approval prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Architectural Historian shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its completion. A Historic Resources Assessment shall not be required for any project site that has already undergone the same or similar assessment as part of the program as long as the assessment is deemed adequate by the Qualified Architectural Historian for the purposes of the project currently under consideration.

Mitigation Measure CUL-3: Historic Resources Evaluation. Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project site containing unevaluated historic resources, a Qualified Architectural Historian shall determine if the project has the potential to result in adverse impacts to identified historic resources. For any historic resource that may be adversely impacted, the Qualified Architectural Historian shall evaluate the resource for listing in the California Register under Criteria 1-4 in order to determine if the resource qualifies as a historical resource. If a historic resource is found eligible, the Qualified Architectural Historian shall determine if the project would cause a substantial adverse change in the significance of the resource. If a substantial adverse change would occur (i.e., the project would demolish the resource or materially alter it in an adverse manner), the Qualified Architectural Historian shall develop appropriate mitigation measures to be incorporated into subsequent CEQA documents. These measures may include, but would not be limited to, relocation, HABS/HAER/HALS documentation, development and

implementation of an interpretative and commemorative program, or development and implementation of a salvage plan. All evaluations and resulting technical reports shall be completed and approved by LWCA prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Architectural Historian shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA.

Mitigation Measure CUL-4: Archaeological Resources Assessment. For each near-term, mid-term, and long-term project that involves ground disturbance, LCWA shall retain an SOI-qualified archaeologist (Qualified Archaeologist) to conduct an archaeological resources assessment including: a records search at the South Central Coastal Information Center; a Sacred Lands File search at the Native American Heritage Commission; updated geoarchaeological review incorporating previously unavailable data (such as geotechnical studies); a pedestrian field survey; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report. The technical report shall: document the methods and results of the study; provide an assessment of the project's potential to encounter subsurface archaeological resources and human remains based on a review of the project plans, depth of proposed ground disturbance, and available project-specific geotechnical reports; and provide recommendations as to whether additional studies are warranted (i.e, Extended Phase I presence/absence testing or resource boundary delineation, Phase II testing and evaluation). The report(s) shall be submitted to LCWA for review and approval prior to approval of project plans or publication of subsequent CEQA documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its completion. An Archaeological Resources Assessment shall not be required for any project site that has already undergone the same or similar assessment as part of the program as long as the assessment is deemed adequate by the Qualified Archaeologist for the purposes of the project currently under consideration.

Mitigation Measure CUL-5: Extended Phase I Archaeological Investigation. Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project with a high potential to encounter subsurface archaeological resources as determined by the project-specific archaeological resources assessment conducted under **Mitigation Measure CUL-4: Archaeological Resources Assessment**, a Qualified Archaeologist shall conduct an Extended Phase I investigation to identify the presence/absence of subsurface archaeological resources. Prior to the initiation of field work for any Extended Phase I investigation, the Qualified Archaeologist shall prepare a work plan outlining the investigation's objectives, goals, and methodology (e.g., field and lab procedures, collection protocols, curation and reporting requirements, Native American input/monitoring, schedule, security measures). For investigations related to Native American archaeological resources, monitoring shall be required in accordance with **Mitigation Measures CUL-13: Native American Monitoring**. All work plans shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects or grave goods (i.e., artifacts associated with human remains) are encountered in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Disposition of archaeological materials recovered during Extended Phase I investigations shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Projects occurring within

the same timeframe may be covered by one overarching work plan. All investigations and resulting technical reports shall be completed and approved by LCWA prior to LCWA's approval of project plans or publication of subsequent CEQA documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA. An Extended Phase I investigation shall not be required for any project site or resource that has already undergone the same or similar investigation as part of the program as long as the investigation is deemed adequate by the Qualified Archaeologist for the purposes of the project currently under consideration.

Mitigation Measure CUL-6: Phase II Archaeological Investigation. Prior to LCWA's approval of project plans or the publication of subsequent CEQA documents for any project site containing known unevaluated archaeological resources as identified by the project-specific archaeological resources assessment conducted under **Mitigation Measure CUL-4: Archaeological Resources Assessment**, a Qualified Archaeologist shall determine if the project has the potential to result in adverse impacts to identified **archaeological** resources (this may include initial Extended Phase I testing to identify the boundaries of resources, if necessary to properly assess potential impacts, following the procedures outlined under **Mitigation Measure CUL-5: Extended Phase I Archaeological Investigation**). For any archaeological resource that may be adversely impacted, the Qualified Archaeologist shall conduct Phase II testing and shall evaluate the resource for listing in the California Register under Criteria 1-4 in order to determine if the resource qualifies as a historical resource. If the resource does not qualify as a historical resource, it shall then be considered for qualification as a unique archaeological resource. Native American or prehistoric archaeological resources shall also be considered as contributors to the tribal landscape to determine if they contribute to the significance of the landscape. Prior to the initiation of field work for any Phase II investigation, the Qualified Archaeologist shall prepare a work plan outlining the investigation's objectives, goals, and methodology (e.g., research design, field and lab procedures, collection protocols, data requirements/thresholds, evaluation criteria, curation and reporting requirements, Native American input/monitoring, schedule, security measures). The Qualified Archaeologist and LCWA shall coordinate with participating Native American Tribes during preparation of Phase II work plans related to Native American archaeological resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered in the evaluation, including those related to the tribal cultural landscape. For investigations related to Native American archaeological resources, Native American Tribal coordination and monitoring shall be required in accordance with **Mitigation Measures CUL-12: Native American Coordination** and **CUL-13: Native American Monitoring**. All work plans shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects or grave goods (i.e., artifacts associated with human remains) are encountered in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Disposition of archaeological materials recovered during Extended Phase I or Phase II investigations shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**. Projects occurring within the same timeframe may be covered by one overarching work plan. All investigations and resulting technical reports shall be completed and approved by LWCA prior to LCWA's approval of project plans or publication of subsequent CEQA

documents. The Qualified Archaeologist shall file a copy of the final report(s) with the South Central Coastal Information Center within 30 days of its acceptance by LCWA.

Mitigation Measure CUL-7: Avoidance and Preservation in Place of Archaeological Resources. In the event historical resources or unique archaeological resources or resources that contribute to the significance of the tribal cultural landscape are identified, avoidance and preservation in place shall be the preferred manner of mitigating impacts to such resources. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. If avoidance is determined by the LCWA to be infeasible in light of factors such as the nature of the find, proposed project design, costs, and other considerations, then that resource shall be subject to **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. If avoidance and preservation in place of a resource is determined by LCWA to be feasible, then that resource shall be subject to **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan**.

Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan. A Qualified Archaeologist shall prepare a Phase III Archaeological Resources Data Recovery and Treatment Plan for significant archaeological resources (i.e., resources that qualify as historical resources or unique archaeological resources or that contribute to the significance of the tribal cultural landscape) that will be adversely impacted by a project. Consistent with *CEQA Guidelines* Section 15126.4, data recovery shall not be required for a historical resource if LCWA determines that testing or studies already completed have adequately recovered the scientifically consequential information for resources eligible under California Register Criterion 4. The Qualified Archaeologist and LCWA shall consult with interested Native American Tribes for recovery/treatment of Native American archaeological resources during preparation of the plan(s) to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered in assessing treatment, including those related to the tribal cultural landscape. Projects occurring within the same timeframe may be covered by one overarching plan. The plan(s) shall be submitted to LCWA for review and approval prior to the start of field work for data recovery efforts for resources that are eligible under California Register Criterion 4 (data potential). Data recovery field work shall be completed prior to the start of any project-related ground disturbance. Treatment for archaeological resources that are eligible under California Register Criterion 1 (events), Criterion 2 (persons), or Criterion 3 (design/workmanship) shall be completed within 3 years of completion of the project. Each plan shall include:

a. *Research Design.* The plan shall outline the applicable cultural context(s) for the region, identify research goals and questions that are applicable to each resource or class of resources, and list the data needs (types, quantities, quality) required to answer each research question. The research design shall address all four California Register Criteria (1–4) and identify the methods that will be required to inform treatment, such as subsurface investigation, documentary/archival research, and/or oral history, depending on the nature of the resource. The research design shall also include consideration of Native American or prehistoric archaeological resources as contributors to the tribal cultural landscape.

b. *Data Recovery for Resources Eligible under Criterion 4.* The plan shall outline the field and laboratory methods to be employed, and any specialized studies that will be conducted, as part of the data recovery effort for resources that are eligible under California Register Criterion 4 (data potential). If a resource is eligible under additional criteria, treatment beyond data recovery shall be implemented (see **CUL-6c**).

c. *Treatment for Resources Eligible under Criteria 1, 2, or 3.* In the event a resource is eligible under California Register Criterion 1 (events), Criterion 2 (persons), or Criterion 3 (design/workmanship), then resource-specific treatment shall be developed to mitigate project-related impacts to the degree feasible. This could include forms of documentation, interpretation, public outreach, ethnographic and language studies, publications, and educational programs, depending on the nature of the resource, and may require the retention of additional technical specialists. Treatment measures shall be generally outlined in the plan based on existing information on the resource. Once data recovery is completed and the results are available to better inform resource-specific treatment, the treatment measures shall be formalized and implemented. Treatment shall be developed by the Qualified Archaeologist in consultation with LCWA and Native American Tribal representatives for resources that are Native American in origin, including those related to the tribal cultural landscape.

d. *Security Measures.* The plan shall include recommended security measures to protect archaeological resources from vandalism, looting, and non-intentionally damaging activities during field work.

e. *Procedures for Discovery of Human Remains and Associated Funerary Objects or Grave Goods.* The plan shall outline the protocols and procedures to be followed in the event *that* human remains and associated funerary objects or grave goods are uncovered. Protocols and procedures shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.

f. *Reporting Requirements.* Upon completion of data recovery for resources eligible under Criterion 4, the Qualified Archaeologist shall document the findings in an Archaeological Data Recovery Report. The draft Archaeological Data Recovery Report shall be submitted to the LCWA within 360 days after completion of data recovery, and the final Archaeological Data Recovery Report shall be submitted to LCWA within 60 days after the receipt of LCWA comments. The Qualified Archaeologist shall submit the final Archaeological Data Recovery Report to the South Central Coastal Information Center within 30 days of its acceptance by LCWA.

   Upon completion of all other treatment for resources eligible under Criteria 1, 2, or 3, the Qualified Archaeologist shall document the resource-specific treatment that was implemented for each resource and verification that treatment has been completed in a technical document (report or memorandum). The document shall be provided to LCWA within 30 days after completion of treatment.

g. *Curation or Disposition of Cultural Materials.* The plan shall outline the requirements for final *disposition* of all cultural materials collected during data recovery. Disposition of all archaeological materials shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.

h. *Protocols for Native American Coordination and Monitoring.* The plan shall outline the role and responsibilities of Native American Tribal representatives in *accordance* with **Mitigation Measure CUL-12: Native American Coordination**. It shall outline communication protocols, timelines for review of archaeological resources documents, and provisions for Native American monitoring. The plan shall include provisions for full-time Native American monitoring of all data recovery field work for resources that are Native American in origin, including those related to the tribal cultural landscape, in accordance with **Mitigation Measure CUL-13: Native American Monitoring**.

Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan. For each near-term, mid-term, and long-term project that involves ground disturbance, a Qualified Archaeologist shall prepare an Archaeological Resources Mitigation and Monitoring Plan taking into account the final LCWA-approved project design plans, depths/locations of ground disturbance, proximity to known archaeological resources, and potential to encounter subsurface archaeological resources. Projects occurring within the same timeframe may be covered by one overarching plan. Each plan shall include:

a. *Establishment of Environmentally Sensitive Areas.* The plan shall outline areas that will be designated Environmentally Sensitive Areas (including maps), if needed. Significant or unevaluated archaeological resources that are being avoided and are within 50 feet of the construction zone shall be designated as Environmentally Sensitive Areas. The resources shall be *delineated* with exclusion markers to ensure avoidance. These areas shall not be marked as archaeological resources, but shall be designated as "exclusion zones" on project plans and protective fencing in order to discourage unauthorized disturbance or collection of artifacts.

b. *Provisions for Archaeological Monitoring.* The plan shall outline requirements for archaeological monitoring and the archaeological monitor(s) role and responsibilities in accordance with **Mitigation Measure CUL-11: Archaeological Resources Monitoring**. Ground *disturbance* in locations/depths that have been previously monitored as part of the program shall not be subject to additional monitoring.

c. *Procedures for Discovery of Archaeological Resources.* Procedures to be implemented in the event of an archaeological discovery shall be fully defined in the plan and shall be in accordance with **Mitigation Measure CUL-14: Archaeological Resources Discoveries**. Procedures outlined shall include stop-work and protective measures, notification protocols, procedures for significance assessments, and appropriate treatment measures. The plan shall state avoidance or preservation in place is the preferred manner of mitigating impacts to historical resources, unique archaeological resources, and contributors to the significance of the tribal cultural landscape, but shall provide procedures to follow should avoidance be infeasible in light of factors such as the nature of the find, project design, costs, and other considerations.

   If, based on the recommendation of a Qualified Archaeologist, it is determined that a discovered archaeological resource constitutes a historical resource or unique archaeological resource or is a contributor to the significance of the tribal cultural landscape, then *avoidance* and preservation in place shall be the preferred manner of mitigating impacts to such a resource in accordance with **Mitigation Measure CUL-7: Avoidance and Preservation in Place of Archaeological Resources**. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological

Resources Data Recovery and Treatment Plan shall be prepared and implemented following the procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. LCWA shall consult with appropriate Native American representatives in determining treatment of resources that are Native American in origin to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered, including those related to the tribal cultural landscape.

d. *Procedures for Discovery of Human Remains and Associated Funerary Objects or Grave Goods.* The plan shall outline the protocols and procedures to be followed in the event that *human* remains and associated funerary objects or grave goods are uncovered. Protocols and procedures shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.

e. *Reporting Requirements.* The plan shall outline provisions for weekly and final reporting. The Qualified Archaeologist shall prepare weekly status reports detailing activities and locations observed (including maps) and summarizing any discoveries for the duration of monitoring to be submitted to LCWA via email for each week in which monitoring activities occur. The Qualified Archaeologist shall prepare a draft Archaeological Resources Monitoring Report and submit it to LCWA within 180 days after completion of the monitoring program or treatment for significant discoveries should treatment extend *beyond* the cessation of monitoring. The final Archaeological Resources Monitoring Report shall be submitted to LCWA within 60 days after receipt of LCWA comments. The Qualified Archaeologist shall also submit the final Archaeological Resources Monitoring Report to the South Central Coastal Information Center.

f. *Curation or Disposition of Cultural Materials.* The plan shall outline the requirements for final disposition of all cultural materials collected during data recovery. Disposition of all archaeological materials shall be in accordance with **Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials**. Disposition of human remains and any associated funerary objects or grave goods shall be in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.

g. *Protocols for Native American Coordination and Monitoring.* The plan shall outline requirements for Native American coordination and monitoring, and the Native American monitor(s) role and responsibilities in accordance with **Mitigation Measures CUL-12: Native American Coordination** and **CUL-13: Native American Monitoring**.

Mitigation Measure CUL-10: Construction Worker Cultural Resources Sensitivity Training. For each near-term, mid-term, and long-term project that involves ground disturbance, LCWA shall retain a Qualified Archaeologist to implement a cultural resources sensitivity training program. The Qualified Archaeologist, or their designee, and a Native American representative shall instruct all construction personnel of the importance and significance of the area as a tribal cultural landscape, the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, confidentiality of discoveries, and safety precautions to be taken when working with cultural resources monitors. In the event that construction crews are phased, additional trainings shall be conducted for new construction personnel. LCWA or their contractors shall ensure construction personnel are made available for and attend the training. LCWA shall retain documentation demonstrating attendance.

Mitigation Measure CUL-11: Archaeological Resources Monitoring. For each near-term, mid-term, and long-term project, full-time archaeological monitoring of ground disturbance (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil) shall be conducted in areas and at depths where there is a potential to encounter archaeological materials or human remains, including excavations into existing artificial fill and native soils, based on the project-specific archaeological resources assessment prepared under **Mitigation Measure CUL-4: Archaeological Resources Assessment**. Ground disturbance in locations/depths that have been previously monitored as part of the program shall not be subject to additional monitoring. The archaeological monitor(s) shall be familiar with the types of resources that could be encountered and shall work under the direct supervision of a Qualified Archaeologist. The number of archaeological monitors required to be on site during ground-disturbing activities is dependent on the construction scenario, specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working, with the goal of monitors being able to effectively observe soils as they are exposed. Generally, work areas more than 500 feet from one another will require additional monitors. The archaeological monitor(s) shall keep daily logs detailing the types of activities and soils observed, and any discoveries. Archaeological monitor(s) shall have the authority to halt and re-direct ground disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary, based on the recommendations of the Qualified Archaeologist in coordination with LCWA, and the Native American representatives in the event the resource is Native American in origin, and in accordance with the protocols and procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. Reporting of archaeological monitoring shall be conducted in accordance with the provisions outlined in **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan**.

Mitigation Measure CUL-12: Native American Coordination. LCWA shall seek input from participating Native American Tribes[5] during the preparation of documents required under **Mitigation Measures CUL-5: Extended Phase I Archaeological Investigation**, **CUL-6: Phase II Archaeological Investigation**, **CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**, and **CUL-14: Archaeological Resources Discoveries**, including but not limited to work plans, research designs, treatment plans, and associated technical reports. LCWA shall provide participating Native American Tribes with electronic copies of draft documents and afford them 30 days from receipt of a document to review and comment on the document. Native American comments will be provided in writing for consideration by LCWA. LCWA shall document comments and how the comments were/were not addressed in a tracking log.

Mitigation Measure CUL-13: Native American Monitoring. For each near-term, mid-term, and long-term project, full-time Native American monitoring of ground disturbance (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil) shall be conducted in areas and at

[5] The term "Participating Native American Tribes" includes those California Native American Tribes who consulted with LCWA pursuant to AB 52 during the preparation of this PEIR and who continue to choose to consult with LCWA, as well as those California Native American Tribes who did not participate in consultation on the PEIR but who choose to consult with LCWA pursuant to AB 52 on future CEQA documents.

depths where there is a potential to encounter archaeological materials or human remains, including excavations into existing artificial fill and native soils, based on the project-specific study prepared under **Mitigation Measure CUL-4: Archaeological Resources Assessment**. LCWA shall retain a Native American monitor(s) from a California Native American Tribe that is culturally and geographically affiliated with the program area (according to the California Native American Heritage Commission) to conduct the monitoring. If more than one Tribe is interested in monitoring, LCWA shall contract with each Tribe that expresses interest and prepare a monitoring rotation schedule. LCWA shall rotate monitors on an equal and regular basis to ensure that each Tribal group has the same opportunity to participate in the monitoring program. If a Tribe cannot participate when their rotation comes up, they shall forfeit that rotation unless LCWA can make other arrangements to accommodate their schedule. The number of Native American monitors required to be on site during ground disturbing activities is dependent on the construction scenario, specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working, with the goal of monitors being able to effectively observe soils as they are exposed. Generally, work areas more than 500 feet from one another require additional monitors. Native American monitors shall have the authority to halt and re-direct ground disturbing activities in the event of a discovery until it has been assessed for significance.

The Native American monitor(s) shall also monitor all ground disturbance related to subsurface investigations and data recovery efforts conducted under **Mitigation Measures CUL-5: Extended Phase I Archaeological Investigation**, **CUL-6: Phase II Archaeological Investigation**, and **CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan** for any resources that are Native American in origin, according to the rotation schedule, including those related to the tribal cultural landscape.

Mitigation Measure CUL-14: Archaeological Resources Discoveries. In the event archaeological resources are encountered during construction of the proposed program, all activity in the vicinity of the find shall cease (within 100 feet), and the protocols and procedures for discoveries outlined in **Mitigation Measure CUL-9: Archaeological Resources Monitoring and Mitigation Plan** shall be implemented. The discovery shall be evaluated for potential significance by the Qualified Archaeologist. If the Qualified Archaeologist determines that the resource may be significant (i.e., meets the definition for historical resource in *CEQA Guidelines* subdivision 15064.5(a) or for unique archaeological resource in PRC subdivision 21083.2(g) or is a contributor to the tribal cultural landscape), the Qualified Archaeologist shall develop an Archaeological Resources Data Recovery and Treatment Plan for the resource following the procedures outlined in **Mitigation Measure CUL-8: Phase III Archaeological Resources Data Recovery and Treatment Plan**. When assessing significance and developing treatment for resources that are Native American in origin, including those related to the tribal cultural landscape, the Qualified Archaeologist and LCWA shall consult with the appropriate Native American representatives. The Qualified Archaeologist shall also determine if work may proceed in other parts of the project site while data recovery and treatment is being carried out.

Mitigation Measure CUL-15: Curation and Disposition of Cultural Materials. LCWA shall curate all Native American archaeological materials, with the exception of funerary objects or grave goods (i.e., artifacts associated with Native American human remains) at a repository accredited by the American Association of Museums that meets the standards

outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then LCWA may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then LCWA shall offer the collection to a public, non-profit institution with a research interest in the materials, or donate it to a local California Native American Tribe(s) (Gabrielino or Juañeno) for educational purposes. Disposition of Native American human remains and associated funerary objects or grave goods shall be determined by the landowner in consultation with LCWA and the Most Likely Descendant in accordance with **Mitigation Measure CUL-17: Human Remains Discoveries**.

LCWA shall curate all historic-period archaeological materials that are not Native American in origin at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then LCWA may curate it at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then LCWA shall offer the collection to a public, non-profit institution with a research interest in the materials, or to a local school or historical society in the area for educational purposes. If no institution, school, or historical society accepts the collection, LCWA may retain it for on site display as part of its interpretation and educational elements.

Prior to start of each project, LCWA shall obtain a curation agreement and shall be responsible for payment of fees associated with curation for the duration of the program.

Mitigation Measure CUL-16: Future Native American Input. LCWA shall consult with participating California Native American Tribes,[6] to the extent that they wish to participate, during future design of project-level components, plant and native plant selections or palettes, and development of content for educational and interpretative signage.

Significance after Mitigation

Significant and Unavoidable

Impact CUL-2: The proposed program would result in a significant impact if the proposed program would cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.

Construction

As described under Impact CUL-1, there are 14 known archaeological resources within or in the immediate vicinity of the program area. Also, given that the entire program area was not systematically surveyed as part of this assessment, there could be additional as-yet-unidentified archaeological resources within the program area. Additionally, the program area is considered to have a high potential to encounter buried prehistoric and historic-period archaeological resources.

[6] The term "Participating Native American Tribes" includes those California Native American Tribes who consulted with LCWA pursuant to AB 52 during the preparation of this PEIR and who continue to choose to consult with LCWA, as well as those California Native American Tribes who did not participate in consultation on the PEIR but who choose to consult with LCWA pursuant to AB 52 on future CEQA documents

Intact prehistoric resources could be encountered below depth of fill, although historic-period archaeological resources, particularly those associated with the oil industry, could be encountered within fill layers. Actions that have the potential to adversely impact archaeological resources include soil remediation, excavation, grading, or other ground-disturbing activities within or in the immediate vicinity of known archaeological resources or that unearth subsurface archaeological resources.

Mitigation Measures CUL-1, and CUL-4 through CUL-15 would reduce impacts to archaeological resources by requiring qualified cultural resources personnel conduct future project-specific studies; development of appropriate treatment for significant resources; and archaeological and Native American monitoring of ground disturbance. However, even with implementation of these mitigation measures, impacts to archaeological resources would be significant and unavoidable at the program level.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor centers and associated parking lots. Any ground disturbance associated with these activities would occur within soils that have already been subject to ground disturbance and archaeological/Native American monitoring, and they are unlikely to unearth archaeological resources. Operation of the proposed program would include increased public access to the program area, and could potentially result in the vandalism or disturbances to archaeological resources. However, the public access program would constrain visitors to pedestrian trails and bike paths, elevated perimeter pedestrian walkways, and designated viewing areas with overlooks. It would also include educational and interpretative features that would educate the public about the biological and cultural significance of the area, and the implications of unauthorized tampering with wetlands and its resources. Impacts to archaeological resources from operation of the proposed program would be less than significant.

Mitigation Measure

Mitigation Measures CUL-1 and CUL-4 through CUL-15.

Significance after Mitigation

Significant and Unavoidable

Impact CUL-3: The proposed program would result in a significant impact if the proposed program would disturb any human remains, including those interred outside of formal cemeteries.

Construction

The proposed program is an area where numerous Native American burials have been previously recovered, including from an archaeological site that appears to overlap the fringes of the

program area. Given the prehistoric and ethnohistoric occupation of the area, it is possible that Native American human remains, including those interred outside of formal cemeteries, could be located within the program area. No formal or historic-era cemeteries are known to be located within the program area. Actions that have the potential to disturb human remains include program-related soil remediation, excavation, grading, or other ground-disturbing activities.

Mitigation Measure CUL-17 would reduce impacts to human remains by requiring compliance with California Health and Safety Code Section 7050.5 and California PRC Section 5097.98, and ensuring that human remains and any associated funerary objects or grave goods are treated in a manner consistent with state law. With implementation of this mitigation measures impacts to human remains would be less than significant.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor centers and associated parking lots. Any ground disturbance associated with these activities would occur within soils that have already been subject to ground disturbance, and they are unlikely to disturb human remains. Impacts to human remains from operation of the proposed program would be less than significant.

Mitigation Measures

Mitigation Measure CUL-17. Human Remains Discoveries: If human remains are encountered, then LCWA or its contractor shall halt work in the vicinity (within 100 feet) of the discovery and contact the appropriate County Coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5, which requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the County Coroner determines the remains are Native American, then the Coroner will notify the California Native American Heritage Commission (NAHC) within 24 hours in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code Section 5097.98. The California Native American Heritage Commission shall then identify the person(s) thought to be the Most Likely Descendant (MLD). The MLD may, with the permission of the land owner, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the landowner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials. LCWA and the landowner shall discuss and confer with the MLD on all reasonable options regarding the MLD's preferences for treatment.

Until LCWA and the landowner have conferred with the MLD, the contractor shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity and is adequately protected according to generally accepted cultural or

archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

If the NAHC is unable to identify an MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the facility property in a location not subject to further and future subsurface disturbance.

Significance after Mitigation

Less than Significant with Mitigation

3.4.6 Cumulative Impacts

This analysis of cumulative impacts takes into consideration impacts on cultural resources from implementation of the proposed program. The geographic area of analysis for cultural resources typically covers the region within which similar types of cultural resources occur. The geographic scope of analysis for historic architectural resources (buildings, structures, objects) is the cities of Seal Beach and Long Beach. The types of development that historically occurred with the cities includes development related to agriculture; oil production; seaside resorts and tourism; ports and shipping; and saloons and gambling dens. This geographic scope of analysis for historic architectural resources is appropriate because the types of resources within this area is expected to be similar to those that occur within the program area, such as buildings and structures related to the oil industry.

The geographic scope of analysis for the tribal cultural landscape, archaeological resources, and human remains encompasses the broadly defined coastal zone of Orange and Los Angeles Counties, from roughly Santa Monica in the north to Newport Beach in the south. Prehistoric groups occupying this area focused to a large degree on littoral and immediately inland areas, particularly those associated with the estuaries and marshes at the mouths of the coastal drainages. A focus on coastal resources in these estuaries, coupled with use of inland resources, created archaeological patterns somewhat distinct from those of the more inland areas of southern California. This geographic scope of analysis is appropriate for archaeological resources and human remains because the types of resources within this area are expected to be similar to those that occur within the program area.

3.4.6.1 Construction

Multiple projects, mostly development within urban settings, are proposed throughout the geographic scope of analysis. Cumulative impacts to cultural resources could occur if any of these projects, in conjunction with the proposed program, would have impacts on resources that, when considered together, would be significant.

Historic Architectural Resources

Potential impacts to historic architectural resources within the program area are considered significant and unavoidable. There are unevaluated historic architectural resources that may be demolished or materially altered in an adverse manner as a result of the proposed program. While implementation of Mitigation Measures CUL-1 through CUL-3, which require that qualified cultural resources personnel conduct future project-specific studies and the development of appropriate treatment for significant resources, would lessen the impact, there are no feasible mitigation measures that would reduce the impact to a level of less than significant at the program level. The proposed program's residual impact to historic architectural resources that may qualify as historical resources is significant and unavoidable. The cumulative projects proposed throughout the geographic scope of this analysis have the potential to impact historic architectural resources as some of the projects would demolish or alter historic architectural resources. When taken together, the incremental contribution of the construction of the proposed program when combined with other projects in the geographic scope is cumulatively considerable. There is no feasible mitigation for cumulative impacts to historic architectural resources other than not undertaking the proposed program.

Archaeological Resources

Potential impacts to archaeological resources within the program area are considered significant and unavoidable. There are unevaluated archaeological resources that may be demolished or materially altered in an adverse manner as a result of the proposed program. While implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15, which require that qualified cultural resources personnel conduct future project-specific studies, the development of appropriate treatment for significant resources, and archaeological and Native American monitoring of ground disturbance, would lessen the impact, there are no feasible mitigation measures that would reduce the impact to a level of less than significant at the program level. The proposed program's residual impact to archaeological resources that may qualify as historical resources or unique archaeological resources is significant and unavoidable. The cumulative projects proposed throughout the geographic scope of this analysis have the potential to impact archaeological resources as some of the projects would include ground disturbance. When taken together, the incremental contribution of construction of the proposed program when combined with other projects in the geographic scope is cumulatively considerable. There is no feasible mitigation for cumulative impacts to archaeological resources other than not undertaking the proposed program.

Tribal Cultural Landscape

Potential impacts from the proposed program on the tribal cultural landscape are considered significant and unavoidable. While some of the essential physical characteristics of the landscape (*Puvungna* and *Motuucheyngna*) would not be impacted and others (waterways, plants, and animals) would receive a beneficial effect or a less than significant impact with mitigation, some of the essential physical characteristics of the landscape (Native American or prehistoric archaeological sites within the Los Cerritos Wetlands) could be impacted by the proposed program and there is no feasible mitigation to lessen this impact to a level of less than significant.

As discussed in Section 3.4.5, *Program Impacts and Mitigation Measures*, above, the archaeological manifestations of the two village sites that contribute to the landscape's historical significance, *Puvungna* and *Motuucheyngna*, would not be impacted by the proposed program. *Puvungna* is located about 0.75 miles to the north of the program area, in the area of California State University – Long Beach and its vicinity. *Motuucheyngna* is on a portion of the former Hellman Ranch property that has since been developed as a residential subdivision. No impacts to the archaeological sites associated with these two villages are anticipated as a result of the proposed program.

Also as discussed in Section 3.4.5, *Program Impacts and Mitigation Measures*, above, the proposed program would either result in a beneficial effect to waterways, plants, and animals or require mitigation to lessen construction-related impacts. The proposed program would result in a net increase or benefit to jurisdictional wetlands and several special-status species. Temporary impacts resulting from construction would be mitigated to less-than-significant level by implementation of Mitigation Measures BIO-1 through BIO-9, outlined in Section 3.3, *Biological Resources*, of this PEIR, These measures require: avoidance of special-status plants or restoration of affected special-status plants; environmental awareness training for construction personnel and biological monitoring; restoration of affected breeding habitat for the Belding's savannah sparrow, nesting bird and raptor avoidance; pre-construction surveys for burrowing owl and creation of a management plan to minimize or avoid impacts to burrowing owls; pre-construction surveys for bat roosting habitat and creation of an exclusion plan to minimize or avoid impacts to breeding bats; focused surveys for special-status wildlife species and creation of an avoidance plan to minimize or avoid impacts to occupied habitat; and revegetation of sensitive natural communities.

Potential impacts to the tribal cultural landscape would be further reduced by considering Native American tribal values ascribed to the Los Cerritos Wetlands throughout the course of development and construction of the proposed program. Mitigation Measure CUL-16 would require that LCWA seek input from California Native American Tribes regarding development of project-level designs, planting selections/palettes, and educational/interpretive signage. This would ensure that tribal values ascribed to the Los Cerritos Wetlands as part of the tribal cultural landscape are considered as part of the design, restoration, and educational elements of the program.

However, as noted in Section 3.4.5, *Program Impacts and Mitigation Measures*, there are known Native American or prehistoric archaeological resources within the program area that could contribute to the significance of the landscape and that may be impacted by the proposed program. Additionally, there is a potential for as yet unidentified prehistoric archaeological sites on the surface or subsurface within the program area that could contribute to the significance of the landscape and that may also be impacted by the proposed program. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape. However, even with implementation of these measures, the destruction or material alteration of a resource that contributes to the landscape would constitute a significant impact since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources

cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level. Therefore, the proposed program's residual impact on the tribal cultural landscape, which has been discretionarily determined by LCWA to be a historical resource for the purposes of this PEIR, is significant and unavoidable.

The cumulative projects proposed throughout the geographic scope of this analysis also have the potential to result in a substantial adverse change in the significance of the tribal cultural landscape as some of these projects are also within or in the vicinity of the tribal cultural landscape. Past, present, and foreseeable projects have resulted in or could result in the demolition or material alteration to some aspects of the tribal cultural landscape that convey its significance. Past projects in the program's vicinity, such as the construction of California State University – Long Beach, U.S. Veterans Administration Hospital, Rancho Los Alamitos/Bixby Hill, and Heron Pointe, resulted in the demolition or material alteration of archaeological sites associated with the villages of *Puvungna* and *Motuucheyngna*. Additionally, other past projects have encroached upon the wetlands leading to habitat degradation and loss, resulting in the material alteration of waterways, plant habitat, and animal habitat. Future projects could also materially alter the tribal cultural landscape through the introduction of development that is incompatible with the landscape's setting or through ground disturbance within archaeological sites that contribute to the significance of the landscape. When taken together, past, present, and foreseeable projects result in a significant cumulative impact to the tribal cultural landscape.

The purpose of the proposed program is to restore the wetlands and the proposed program would result in an overall benefit to several of the essential physical characteristics of the landscape, such as the waterways, plants, and animals. Other projects have in the past resulted in greater impacts to the landscape than the proposed program, including impacts to archaeological sites associated with the villages of *Puvungna* and *Motuucheyngna*, as well as other Native American or prehistoric archaeological resources that may have contributed to the significance of the landscape, and impacts to waterways (including wetlands), plant habitat, and animal habitat. The incremental effects of the proposed program are not considered significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Therefore, the incremental contribution of the proposed program on impacts to the tribal cultural landscape as a tribal cultural resource would not be cumulatively considerable.

Human Remains

In the event that human remains are encountered during implementation of the proposed program, Mitigation Measure CUL-17 would ensure that the remains are treated in accordance with relevant state laws and the proposed program's residual impact on human remains would be less than significant. It is assumed that any other projects in the geographic scope of analysis have or would also follow state law. Therefore, cumulative impacts on human remains during construction of the proposed program would not be cumulatively considerable.

Mitigation Measure

Mitigation Measures BIO-1 through BIO-9, as provided in Section 3.3, *Biological Resources*, and CUL-1 through CUL-17.

Significance after Mitigation

Significant and Unavoidable

3.4.6.2 Operation

No impacts to historic architectural resources, archaeological resources, or human remains are anticipated during project operations. Operational impacts to the tribal cultural landscape would be mitigated to a less-than-significant level by implementation of BIO-1, BIO-6, and BIO-8 though BIO-11, which require restoration of affected special-status plants; preparation of a lighting plan and requiring that nighttime lighting is shielded downward to minimize spillage onto adjacent area; preparation of a Mitigation, Maintenance and Monitoring Program to ensure successful revegetation of sensitive natural communities; and a functional assessment of the wetland areas that will be restored in the program area. Therefore, cumulative impacts during operations would not be cumulatively considerable.

Mitigation Measure

Mitigation Measures BIO-1, BIO-6, and BIO-8 through BIO-11, as provided in Section 3.3, *Biological Resources*.

Significance after Mitigation

Less than Significant with Mitigation

3.4.7 References

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SECTION 3.5
Geology, Soils, and Paleontological Resources

3.5.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts related to geologic, seismic, and soils hazards. The analysis is based on review of available geologic and geotechnical reports and maps of the program area and vicinity, including site-specific investigations conducted within some of the areas, relevant regulations, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. Additionally, *Los Cerritos Wetlands Restoration Program: Paleontological Resources Assessment* was prepared in support of this PEIR and addresses the potential for the proposed program to result in significant impacts to paleontological resources (ESA, 2019). This section analyzes the potential for both program-level and cumulative environmental impacts. All information sources used are included as citations within the text; sources are listed in Section 3.5.7, *References*.

3.5.2 Environmental Setting

Figure 2-1, *Regional Location*, and Figure 2-2, *Project Site and Local Vicinity*, in Chapter 2, *Project Description*, show the program area, which is comprised of four program areas (North, Central, Isthmus, and South), made up of 17 individual sites. Relative to geologic, soils, and paleontological resources information, the North and Central Areas have been extensively investigated in support of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083).

3.5.2.1 Topography and Drainage

The regional area that includes the program area was once a tidal salt marsh; consequentially, the topography of the program area is relatively flat (KCG 2016a). Regionally, the topography surrounding the program area gradually slopes to the southwest, although local drainage on individual sites can vary. A more detailed discussion of drainage is provided in Section 3.8, *Hydrology and Water Quality*. The San Gabriel River flows southwest in between the Isthmus and South Areas; the Los Cerritos Channel flows southwest along the north side of the North Area. Steamshovel Slough is a remnant channel that flows west into the Los Cerritos Channel. The Haynes Cooling Channel parallels the San Gabriel River in the South Area. Elevations range from about 20 feet above mean sea level (MSL) along the northern border of the Central Area and about 25 feet in the eastern portion of the Southern Area to about 8 feet below MSL in the northern portion of the Southern Area.

3.5.2.2 Regional and Local Geology

Regional Geology

The program area is located in the Peninsular geomorphic province[1] that includes the Los Angeles Basin characterized by a series of mountain ranges separated by long valleys, formed from faults branching from the San Andreas Fault. Past research suggests that over the past 20,000 years, the Rio Hondo, San Gabriel, and Santa Ana Rivers have moved back and forth across the coastal flood plains in Los Angeles and Orange County, depositing geologically recent alluvial materials (KCG 2016a). The coastal portion of the floodplain is bound by a line of elongated folded low hills and faults. This portion of the basin is dominated by the northwest-trending Newport-Inglewood Structural Zone, which diagonally crosses the program area as the Newport-Inglewood Fault Zone shown in **Figure 3.5-1**, *Regional Faults*, and **Figure 3.5-2**, *Newport-Inglewood Fault Zone*. The topography of the program area is generally flat with elevations of less than 100 feet; however, geologic uplifts have occurred, which have interrupted the plain in different areas and resulted in prominent folds and hills. These distinguishable uplifts are oriented in a northwest-southeast direction, along the Newport-Inglewood Fault Zone (City of Long Beach 1973).

Local Geology

Fill

Artificial fill is present in all of the program areas and consists of modern surficial deposits of fill resulting from human construction, landfills, reclamation, or oil and gas production activities, which includes engineered and non-engineered fill.[2] Details of artificial fill materials, where known, are discussed below.

According to Saucedo et al. (2016), artificial fill is present over most of the entire program area, likely placed during development of the oil field, construction of the nearby marina, and channelization of the San Gabriel River. The artificial fill consists of sediments that have been removed from one location and transported to another by humans. Artificial fill may contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material.

Oil Production Wells and Produced Water Injection Wells

The Seal Beach Oil Field has been in active oil and natural gas production since the 1920s. Active, idle, and plugged oil and natural gas production wells and produced water injection wells are located throughout most of the program area, as shown on **Figure 3.5-3**, *Oil Production and Injection Wells*. As a part of the oil extraction process, saline water is also extracted. This produced water is returned back into the oil production zones using injection wells to prevent subsidence. The oil and produced water injection wells have well pads at the well heads and older oil wells have adjacent sumps as discussed below.

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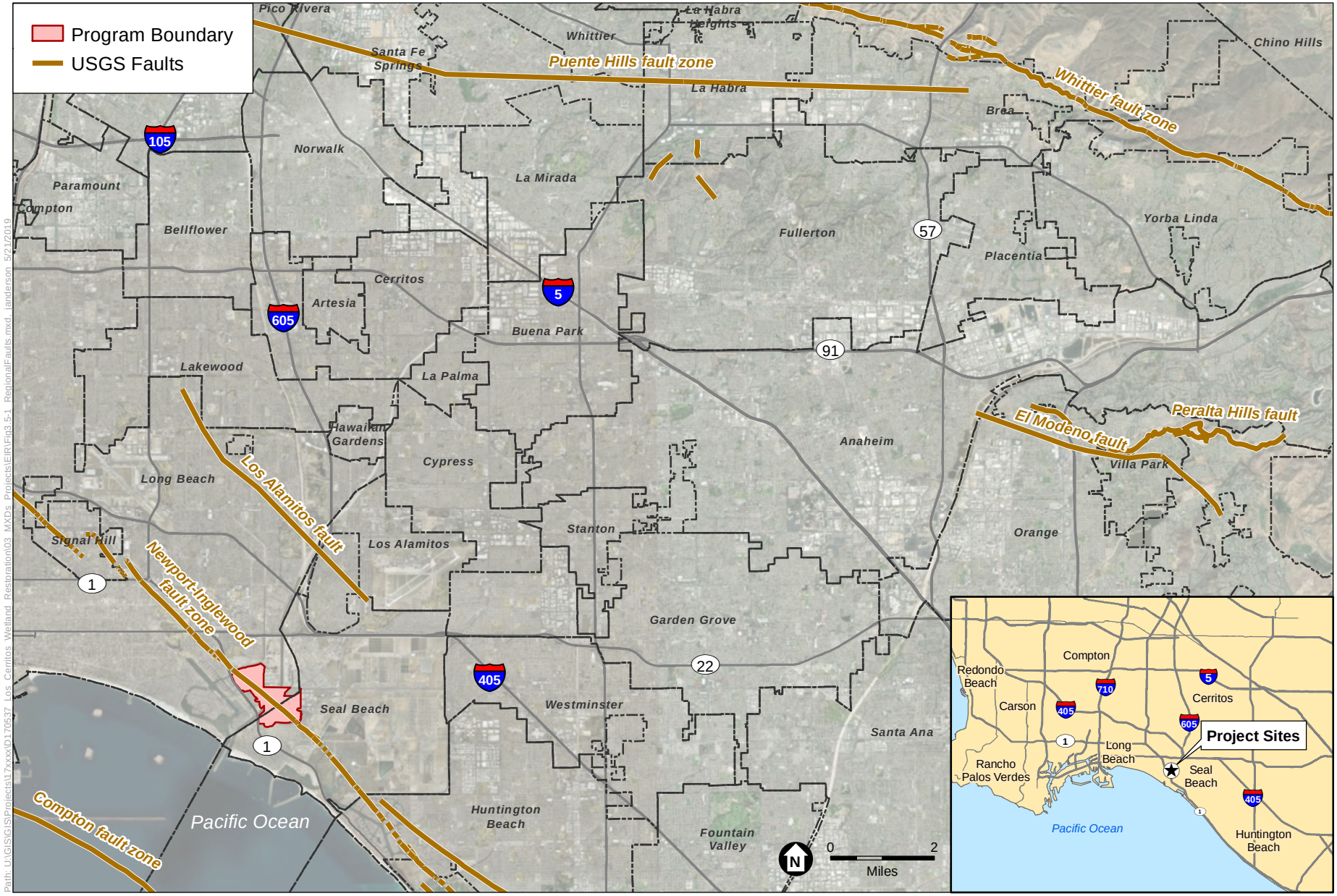
1 A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces (CGS 2002).

2 Non-engineered fill is undocumented or poorly documented fill consisting of uncertain materials placed with uncertain consolidation procedures.

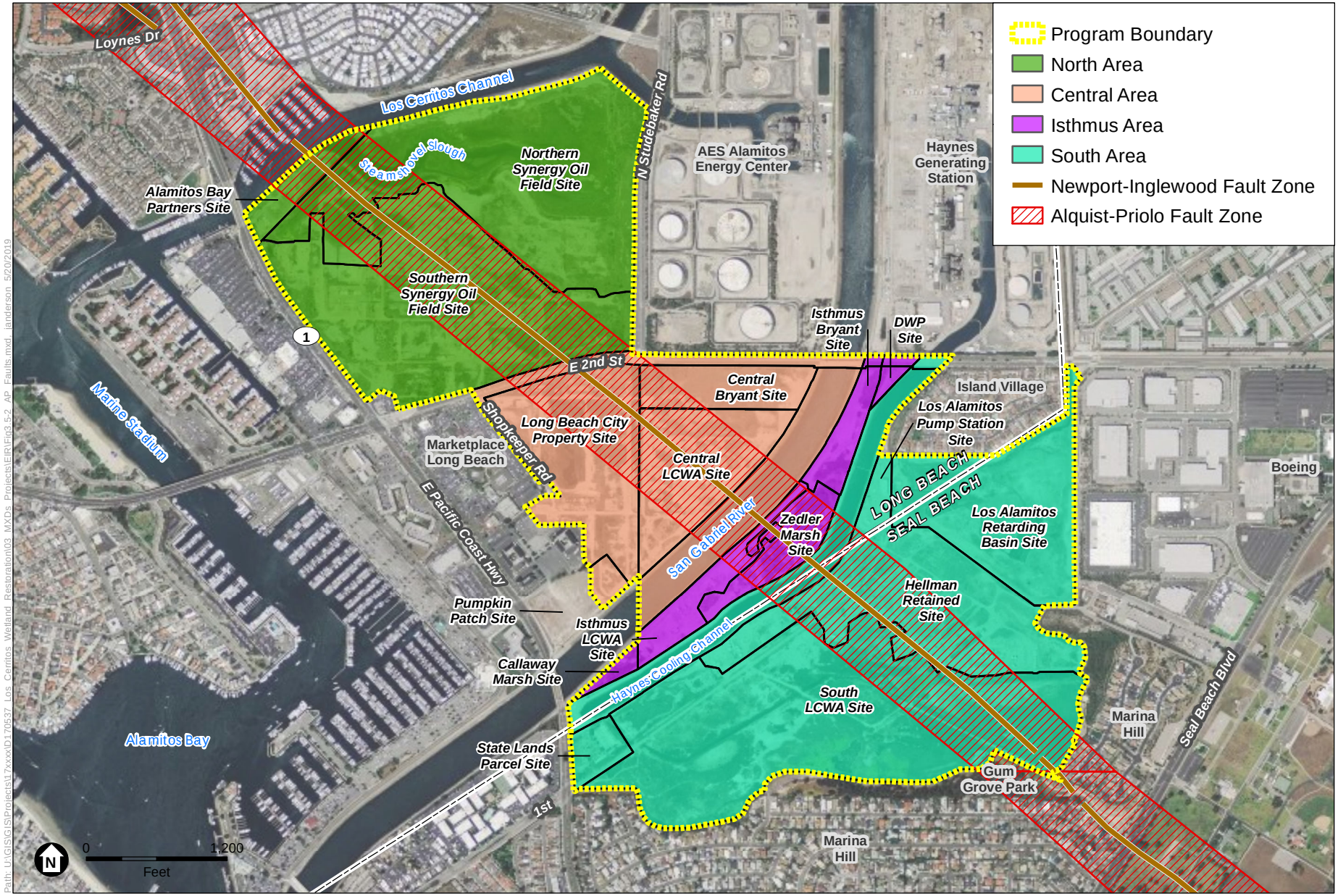


SOURCE: ESRI; USGS 2009

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.5-1
Regional Faults

ESA

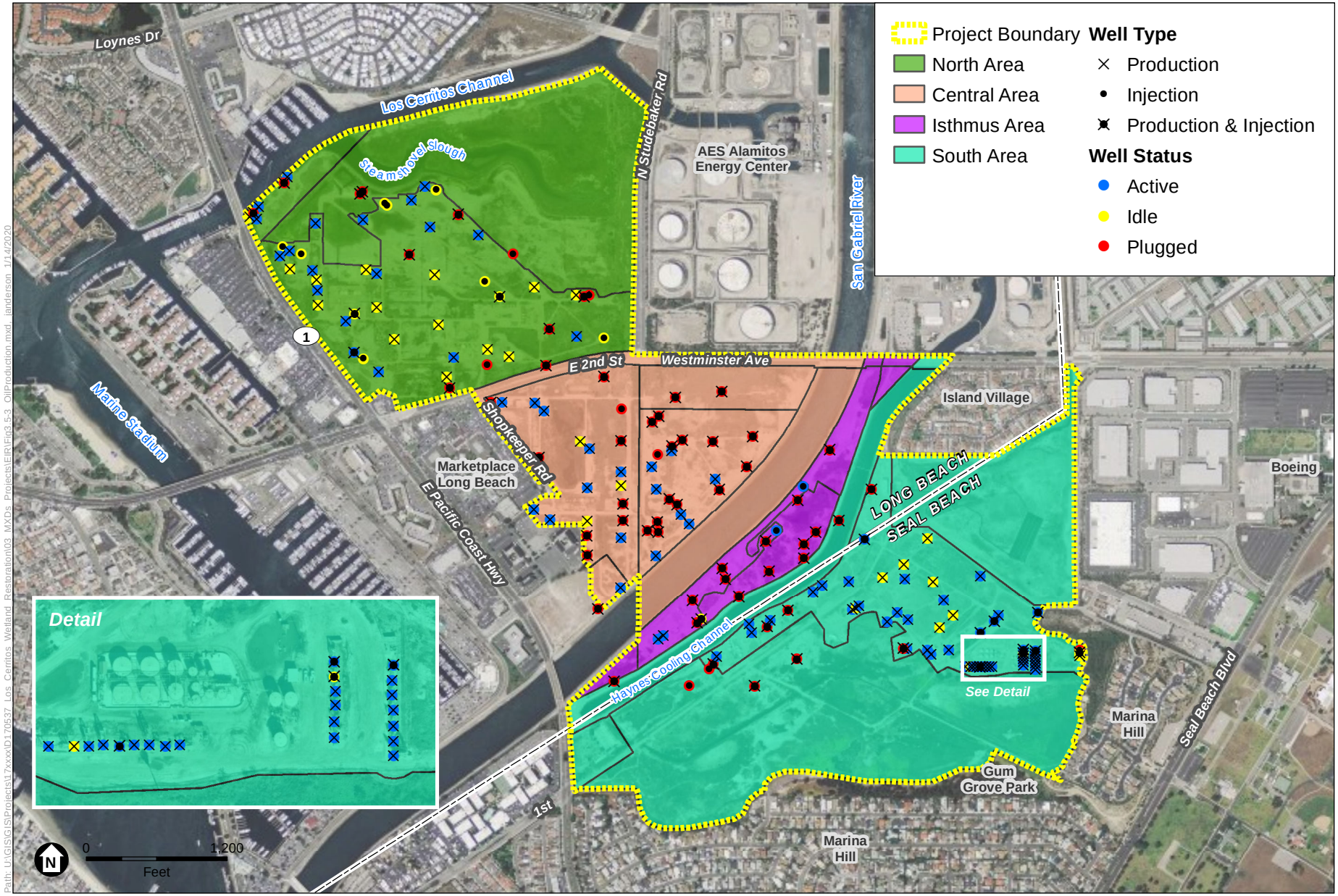


SOURCE: Mapbox, LCWA, California Department of Conservation 2001

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.5-2
Newport-Inglewood Fault Zone

ESA



SOURCE: Mapbox; LCWA; California Department of Conservation, 2019.

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.5-3
Oil Production and Injection Wells

ESA

Oil Well Sumps

The locations and status of known oil well sumps, along with known landfills, within the program area are shown on **Figure 3.5-4**, *Landfill Areas and Oil Production Sumps*. Note that most older wells had adjacent sumps; most of the oil wells shown on Figure 3.5-3 are assumed to have adjacent sumps, even if not documented. Early oil production used unlined settlement ponds, known as sumps, dug into the earth (Geosyntec, 2017). Oil extracted from wells was diverted into the sumps, and heavy material was allowed to settle out before the economic light portion was recovered for processing. The heavy petroleum sludge built up on the bottom of sumps and to some extent slowed the migration of organic compounds into the soil, but halos of contamination are commonly found around former sumps, even where visible petroleum material was removed.

Landfills

Several locations within the program area are known to have been used as landfills that received a variety of waste materials, often poorly documented (Geosyntec, 2017). The sections below describe the known landfill areas.

Closed Landfill on Synergy Oil Field Site in Northern Area

During the 1960s, a northeast portion of the Synergy Oil Field site in the North Area was used as a municipal landfill identified as the Studebaker/Loynes Disposal Site or City Dump and Salvage #4 (Rincon 2015a, 2015b). This landfill is no longer operational, and has a closed status as of mid-April 1980. This landfill was located on a narrow strip in the northeastern portion of the Synergy Oil Field site as shown in Figure 3.5-3 and extended off-site to the north. The landfill waste included approximately 160,000 cubic yards of waste materials consisting of household and commercial refuse, inert solid materials, and street sweepings, placed in a previously existing depression area, compacted, and covered with clean soil in conformance with slope and final cover requirements. The maximum depth to refuse is estimated to be up to 25 feet.

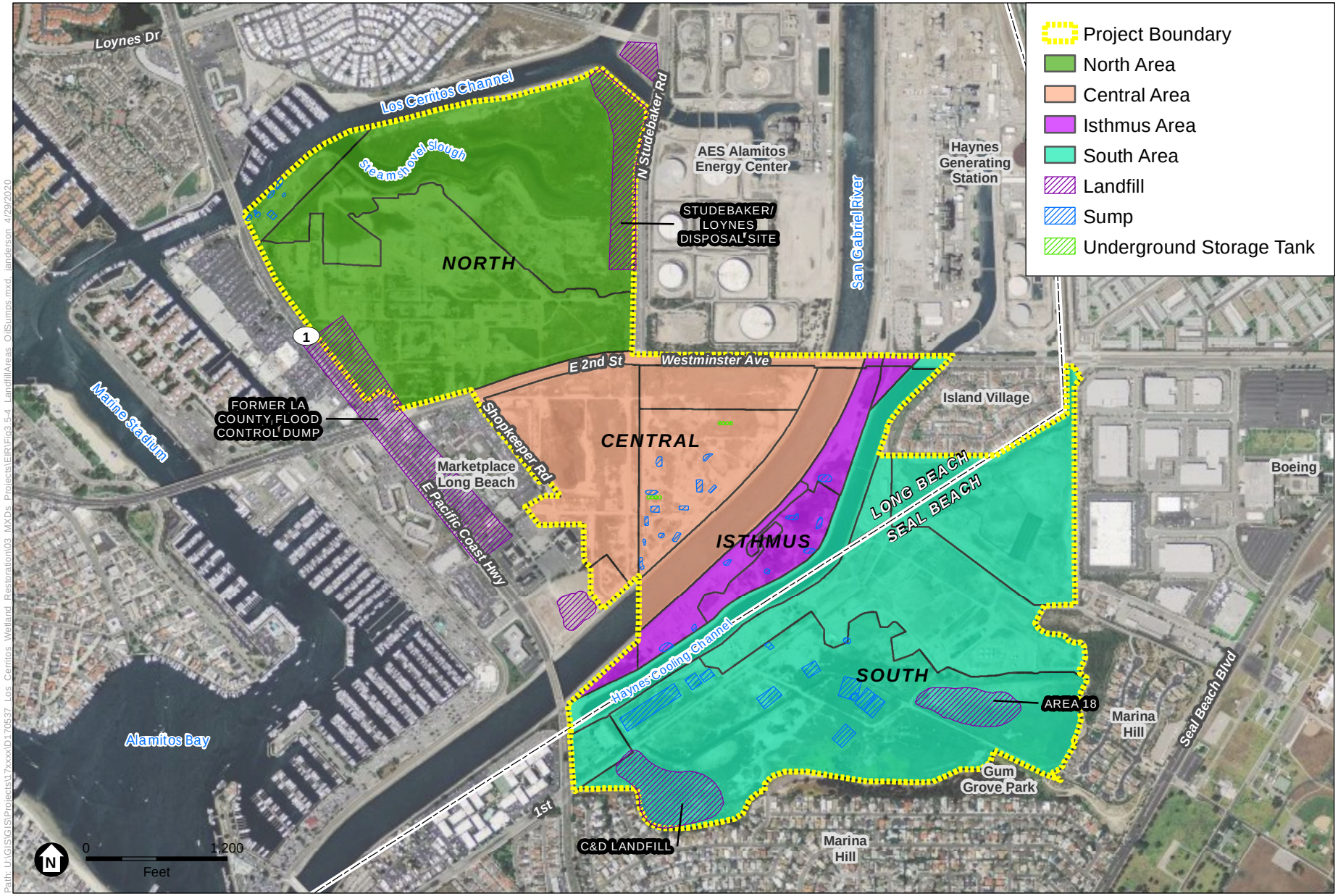
In addition, the former LA County Flood Control Dump may have extended onto the southwestern corner of the Synergy Oil Field site, as shown in Figure 3.5-4. The records are unclear as to its precise location, extent, or depth. This landfill was reportedly used to dispose of vegetation growing along the banks of the San Gabriel River.

City Property Site in Central Area

The Phase I assessment indicated the City Property site is covered with fill materials and modern surficial deposits (Rincon 2015b); however, specific details about the nature and depth of the fill materials or native soils are undocumented. None of the nearby documented landfills are known to extend onto the City Property site.

C&D Landfill in Southern Area

The C&D landfill is located in the southwest corner of the South LCWA site (see Figure 3.5-4), as delineated by with borings and trenching (Geosyntec, 2017; Anchor, 2006). The waste consists of construction materials and other debris. In addition, some crude oil was noted along the southwestern portion of this landfill area.



SOURCE: Mapbox; LCWA; Withee Malcolm Architects, LLP; Rincon, 2015; Geosyntec, 2017; Kinnetic, 2012
NOTE: The oil wells shown on Figure 3.5-3 also typically have adjacent sumps.

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.5-4

Landfill Areas and Oil Production Sumps

ESA

Area 18 in Southern Area

Area 18 is located in the eastern portion of the South LCWA site (see Figure 3.5-4) (Geosyntec, 2017). Stockpiled and buried materials consisted of asphalt-like materials consisting of "tank bottom sludge" – heavy petroleum material removed from the bottom of tanks or sumps, which was been mixed with sand or other aggregate and used for improvised road paving.

Native Materials

Young Alluvial Fan Deposits

The shallowest native materials in the program area are Young Alluvial Fan Deposits of Holocene to Late Pleistocene age (less than 126,000 years ago), consisting of poorly consolidated clay, sand, gravel, and cobbles (Saucedo et al. 2016). These sediments were eroded from higher elevations, carried by flooding streams and debris flows, and deposited at lower elevations. These deposits are mapped to the northeast of the program area and along the length of the San Gabriel River and its low-lying floodplain. As such, the Young Alluvial Fan Deposits underlie artificial fill where present within the program area.

In the North Area, the alluvial deposits consist of Holocene (present to 11,000 years ago) alluvial silty sand, sandy silt, sand, and some clayey silt to depths of over 1,000 feet (Rincon 2015a, 2015b). On the Central Area, the alluvial soils consist of Holocene unconsolidated discontinuous layers of sand and silt sand with lesser amounts of silt and clay (EEI, 1989). Native soils in other portions of the program area are likely similar.

Old Paralic Deposits

The San Gabriel River cuts through late to middle Pleistocene (11,700–781,000 years ago) Old Paralic Deposits mapped on the slightly elevated areas to the northwest and southeast of the program area that underlie alluvial deposits (Saucedo et al. 2016). The Old Paralic Deposits consist of reddish-brown siltstone, sandstone, and conglomerate deposited in beach, estuary, and terrestrial environments. They rest on wave-cut platforms that have been preserved by regional uplift. Paralic means interfingered marine and continental sediments.

Deeper Units

Beneath the above-summarized units are various units of sandstone, shale, and siltstone of varying thicknesses. Some of the deeper sandstone units are the oil-producing units for the Seal Beach Oil Field. The proposed program would not encounter these deeper units.

3.5.2.3 Seismicity and Faults

This section characterizes the region's existing faults, describes historical earthquakes, estimates the likelihood of future earthquakes, and describes probable groundshaking effects.

Earthquake Terminology and Concepts

Earthquake Mechanisms and Fault Activity

Faults are planar features within the earth's crust that have formed to release strain caused by the dynamic movements of the earth's major tectonic plates. An earthquake on a fault is produced when these strains overcome the inherent strength of the earth's crust, and the rock ruptures. The

rupture causes seismic waves that propagate through the earth's crust, producing the groundshaking effect known as an earthquake. The rupture also causes variable amounts of slip along the fault, which may or may not be visible at the earth's surface.

Geologists commonly use the age of offset rocks as evidence of fault activity—the younger the displaced rocks, the more recently earthquakes have occurred. To evaluate the likelihood that a fault would produce an earthquake, geologists examine the magnitude and frequency of recorded earthquakes and evidence of past displacement along a fault. The California Geological Survey (CGS) defines an active fault as one that has had surface displacement within Holocene time (within the last 11,000 years; the U.S. Geological Survey (USGS) uses within the last 15,000 years). A Quaternary fault is defined as a fault that has shown evidence of surface displacement during the Quaternary period (the last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not mean that a fault lacking evidence of surface displacement is necessarily inactive. The term "sufficiently active" is also used to describe a fault if there is some evidence that Holocene displacement has occurred on one or more of its segments or branches (CGS 2007).

Earthquake Magnitude

When an earthquake occurs along a fault, its size can be determined by measuring the energy released during the event. A network of seismographs records the amplitude and frequency of the seismic waves that an earthquake generates. The Richter magnitude (ML) of an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole-number step, representing a tenfold increase in the amplitude of the recorded seismic waves and 32 times the amount of energy released. While Richter magnitude was historically the primary measure of earthquake magnitude, seismologists now use Moment Magnitude (Mw) as the preferred way to express the size of an earthquake. The Mw scale is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the style of movement or displacement across the fault. Although the formulae of the scales are different, they both contain a similar continuum of magnitude values, except that Mw can reliably measure larger earthquakes and do so from greater distances.

Peak Ground Acceleration

A common measure of ground motion at any particular site during an earthquake is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile acceleration, one "g" of acceleration is equivalent to the motion of a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum PGA value recorded during the 1994 Northridge earthquake in the vicinity of the epicenter exceeded 1 g in several areas. Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place and is dependent on the distance from the epicenter and the character of the underlying geology (e.g., hard bedrock, soft sediments, or artificial fills).

Modified Mercalli Intensity Scale

The Modified Mercalli Intensity Scale assigns an intensity value based on the observed effects of groundshaking produced by an earthquake. Unlike measures of earthquake magnitude and PGA, the Modified Mercalli Intensity Scale is qualitative in nature in that it is based on actual observed effects rather than measured values. Similar to PGA, Modified Mercalli values for an earthquake at any one place can vary depending on the earthquake's magnitude, the distance from its epicenter, the focus of its energy, and the type of geologic material. The Modified Mercalli values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X can cause moderate to significant structural damage. Because the Modified Mercalli scale is a measure of groundshaking effects, intensity values can be correlated to a range of average PGA values, as shown in **Table 3.5-1**, *Modified Mercalli Intensity Scale*.

TABLE 3.5-1
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Ground Acceleration[a]
I	Not felt	< 0.0017 g
II	Felt by people sitting or on upper floors of buildings	0.0017 to 0.014 g
III	Felt by almost all indoors. Hanging objects swing. Vibration like passing of light trucks. May not be recognized as an earthquake.	0.0017 to 0.014 g
IV	Vibration felt like passing of heavy trucks. Stopped cars rock. Hanging objects swing. Windows, dishes, doors rattle. Glasses clink. In the upper range of IV, wooden walls and frames creak.	0.014 to 0.039 g
V (Light)	Felt outdoors. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing. Pictures move. Pendulum clocks stop.	0.035 to 0.092 g
VI (Moderate)	Felt by all. People walk unsteadily. Many frightened. Windows crack. Dishes, glassware, knickknacks, and books fall off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster, adobe buildings, and some poorly built masonry buildings cracked. Trees and bushes shake visibly.	0.092 to 0.18 g
VII (Strong)	Difficult to stand or walk. Noticed by drivers of cars. Furniture broken. Damage to poorly built masonry buildings. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices, unbraced parapets and porches. Some cracks in better masonry buildings. Waves on ponds.	0.18 to 0.34 g
VIII (Very Strong)	Steering of cars affected. Extensive damage to unreinforced masonry buildings, including partial collapse. Fall of some masonry walls. Twisting, falling of chimneys and monuments. Wood-frame houses moved on foundations if not bolted; loose partition walls thrown out. Tree branches broken.	0.34 to 0.65 g
IX (Violent)	General panic. Damage to masonry buildings ranges from collapse to serious damage unless modern design. Wood-frame structures rack, and, if not bolted, shifted off foundations. Underground pipes broken.	0.65 to 1.24 g
X (Very Violent)	Poorly built structures destroyed with their foundations. Even some well-built wooden structures and bridges heavily damaged and needing replacement. Water thrown on banks of canals, rivers, lakes, etc.	> 1.24 g
XI (Very Violent)	Few, if any, masonry structures remain standing. Bridges destroyed. Rails bent greatly. Underground pipelines completely out of service.	> 1.24 g
XII (Very Violent)	Damage nearly total. Practically all works of construction are damaged greatly or destroyed. Large rock masses displaced. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown into the air.	> 1.24 g

NOTES:

[a] Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCES: ABAG, 2016; CGS, 2003.

Faults and Historical Earthquake Activity

The program area is located in a seismically active region of California. The Los Angeles Basin contains both active and potentially active. Throughout the program area, there is the potential for damage resulting from movement along any one of a number of the active faults. The Working Group on California Earthquake Probabilities (WGCEP), comprised of the USGS, the CGS, and the Southern California Earthquake Center, evaluated the probability of one or more earthquakes of Mw 6.7 or higher occurring in the State of California over the next 30 years (WGCEP 2015). WGCEP estimated that the Los Angeles region areas as a whole has a 60 percent chance of experiencing an earthquake of Mw 6.7 or higher over the next 30 years; among the various active faults in the region, the southern San Andreas Fault is the most likely to cause such an event.

Several active and potentially active faults have been mapped within or close to the program area. The approximate locations of the major faults in the region and their geographic relationship to the program area region are shown in Figure 3.5-1. The closer view of the Newport-Inglewood Fault Zone, which diagonally crosses the program area, as shown in Figure 3.5-2.

Local Fault

In addition to being shown in Figure 3.5-1, the local fault's location in relation to the program area is shown in detail in Figure 3.5-2.

Newport-Inglewood Fault Zone

The northwest-trending Newport-Inglewood Fault dominates the geologic structure of the coast line from Newport Beach to north of the Long Beach area. As a result of the fault movement in the area, a number of elongated hills are present in the area including the Dominguez Hills and Signal Hill. The 1933 Mw 6.4 Long Beach earthquake occurred along the Newport-Inglewood fault offshore from Huntington Beach (KCG 2016a). The program area is bisected by the Newport-Inglewood Fault (KCG 2016b; Honegger 2016). The fault has a 0.71 to 0.95 percent probability of generating an earthquake with a magnitude equal to or greater than 6.7 over the next 30 years (WGCEP 2015).

Regional Faults

San Andreas Fault Zone

The San Andreas Fault Zone is a major structural feature in the region and forms a boundary between the North American and Pacific tectonic plates (Bryant and Lundberg 2002). The San Andreas Fault is a major northwest-trending, right-lateral,[3] strike-slip[4] fault. The fault extends for about 600 miles from the Gulf of California in the south to Cape Mendocino in the north. The San Andreas is not a single fault trace but rather a system of active faults that diverges from the main fault south of the City of San Jose, California. The San Andreas Fault has produced numerous large earthquakes, including the 1906 San Francisco earthquake. That event had an estimated ML 8.3 or Mw 7.8 (WGCEP 2008a, 2008b) and was associated with up to 21 feet of displacement and widespread ground failure (Lawson 1908). The San Andreas Fault

[3] To an observer straddling a right-lateral fault, the right-hand block or plate would move towards the observer.

[4] A strike-slip fault creates vertical (or nearly vertical) fractures (i.e., the blocks primarily move horizontally).

Zone has a 19 percent probability of generating an earthquake in the Southern California region with a magnitude equal to or greater than 6.7 Mw over the next 30 years (WGCEP 2015). The San Andreas Fault is located approximately 50 miles northwest of the program area.

Whittier Fault Zone

The Whittier Fault is approximately 25 miles in length; its nearest communities are Yorba Linda, Hacienda Heights and Whittier (Caltech 2016a). The Whittier Fault has a 1.29 percent probability of generating an earthquake with a magnitude equal to or greater than 6.7 Mw over the next 30 years (WGCEP 2015). The Whittier Fault is approximately 15 miles from the program area.

Compton Fault Zone

The Compton Fault is a large, concealed blind thrust fault that extends northwest-southeast for approximately 25 miles beneath the western edge of the Los Angeles metropolitan region. Unlike most faults, which rupture to the surface in large earthquakes, near-surface deformation above blind thrust faults is accommodated by folding, rather than faulting. The Compton Fault is active and has generated at least six large-magnitude earthquakes (Mw 7.0 to 7.4) during the past 14,000 years (Leon et al. 2009). The Compton Fault has a 0.60 to 0.67 percent probability of generating an earthquake with a magnitude equal to or greater than 6.7 over the next 30 years (WGCEP 2015). The Compton Fault is located approximately 2.5 miles southwest of the program area.

Puente Hills Fault Zone

The Puente Hills Fault is a blind thrust fault extending more than 25 miles in the northern Los Angeles Basin from downtown Los Angeles east to Brea in northern Orange County. The fault consists of three distinct geometric segments: Los Angeles, Santa Fe Springs, and Coyote Hills. The Puente Hills Fault generated the 1987 Mw 6.0 Whittier Narrows earthquake southeast of Los Angeles (Shaw et al. 2002). Subsections 1 and 0 of the Puente Hills Fault have a 0.95 to 0.96 percent probability of generating an earthquake with a magnitude equal to or greater than 6.7 over the next 30 years (WGCEP 2015). The Puente Hills fault is located approximately 12 miles north of the program area.

Palos Verdes Fault Zone

The Palos Verdes Fault is approximately 50 miles in length and has two main branches: the Cabrillo Fault and the Redondo Canyon Fault. The Palos Verdes Fault passes through the cities of San Pedro, Palos Verdes Estates, Torrance and Redondo Beach (Caltech 2016b), and is located approximately 9 miles southwest of the program area. The Palos Verdes Fault has a 3.03 percent probability of generating an earthquake with a magnitude equal to or greater than 6.7 over the next 30 years (WGCEP 2015).

Los Alamitos Fault

The Los Alamitos Fault, more recently called the Compton-Los Alamitos Fault is located about 3 miles north of the program area. Recent research on the Compton-Los Alamitos Fault concluded that some movement occurred during the 1933 Long Beach earthquake, meaning that this fault is considered active (Yeats and Verdugo 2010). Earthquake probabilities have not yet been estimated.

3.5.2.4 Geologic Hazards

Based on the geologic data reviewed during preparation of this PEIR, the potential geologic hazards at the program area include erosion and expansive soil. These geologic hazards are discussed below. Liquefaction, landslides, and lateral spreading, while possible without seismic shaking, are more commonly triggered by a seismic event, as discussed further below in seismic hazards.

Erosion

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of water and wind. Excessive soil erosion can eventually damage infrastructure such as pipelines, wellheads, building foundations, and roadways. In general, granular soils with relatively low cohesion and soils located on steep topography have a higher potential for erosion. As previously discussed, the program area is relatively flat, resulting in a relatively low potential for soil erosion. In addition, erosion potential is typically further reduced or eliminated once the soil is graded and covered with hardscape or vegetation, or other slope protection measures, including habitat restoration.

Expansive Soils

Expansive soils are subject to volume changes from changes in moisture content: swelling with increases in moisture; shrinkage with decreases in moisture. The shrinking and swelling can damage foundations and other infrastructure. The geotechnical investigation of the alluvial materials on the Pumpkin Patch site, located adjacent and southwest of the Long Beach City Property site, concluded that the materials have a low to moderate expansion potential (KCG 2016a). It is assumed this condition may also apply to areas within the program area.

Subsidence and Collapse

When oil and/or groundwater is extracted from the subsurface, subsidence of the overlying land surface can occur. Collapse is also typically associated with shallow groundwater withdrawal. Subsidence is usually associated with severe, long-term withdrawal in excess of recharge that eventually leads to overdraft of the aquifer. As oil and/or groundwater is pumped out, water and/or oil is removed from the soil pore spaces leading to a reduction in soil strength. The subsurface conditions more conducive to subsidence include clay or organic-rich soils. Sand- and gravel-rich soils are less prone to subsidence because the larger grains comprise a skeleton less dependent on water pressure for support. The subsidence can result in damage to infrastructure such as buildings or pipelines, or can result in a decrease in the volume of available aquifer storage. This is the reason the produced water pumped from the subsurface along with oil production is purposely injected back into the same depth interval to prevent subsidence.

In the regional area that includes the program area, historical subsidence was previously associated with oil production and the groundwater pumped out along with the oil. Generally, subsidence in the Long Beach area was concentrated in the Long Beach Harbor area (Wilmington oil field, located south and west of the program area) and lessened with distance away from the Wilmington area. It has been estimated that north and east of the main Long Beach Harbor area,

this subsidence averaged a few tenths of a foot over a period of about 20 years and was generally uniform across wide areas (KCG 2016b). As previously noted, the injection of produced water back into oil production zones has arrested regional subsidence.

However, there is the potential for subsidence on former landfill areas. There are landfilled areas on the Synergy Oil Field and C&D Landfill. The degree of compaction at the former landfills is unknown. Because of the unknown level of compaction of the fill at the former landfills and shallow groundwater table, potential site-specific subsidence risks are considered to be moderate to high (KCG 2016a).

3.5.2.5 Seismic Hazards

Seismic hazards are generally classified into two categories: primary seismic hazards (surface fault rupture and groundshaking) and secondary seismic hazards (liquefaction and other types of seismically induced ground failure, along with seismically induced landslides).

Surface Fault Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Although future earthquakes could occur anywhere along the length of an active fault, only regional strike-slip earthquakes of magnitude 6.0 or greater are likely to be associated with significant surface fault rupture and offset (CDMG and USGS 1996). It is also important to note that unmapped subsurface fault traces could experience unexpected and unpredictable earthquake activity and fault rupture. The highest potential for surface faulting is along existing fault traces that have had Holocene displacement. As previously discussed, the active Newport-Inglewood Fault is mapped through the program area, as shown in Figure 3.5-2.

Seismic Groundshaking

As discussed above, it is estimated that a major earthquake has a 60 percent chance of affecting the Los Angeles Region in the next 30 years and would produce strong groundshaking throughout the region. Earthquakes on active or potentially active faults, depending on magnitude and distance from the program area, could produce a range of groundshaking intensities at the program area. Historically, earthquakes have caused strong groundshaking and damage in the Los Angeles Basin. For example, the Mw 6.4 Long Beach earthquake in March 1933 produced very damaging groundshaking from Long Beach to the industrial section south of Los Angeles (Hauksson and Gross 1991) and is believed to have occurred on the Newport-Inglewood Fault offshore from Huntington Beach (KCG 2016a); however, disregarding local variations in ground conditions, the intensity of shaking at different locations within the area can generally be expected to decrease with distance from an earthquake source.

The primary tool that seismologists use to describe groundshaking hazard is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources (including such worst-case scenarios as described above) and estimates their characteristic magnitudes to generate a probability map for groundshaking.

The PSHA maps depict PGA values that have a 10 percent probability of being exceeded in 50 years (i.e., a 1 in 475 chance of occurring each year). Use of this probability level allows engineers to design structures to withstand ground motions that have a 90 percent chance of not occurring in the next 50-year interval, thus making buildings safer than if they were designed only for the ground motions that are expected within the next 50 years.

The geotechnical studies for the Synergy Oil Field and Pumpkin Patch sites provided the USGS estimates for the PGAs ranging from 0.603g to 0.604g (KCG 2016a, 2016b). The PGA for the Isthmus and South Areas is expected to be in the same range. According to Table 3.5-1, this would correlate to a Modified Mercalli ground shaking intensity of level VIII, very strong shaking.

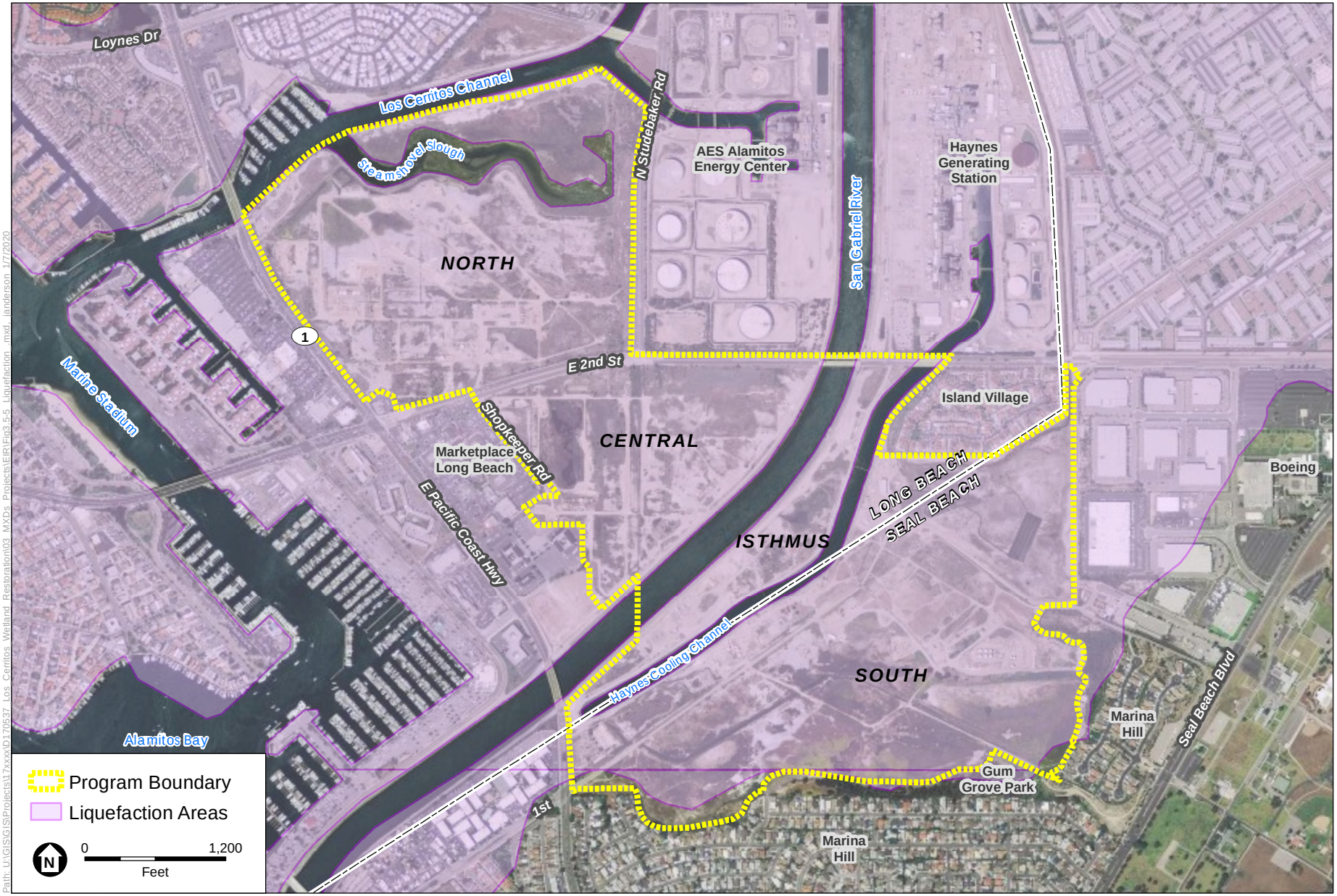
Liquefaction and Lateral Spreading

Liquefaction is the rapid loss of shear strength experienced in saturated, predominantly granular soils below the groundwater level during strong earthquake groundshaking and occurs due to an increase in pore water pressure. Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake (VT 2013). The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of groundshaking, particle-size distribution, and density of the soil.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs due to sand boiling, and buckling of deep foundations due to ground settlement. Dynamic settlement (i.e., pronounced consolidation and settlement from seismic shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, a relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table). Lateral spreading can move blocks of soil, placing strain on levees and roads that can lead to ground failure.

Figure 3.5-5, *Liquefaction Potential in Program Area*, displays the relative liquefaction hazard potential in the vicinity of the proposed program; the entire area encompassing the entire program area is entirely within a liquefaction susceptible zone (CGS, 1998). For the locations where levees and roads would be constructed, during a 7.0-magnitude earthquake with a PGA of 0.601 g, an estimate of up to 1.3 to 2.7 inches of seismic settlement due to liquefaction and lateral spreading could occur at the Pumpkin Patch site (KCG 2016a). This earthquake scenario represents the (worst-case) design-level earthquake and ground acceleration to be used for liquefaction analysis, as per ASCE/SEI 7-16, (see Section 3.5.3, *Regulatory Framework, California Building Code*).

Lateral spreading is characterized by horizontal displacement of surficial soil layers as a consequence of liquefaction of deeper granular soil layers. Lateral spreading usually occurs on sites with sloping ground surfaces located near bodies of water such as lakes, rivers and oceans. Due to the gently sloping ground throughout the program area, lateral spreading is unlikely to occur during a design maximum earthquake event.



Path: U:\GIS\G1\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\EIR\Fig3.5-5_Liquefaction_mxd, janderson 1/7/2020

SOURCE: Mapbox, LCWA, City of Long Beach, City of Seal Beach; CGS

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.5-5

Liquefaction Potential in Program Area

ESA

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid rearrangement, compaction, and settling of subsurface materials, particularly loose, uncompacted, and variable sandy sediments. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Areas are susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or the waste material in the former landfill at the Synergy Oil Field, Pumpkin Patch, or C&D sites (KCG 2016a).

Landslides and Ground Cracking

Earthquake motions can induce substantial stresses on slopes and can cause earthquake-induced landslides or ground cracking if the slope fails. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake. Landslides can also be non-seismically induced; non-seismically induced landslide can be caused by the force of gravity on steep unstable slopes, by construction activities that disturb soil conditions and create unstable slopes, and by water leaks or breaks in pipelines or pumps.

Based on a review of aerial photographs and available geotechnical reports and topographic conditions, no landslides are present in the program area. The City of Long Beach concluded that slope instability as a major problem within the City, since its slopes are generally neither high nor steep (City of Long Beach 1975). Given the relatively flat nature of the program area, the potential for landslides would be considered low.

3.5.2.6 Paleontological Resources

Literature Search

The literature search was completed through the Natural History Museum of Los Angeles County (LACM) on May 28, 2019 (McLeod 2019). The database search returned no known localities within the program area; however, a number of vertebrate fossil localities are known in southern Los Angeles from sedimentary deposits similar to those present at depth in the program area (McLeod 2019). The closest locality (LACM 3757) is approximately 1.2 miles northwest of the program area, where numerous fossil specimens were collected from older Pleistocene-aged alluvium at an unknown depth. This locality produced specimens of eagle ray (*Myliobatis*), skate (*Rhinobatoidea*), white shark (*Carcharodon*), blue shark (*Prionace*), requiem shark (*Carcharhinidae*), surfperch (*Damalichthys* and *Rhacochilus*), croaker (*Genyonemus*), pond turtle (*Emys*), diving duck (*Chendytes*), loon (*Gavia*), dog (*Canis*), sea otter (*Enhydra*), horse (*Equus*), camel (*Hemiauchenia*), and pocket gopher (*Thomomys*) (McLeod 2019). To the west of LACM 3757, another locality, LACM 6746, produced a fossil mammoth (*Mammuthus*), at a shallow but unstated depth (McLeod 2019). Approximately 2.3 miles west of the program area, LACM 2031 produced specimens of fossil bison (*Bison antiquus*) (McLeod 2109). Further to the northwest, 3.18 miles northwest of the program area, LACM 7393 produced specimens of camel (Camelidae) at a depth of 8.5 feet below ground surface (McLeod 2109).

Field Survey

On December 15 and 16, 2016, a pedestrian survey was conducted for accessible portions of the Synergy and City property sites[5] Rieboldt 2016). All accessible parts of the undeveloped areas that had at least some ground visibility were surveyed in systematic parallel transects spaced 10 to 12 meters (33 to 40 feet) apart. Special attention was paid to any graded areas and to rodent burrows that offered a better view of the underlying sediment. The purpose of this survey was to confirm the accuracy of the geologic mapping and to identify whether any previous ground-disturbing activities had brought any paleontological resources to the surface. In this way, the survey could identify areas within the local area that could potentially contain paleontological resources. No paleontological resources were observed during the field survey. Where exposed, the surveyor noted that the sediments within the program area are consistent with the Artificial Fill mapped by Saucedo et al. (2016).

Paleontological Sensitivity Analysis

The review of the scientific literature and geologic mapping, as well as the database search from LACM, were used to assign paleontological potentials to the geologic units present at the surface and at depth in the program area, following the Society of Vertebrate Paleontology (SVP) Guidelines (2010). The geologic units are listed below in order of paleontological sensitivity (no potential to high potential):

- **Artificial Fill** – present at the surface across the program area; no paleontological potential. Artificial fill was deposited by human activity and will not preserve significant fossils; however, fill likely overlies native sediments present at the surface around the program area such as older alluvium or old shallow marine deposits that have high paleontological potential.
- **Estuarine deposits (Qpe)** – potentially present in the subsurface underlying artificial fill in the program area; low paleontological potential. Estuarine deposits are too young to preserve fossils; however, estuarine deposits likely overlie older sediments such as older alluvium or old shallow marine deposits that have high paleontological potential.
- **Young alluvium, unit 2 (Qya_2)** – present at the surface to the north of the program area, may underlie artificial fill or estuarine deposits in the program area; low-to-high paleontological potential, increasing with depth. A wide variety of Ice Age fossils have been found in older alluvial sediments across southern California, as reviewed above, including multiple specimens known from the vicinity of the program area (McLeod 2019). The exact depth at which the transition from low to high potential occurs is unknown in the program area, but depths of 5-10 feet below ground surface are common in the region (McLeod 2019).
- **Old shallow marine deposits (Qom)** – present at the surface in the southern-most program area; high paleontological potential. Pleistocene-aged marine deposits are well known to preserve a wide variety of marine invertebrate and vertebrate fossils, as well as occasional terrestrial fossils. Likely to be present underlying artificial fill at an undetermined depth throughout the program area.

[5] The remaining sites have not been surveyed for paleontological resources.

Summary

The program area consists of artificial fill, estuarine deposits, young alluvium, and old shallow marine deposits. Artificial fill and estuarine deposits have no or low paleontological sensitivity, respectively. However, they overlie young alluvium and old shallow marine deposits at an undetermined depth, which have low-to-high or high paleontological sensitivity, respectively. Therefore, the program area is considered to have low-to-high paleontological potential, increasing with depth. While the exact depth of the artificial fill overlying the majority of the program area is unknown and may vary across the program area, 5 feet below ground surface is used as a conservative estimate of the transition from low to high potential since there have been fossil discoveries in the region from a similar depth.

3.5.3 Regulatory Framework

The proposed program shall be required to comply with the following laws, statutes, regulations, codes, and policies, which are defined as standard conditions for the proposed program.

3.5.3.1 Federal

Earthquake Hazards Reduction Act

Established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, the purpose of the National Earthquake Hazards Reduction Program (NEHRP) is to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." The principle behind NEHRP is that earthquake-related losses can be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. There are four federal agencies that can contribute to earthquake mitigation efforts; they have been designated as NEHRP agencies and are as follows: the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the USGS.

Hazardous Liquid Pipeline Safety Act

The Hazardous Liquid Pipeline Safety Act of 1979 authorized the U.S. Department of Transportation (USDOT) to regulate pipeline transportation of hazardous liquids, including crude oil, petroleum products, anhydrous ammonia and carbon dioxide. The Pipeline and Hazardous Materials Safety Administration (PHMSA), created in 2004 by USDOT, has the following responsibilities:

- Analyze pipeline safety and accident data;
- Evaluate which safety standards need improvement and where new rulemakings are needed;
- Set and enforce regulations and standards for the design, construction, operation, maintenance, or abandonment of pipelines by pipeline companies;
- Educate operators, states, and communities on how to keep pipelines safe;

- Facilitate research and development into better pipeline technologies;
- Train state and federal pipeline inspectors; and
- Administer grants to states and localities for pipeline inspections, damage prevention, and emergency response.

The requirements of the Hazardous Liquid Pipeline Safety Act are implemented by Department of Conservation's California Geologic Energy Management Division (CalGEM) [formerly known as the Division of Oil, Gas, and Geothermal Resources (DOGGR)], as discussed further below and include the design and operation of oil pipelines in seismically active areas. The federal- and State-level regulations cover route selection, regulatory processes, design, site preparation, pipe stringing, trenching, bending, welding, coating, lowering and backfilling, testing, and site restoration.

3.5.3.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to protect structures for human occupancy from the hazard of surface faulting. In accordance with the act, the State Geologist has established regulatory zones—called earthquake fault zones—around the surface traces of active faults, and has published maps showing these zones. Buildings for human occupancy cannot be constructed across surface traces of faults that are determined to be active. Because many active faults are complex and consist of more than one branch that may experience ground surface rupture, earthquake fault zones extend approximately 200 to 500 feet on either side of the mapped fault trace. This act applies to this proposed program because the active Newport-Inglewood Fault passes through the program area.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits. The *CGS Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards (CGS 2008). The CGS is in the process of producing official maps based on USGS topographic quadrangles. To date, the CGS has completed delineations for the USGS quadrangles in which project components are proposed and the program area is within a seismic hazard zone. Therefore, the proposed program is subject to the act.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare

by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code (UBC). The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016, and took effect starting January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads[6] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage but with some nonstructural damage; and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a structure designed in accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with CBC Chapter 16. CBC Chapter 18 covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (Section 1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss,

[6] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Requirements for geotechnical investigations are included in Appendix J, CBC Section J104, Engineered Grading Requirements. As outlined in Section J104, applications for a grading permit are required to be accompanied by plans, specifications, and supporting data consisting of a soils engineering report and engineering geology report. Additional requirements for subdivisions requiring tentative and final maps and for other specified types of structures are in California Health and Safety Code Sections 17953 to 17955 and in 2013 CBC Section 1802. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

The design of the visitor center is required to comply with CBC requirements, which would make the proposed program consistent with the CBC.

NPDES Construction General Permit

Construction associated with the proposed program would disturb more than one acre of land surface affecting the quality of stormwater discharges into waters of the U.S. The proposed program would, therefore, be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards;
- Good site management “housekeeping;”

- Non-stormwater management;
- Erosion and sediment controls;
- Run-on and runoff controls;
- Inspection, maintenance, and repair; or
- Monitoring and reporting requirements.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the program area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the North, Central, and Isthmus Areas, the Construction General Permit is implemented and enforced by the Los Angeles Regional Water Quality Control Board (RWQCB), which administers the stormwater permitting program. The South Area is under the jurisdiction of the Santa Ana RWQCB. Dischargers are required to electronically submit a notice of intent (NOI) and permit registration documents (PRDs) in order to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the RWQCBs of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify PRDs, is responsible for obtaining coverage under the permit.

California Geologic Energy Management Division

All California oil and gas wells (development and prospect wells), enhanced-recovery wells, water-disposal wells, service wells (i.e., structure, observation, temperature observation wells), core-holes, and gas-storage wells, onshore and offshore (within 3 nautical miles of the coastline), located on state and private lands, are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by the CalGEM.

Regulations pertaining to oil and natural gas production are summarized in the CalGEM Publication No. PRC10, California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources, dated January 2017. Regulations for the installation and abandonment of oil and natural gas wells are in 14 CCR 1712 through 1724.10. Environmental protection regulations for oil and natural gas well installations, operations, and abandonments are in 14 CCR 1750 through 1789.

California Pipeline Safety Act of 1981

The California Pipeline Safety Act of 1981, codified in California Government Code Sections 50001–51298.5, applies to pipelines that carry hazardous liquids (e.g., crude oil) and authorizes the State Fire Marshal to implement the federal Hazardous Liquid Pipeline Safety Act, as summarized above. This Act imposes additional specific safety requirements on intrastate pipelines carrying hazardous liquids, including a time schedule for conformance to federal regulations, hydrostatic testing requirements, pipeline maps, contingency plans, and pipeline incident reporting.

3.5.3.3 Local

Orange County Drainage Area Management Plan (DAMP) and Orange County MS4 Permit

The Orange County Drainage Area Management Plan (DAMP), is the principal policy, programmatic guidance, and planning document for the Orange County Stormwater Program (the Program), a municipal regulatory compliance initiative focused on the management and protection of Orange County's streams, rivers, creeks and coastal waters. The participants in this program include the County, the Orange County Flood Control District, and the cities of Orange County, including Seal Beach. The stormwater program was initiated in 1990 as a cooperative local government response to requirements stemming from the Clean Water Act regulations and the NPDES permitting program. In response to those regulations, the County of Orange, the Orange County Flood Control District and the incorporated cities of Orange County (collectively referred to as Permittees) have obtained, renewed and complied with NPDES Stormwater Permits from the Santa Ana and San Diego Regional Water Quality Control Boards. For the Seal Beach area, the current permit is R8-2009-0030 NPDES No. CAS618030, as amended by Order No. R8-2010-0062.

The NPDES Permit includes (1) a requirement to effectively prohibit non-storm water discharges into municipal storm sewers; and (2) controls to reduce the discharge of pollutants from municipal storm drains to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the state determines appropriate for the control of such pollutants.

The DAMP includes the Model Construction Program, which requires the following:

- Apply for local grading or building permit
- Submit Notice of Intent (NOI) for General Permit Coverage
- Comply with grading or building permit and local ordinances
- Prepare and implement SWPPP
- Submit Notice of Termination (NOT)

The DAMP summarizes Best Management Practices (BMPs), as summarized below:

- Sediments from areas disturbed by construction shall be retained on-site using an effective combination of erosion and sediment controls to the maximum extent practicable, and stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities or adjacent properties via runoff, vehicle tracking, or wind.
- Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented and retained on-site to minimize transport from the site to streets, drainage facilities, or adjoining property by wind or runoff.

Construction BMPs

Construction contractors must select, install and maintain appropriate BMPs on all construction projects. BMPs must be installed in accordance with an industry recommended standard, or in accordance with the Construction General Permit (previously described under State Regulations).

Dry Season Requirements (May 1 through September 30)

The DAMP also provides seasonal requirements, as summarized below.

A. Wind erosion BMPs (dust control) shall be implemented.

B. Sediment control BMPs shall be installed and maintained at all operational storm drain inlets.

C. BMPs to control off-site sediment tracking shall be implemented and maintained.

D. Appropriate waste management and materials pollution control BMPs shall be implemented to prevent the contamination of stormwater by wastes and construction materials.

E. Appropriate non-stormwater BMPs shall be implemented to prevent the contamination of stormwater from construction activities.

F. There shall be a “weather triggered” action plan and the ability to deploy standby sediment control BMPs as needed to completely protect the exposed portions of the site within 48 hours of a predicted storm event (a predicted storm event is defined as a forecasted, 50% chance of rain).

G. Sufficient materials needed to install standby sediment control BMPs (at the site perimeter, site slopes and operational inlets within the site) necessary to prevent sediment discharges from exposed portions of the site shall be stored on-site. Areas that have already been protected from erosion using physical stabilization or established vegetation stabilization BMPs as described in item H below are not considered to be “exposed” for purposes of this requirement.

H. Deployment of permanent erosion control BMPs (physical or vegetation) should commence as soon as practical on slopes that are completed for any portion of the site. Standby BMP materials should not be relied upon to prevent erosion of slopes that have been completed.

Wet Season Requirements (October 1 through April 30)

In addition to the Dry Season Requirements:

A. Where appropriate sediment control BMPs shall be implemented at the site perimeter, at all operational storm drain inlets and at all non-active slopes, to provide sufficient protection for storms likely to occur during the rainy season.

B. Adequate physical or vegetation erosion control BMPs (temporary or permanent) shall be installed and established for all completed slopes prior to the start of the rainy season. These BMPs must be maintained throughout the rainy season. If a selected BMP fails, it must be repaired and improved, or replaced with an acceptable alternate as soon as it is safe to do so. The failure of a BMP may indicate that the BMP, as installed, was not adequate for the circumstances in which it was used. Repairs or replacements must result in a more robust BMP, or additional BMPs should be installed to provide adequate protection.

C. The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMPs prior to a predicted rainstorm.

D. A disturbed area that is not completed but that is not being actively graded (non-active area) shall be fully protected from erosion with temporary or permanent BMPs (erosion and sediment control). The ability to deploy standby BMP materials is not sufficient for these areas. Erosion and sediment control BMPs must actually be deployed. This includes all building pads, unfinished roads and slopes.

E. Sufficient materials needed to install standby erosion and sediment control BMPs necessary to completely protect the exposed portions of the site from erosion and to prevent sediment discharges shall be stored on-site. Areas that have already been protected from erosion using permanent physical stabilization or established vegetation stabilization BMPs are not considered to be “exposed” for purposes of this requirement.

Seal Beach Grading and Stormwater Pollution Prevention Implementation Manual

The Seal Beach Grading and Stormwater Pollution Prevention Implementation Manual) is a compilation of rules, procedures, and interpretations necessary to carry out the provisions of the City of Seal Beach Grading Ordinance. The requirements relevant to the program are summarized as follows:

- **Grading Permit Application**: The applicant shall submit a complete grading permit/plan check application package including all the items and contents listed on the City application form unless otherwise specified by the Director: Incomplete applications will not be accepted.
- Prior to issuance of a grading permit, written clearance may be required from other City departments and divisions and may be required from other agencies. Depending on-site conditions and location, written clearance or permits may be required from, but not limited to, the following agencies:
  - California Regional Water Quality Control Board/NPDES

- California Department of Fish and Game
- California Division of Industrial Safety
- Orange County Fire Marshal (fuel modification)
- Orange County Human Services Agency (Vector Control)
- California Coastal Commission

- **Preliminary Grading Permit**: The plans shall include a vicinity map of the site; property limits; accurate contours; drainage details to a minimum of fifteen feet (15') beyond property limits; details (plan and section) of all surface and subsurface drainage devices; location of any existing buildings, structures, or trees; and a SWPPP which depicts short-and long-term structural and non-structural Best Management Practices (BMP) in compliance with NPDES Construction General Permit.
- **Precise Grading Permit**: The plans shall include the following in addition to the above items listed for Preliminary Grading Permits: footprint or allowable building area of all proposed structures including appurtenances; setback distances between structures and top and toe of slopes; detailed finish grade and finish floor elevations; flowlines for typical lot drainage; details for building footing and side yard swale relationship; all proposed concrete flatwork and/or driveways.
- **Preliminary Soil Report**: Soil engineering reports shall be required for all projects for which a grading permit is required. The preliminary soil engineering report shall include information and data regarding the nature, distribution, and the physical and chemical properties of existing soils; conclusions as to adequacy of the site for the proposed grading; recommendations for general and corrective grading procedures; foundation and pavement design criteria and shall provide other recommendations, as necessary, commensurate with the project grading and development;
- **Preliminary Engineering Geology Report**: Engineering geology reports shall be required for all developments on hillside sites where geologic conditions are considered to have a substantial effect on existing and/or future site stability. This requirement may be extended to other sites suspected of being adversely affected by faulting. The preliminary engineering geology report shall include a comprehensive description of the site topography and geology; an opinion as to the adequacy of the proposed development from an engineering geologic standpoint; an opinion as to the extent that instability on adjacent properties may adversely affect the property; a description of the field investigation and findings; conclusions regarding the effect of geologic conditions on the proposed development; and specific recommendations for plan modification, corrective grading, and/or special techniques and systems to facilitate a safe and stable development, and shall provide other recommendations as necessary, commensurate with the project grading and development. The preliminary engineering geology report may be combined with the soil engineering report.

Seal Beach Municipal Code

Chapter 5.55 Oil and Gas Production

5.55.075 Permit Requirement. It shall be unlawful and a nuisance for any person hereafter to conduct any drilling operations for a well hole or hereafter to drill and produce any oil and gas well or well hole in the surface or subsurface of the city from any drill site without first having applied for and obtained from the city council an oil/gas production permit. (Ord. 1515).

5.55.090 Operation Standards. Drilling shall be conducted in accordance with the following operation standards:

I. The operation of any oil and gas well and production therefrom drilled pursuant to an oil/gas production permit shall be in accordance with the rules and regulations of the Division of Oil and Gas of the state, or any successor agency or body thereto.

5.55.095 Additional Standards.

E. Private roads for ingress and egress to and from the drill site shall be surfaced with gravel and maintained in good condition at all times during drilling and production operations. No signs shall be erected on the drill site except those required by law or permitted by this code.

F. Within 90 days after the completion of drilling operations or abandonment of further drilling, the derrick and all drilling equipment, including temporary tanks, shall be removed from the drill site. Well abandonment shall be in accordance with the requirements of the Division of Oil and Gas of the state. Upon such well abandonment, the permittee shall restore the property as nearly as possible to its original condition and shall remove all concrete foundations, oil-soaked soil, and debris; all holes or depressions shall be filled to the natural surface.

J. All drilling and production equipment installed or operated upon any controlled drill site shall be so constructed, operated, and maintained that no noise, vibration, odor, or other harmful or annoying substances of effects therefrom which can be eliminated or diminished by the use of modern and approved types of equipment silencers or greater care shall ever be permitted to result from operations on any controlled drill site to the injury or annoyance of persons in the vicinity of such controlled drill site. Proven technological and mechanical improvements in methods of drilling and production and in the type of equipment used therefor shall be adopted from time to time, as the same become available if the use of such equipment, improvements, and methods will reduce noise, vibration, odors, or the harmful effects of annoying substances. The use of equipment in any controlled drill site, which equipment causes noise or vibration, shall at all times be subject to the approval of the city council, and the city council may amend any permit and require the permittee to abate any noise or vibration which constitutes a nuisance and is detrimental to persons or property in the vicinity where such equipment is being operated.

5.55.105 Subsidence.

A. The city engineer shall, from time to time make such tests and observations as deemed appropriate to determine if any adverse effect upon the surface of the city is occasioned or is in danger of being occasioned by reason of the removal of oil, gas, or other hydrocarbon substances from the subsurface of the city pursuant to a well, no part of which is located within the city, but which drains a subterranean oil or gas pool, part of which is in the city. Upon determining the existence of such adverse effect or danger, the city engineer may order the immediate suspension of further production from such well or wells as may be located entirely or partly within the city, and, in the event of such an order, production on such well shall be suspended by the permittee or other operator immediately upon receiving notice of such order. The permittee or other person lawfully producing oil or gas, or oil and gas, or any other hydrocarbon substances from any such well may appeal to the city council. The city council may, upon good cause being shown by the permittee or such other person, vacate or modify the order of the city engineer, or if no part of the well is in the city, the city council may direct the city attorney to immediately commence such actions or proceedings as may be necessary for the abatement, removal, and

enjoining of further drilling operations which adversely affect property within the city in the manner provided by law and to take such other action and to apply to any court having jurisdiction to grant such relief as will restrain or enjoin any person from drilling or producing any such well.

B. Notwithstanding any other provision of this chapter, the city council may require an applicant for a final exploratory area or oil/gas production permit to submit a plan for water injection or other plan for secondary recovery and to eliminate any possibility of subsidence or other possible damage to property within the city. (Ord. 1515)

Chapter 9.20 Storm Water Management Program

9.20.015 Controls for Water Quality Management.

A. New Development and Significant Redevelopment.

1. All new development and significant redevelopment within the city shall be undertaken in accordance with:

   a. The DAMP, including without limitation the development project guidance.

   b. Any conditions and requirements established by the responsible city department, which are reasonably related to the reduction or elimination of pollutants in storm water runoff from the project site.

2. Prior to the issuance by the city of a grading permit, building permit or nonresidential plumbing permit for any new development or significant redevelopment, the responsible city department shall review the project plans and impose terms, conditions and requirements on the project in accordance with this chapter.

Chapter 9.50 Grading

9.50.015 Grading Permit Requirement. No person shall perform any of the following activities without first obtaining from the city engineer, and maintaining in full force and effect, a grading permit:

A. Grading or land disturbing or land filling on existing grade that is preparatory to grading.

B. Clearing, brushing and grubbing.

C. Construction of pavement surfacing in excess of 2,499 square feet on existing grade for the purpose of a road or parking lot. This provision does not include resurfacing or maintenance of existing paved surfaces.

D. Alteration of an existing watercourse, channel or revetment by means of excavation, fill placement or installation of rock protection or structural improvements. (Ord. 1515)

Chapter 9.60 Building Code

Section 101 General

101.4.1 Building Code. The provisions of the California Building Code as adopted and amended by City of Seal Beach shall apply to all buildings and structures other than those meeting the scoping limitations contained in the California Residential Code.

101.4.7 Fire Code. The mandatory provisions of the California Fire Code as adopted and amended by City of Seal Beach shall apply to all new and existing buildings, structures and premises.

9.60.020.010 Building Code Adopted by Reference and Amended.

9.60.020.010.10 California Building Code Adopted by Reference.

Chapters 1 through 35 and Appendices F, I, and J of 2016 California Building Code, Title 24 Part 2 of California Code of Regulations, as published by the California Building Standards Commission, are hereby adopted by reference pursuant to the provisions of Sections 50022.1 through 50022.10 of the Government Code of the State of California as though fully set forth herein, and made a part of the Seal Beach Municipal Code with the same force and effect as though set out herein in full, including all of the regulations, revisions, conditions and terms contained therein except that those certain sections thereof which are necessary to meet local conditions as hereinafter set forth in Section 9.60.020.010.20 of this Code are hereby repealed, added or amended to read as set forth therein.

Seal Beach General Plan

Topic 2: Hazardous Materials

Policy 2S. Minimize changes in hydrology and pollutant loading, re-quire incorporation of control, including structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows, ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat, minimize the quantity of storm water directed to impermeable surfaces and the MS4s, and maximize the percentage of permeable surfaces to allow more percolation of storm water into the ground.

Policy 2T. Preserve wetlands, riparian corridors, and buffer zones and establish reasonable limits on the clearing of vegetation from the project site.

Policy 2U. Encourage the use of water quality wetlands, biofiltration swales, watershed-scale retrofits, etc. where such measures are likely to be effective and technically and economically feasible.

Policy 2V. Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.

Topic 3: Geologic Hazards

Policy 3A. Require a soils and geology report to be prepared and filed for all development projects as specified in the City's Municipal Code.

Policy 3C. Require supervision by a state licensed soils engineer for grading operations which require a grading permit.

Policy 3D. Maintain and enforce protection measures which address control of runoff and erosion by vegetation management, control of access, and site planning for new development and major remodels, including directing runoff to the street and compliance with setbacks.

Policy 3J. Maintain the present City practice of adopting the latest edition of the Uniform Building Code (as amended and published by the International Conference of Building Officials at approximate three-year intervals) because it in-corporates the latest accepted standards for seismic design that reflect advances in technology and understanding of hazards.

Policy 3N. Determine the liquefaction potential of a site prior to development and require that specific measures be taken, as necessary, to reduce damage in an earthquake.

Policy 3O. Promote the collection of relevant studies on fault location and history of fault displacement and liquefaction for future refinement of the geological information within and around the City.

Southeast Area Development and Improvement Plan and Draft Southeast Area Specific Plan

Approved in 1977, the Southeast Area Development and Improvement Plan (SEADIP) was the first planned development district in the City. The SEADIP document was intended to guide land use and development in an area that was experiencing a period of rapid growth. The 1977 SEADIP included the following planning goals and objectives relevant to geology, seismicity, and soils:

> **Environmental Consideration**, page 15: Seismic safety will be ensured by meeting the requirements of the Seismic Safety Element and the Alquist-Priolo Act, which will ultimately govern the actual development capability of the affected lands.

The SEADIP includes updates, revisions, and additions of the ordinance history through 2006. The additions through 2006 include narrative discussion of "The Wetlands" and "The Buffers," which would include the restoration area. Relative to geology, seismicity, and soil, the narrative is largely permit, process, phasing, and financially oriented.

In July 2016, the City circulated a draft of the Southeast Area Specific Plan (SEASP) 2060, which is a planning document for the program area, including re-designating land uses for the program area (City of Long Beach 2016). It is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program. The portions relevant to geology, seismicity, and soils are provided below.

Chapter 5, Development Standards, Section 5.10, Wetland Buffers

Be designed, where necessary, to help minimize the effects of erosion, sedimentation, and pollution arising from urban, industrial and agricultural activities; however, to the extent possible, erosion, sedimentation, and pollution control problems should be dealt with at the source, not in the wetland or buffer area.

Chapter 8, Infrastructure, Section 8.1.2, Storm Drains

Any new projects in the SEASP 2060 area will have to comply with the MS4 Permit for the City and include stormwater LID BMPs. Such features will ensure any increases in runoff from proposed land use changes will be sustainably managed and that the 85th percentile, 24-hour storm event will be treated through a variety of LID features. The 85th percentile storm event is

measured by rainfall depth; for example, if the 85th percentile storm event equals 0.5 inch, then 85 percent of all rainfall events will be equal to 0.5 inch or less of precipitation.

The use of LID features will be consistent with the prescribed hierarchy of treatment provided in the permit: infiltration, evapotranspiration, harvest/reuse, and biotreatment. For areas of the site where LID features are not feasible or that do not meet the feasibility criteria, treatment control BMPs with biotreatment enhancement design features must be used.

Typical water quality BMPs for new development in mixed-use areas include stormwater planters (raised or at grade), cisterns and reuse distribution systems (primarily for landscaping), proprietary detention/biotreatment flow-through systems, and subterranean infiltration systems. Since increased density is anticipated in mixed-use areas, the majority of the proposed features should be located within the landscaping along the perimeter of the project, adjacent to the buildings, or in some cases, within the buildings themselves.

Long Beach Storm Water Management Program

The LARWQCB issued the City its own NPDES permit (NPDES Permit No. 99-060; CAS004003/CI 8052). As part of its Report of Waste Discharge submitted for its NPDES permit, the City included among other programs, a stormwater management program. In accordance with the objectives of the federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, the Long Beach Storm Water Management Program contains elements, practices, and activities to reduce or eliminate pollutants in stormwater to the maximum extent practicable (City of Long Beach 2001). In accordance with this program, Long Beach Municipal Code (LBMC) Chapter 18.95 includes requirements relating to development planning and construction, including source control BMPs. Additional requirements include treatment control BMPs and requirements regarding erosion control, peak runoff, and BMP maintenance for projects located adjacent to or directly discharging to environmentally sensitive areas. Post-construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a stormwater conveyance system are also required for these specific projects. In addition, in accordance LBMC Chapter 8.96, construction projects are required to prepare a SWPPP that will incorporate construction site BMPs.

Given the potential for the proposed project to contribute pollutant loads to stormwater flows during construction and operation of proposed uses, the project is subject to the requirements of the NPDES permits and municipal code requirements.

Long Beach MS4 Permit

The City of Long Beach is covered under the Long Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City; Order No. R4-2014-0024.

According to the MS4 Permit, new development projects are as follows:

- Industrial parks

- Parking lots 5,000 square feet (sf) or more of impervious surface area or with 25 or more parking spaces;
- All development projects equal to 1 acre or greater of disturbed area and adding more than 10,000 sf of impervious surface area;

According to the MS4 Permit, redevelopment projects are as follows:

- Land-disturbing activity that results in the creation or addition or replacement of 5,000 sf or more of impervious surface area on an already developed site for development categories/project thresholds.
- Where redevelopment results in an alteration to more than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
- Where redevelopment results in an alteration of less than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

The MS4 Permit lists conditions for various specific discharge categories, including landscape irrigation using potable water, landscape using reclaimed or recycled water, and street/sidewalk wash water. Conditions are also required for exempt MS4 discharges. Table 9 of the MS4 Permit lists source control BMPs pertaining to pollutant-generating activities to be implemented at commercial and industrial facilities.

The MS4 permit requires the City to develop and implement the Long Beach Storm Water Management Program and the Long Beach Low Impact Development (LID) Manual described below.

Long Beach Low Impact Development Manual

The City adopted Low Impact Development (LID) regulations for the purpose of:

- Encouraging the beneficial use of rainwater and urban runoff;
- Reducing stormwater/urban runoff while improving water quality;
- Reducing off-site runoff and providing increased groundwater recharge;
- Reducing erosion and hydrologic impacts downstream; and
- Enhancing the recreational and aesthetic values in our communities.

This LID objective of controlling and maintaining flow rate is addressed through land development and stormwater management techniques that imitate the natural hydrology (or movement of water) found on the site. Using site design and BMPs that allow for storage and retention, infiltration, filtering and flowrate adjustments achieve this objective.

These regulations apply to all development and redevelopment in the City, with some exceptions. The following LID regulations specifically apply to slopes and channels to prevent erosion:

1. Slopes must be protected from erosion by safely conveying runoff from the tops of slopes.
2. Slopes must be vegetated with first consideration given to native or drought-tolerant species.
3. Utilize natural drainage systems to the maximum extent practicable, but minimize runoff discharge to the maximum extent practicable.
4. Stabilize permanent channel crossings.
5. Install energy dissipaters, such as rock riprap, at the outlets of storm drains, culverts, conduits, or channels that discharge into unlined channels.

By identifying the locations and sources of off-site drainage, the volume of water running onto the site may be estimated and factored into the siting and sizing of on-site BMPs. Vegetated swales or storm drains may be used to intercept, divert, and convey off-site drainage through or around a site to prevent flooding or erosion that might otherwise occur (City of Long Beach 2013). The above-described Long Beach Storm Water Management Program requires that each project prepare and implement a project-specific LID Plan.

Long Beach Municipal Code

Chapter 8.96. Stormwater and Runoff Pollution Control. This chapter reinforces the requirements of the Federal Clean Water Act and the State Porter Cologne Act (including Construction General Permit requirements) within the City.

Chapter 12: Oil Production Regulations.

Section 18.04.010. Building permits are required for any attempt to erect, construct, enlarge, alter, repair, remodel, move, remove, improve, convert or demolish any building or part of a building or structure, or change the character or occupancy or use of any building or structure, or part of a building or structure. Building permits must be obtained from the City Building Official.

Chapter 18.04: Permits. This chapter describes various permit requirements within the City.

Section 18.04.010. Building permits are required for any attempt to erect, construct, enlarge, alter, repair, remodel, move, remove, improve, convert or demolish any building or part of a building or structure, or change the character or occupancy or use of any building or structure, or part of a building or structure. Building permits must be obtained from the City Building Official.

Grading permits are required for grading and import or export any earth materials to or from any grading site. Grading permits must be obtained from the City Building Official. Any grading project involving more than 100 cubic yards of excavation and involving an excavation in excess of five feet in vertical depth at its deepest point measured from the original ground surface shall be done by a State of California licensed contractor who is licensed to perform the work described herein. A separate permit shall be required for each grading site. One permit may include the entire grading operation at that site, however.

No permit shall be issued for projects located within a special (fault) studies zone established under Chapter 7.5, Division 2, of the California Public Resources Code unless

it can be demonstrated through accepted geologic seismic studies that the proposed structure will be located in a safe manner and not over or astraddle the trace of an active fault. Acceptable geologic seismic studies shall meet the criteria as set forth in rules and regulations established by the Building Official to ensure that such studies are based on sufficient geologic data to determine the location or nonexistence of the active fault trace on a site. Prior to approval of a project, a geologic report defining and delineating any hazard of surface fault rupture shall be required. If the City finds that no undue hazard of this kind exists, the geologic report on such hazard may be waived, with approval of the State Geologist.

Chapter 18.40: Building Code. This chapter describes the reinforcement of the CBC within the City with the exception of some sections of the Code.

Chapter 18.68: Earthquake Hazard Regulations. This chapter defines a systematic procedure for identifying and assessing earthquake generated hazards associated with certain existing structures within the City and to develop a flexible, yet uniform and practical procedure for correcting or reducing those hazards to tolerable hazard levels. This chapter includes minimum standards for structural seismic resistance established to reduce the risk of life loss or injury.

City of Long Beach General Plan

Seismic Safety Element—1988

Advance Planning Recommendations—Land Use

- Priority should be given to low risk type projects such as low rise buildings and open space in areas of known seismic hazards.
- Density is a seismic safety consideration in that higher occupancy results in greater risk exposure to more people should an earthquake occur. Therefore, from a seismic safety perspective, lower densities are often preferred.
- Hazardous activities, such as petroleum operations, should be buffered to the extent possible from other types of land uses. The isolation of activities would serve to lessen exposure of such operations to the general public.

Immediate Action Recommendations—Structure and Design

- The siting and design recommendations, as specified in Table 6 of the General Plan, should be seriously considered for implementation. Special siting and design studies must be completed for specified structural types in specified Seismic Response Zones.
- No structures for human occupancy defined as “project” within the Alquist-Priolo Special Studies Zones Act and essential facilities and hazardous facilities involving sufficient quantities of toxic or explosive materials presenting a danger to the public safety if released and located with the delineated Caution Zones shall be approved without geologic and earthquake hazard reports. These reports should be completed in accordance with the “guidelines to Geologic/Seismic Reports,” as provided by the State Division of Mines and Geology, and/or in accordance with the policies and criteria of the State Mining and Geology Board with reference to the Alquist-Priolo Geologic Hazards Zones Act.
- No structure for human occupancy shall be permitted to be placed across the trace of an active fault, i.e., the Newport-Inglewood Fault.

Public Safety Element

Advance Planning Recommendations

- New development should be responsive to seismic considerations (see Seismic Safety Element).

Conservation Element

Soil Management Goals

- To minimize those activities which will have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.
- To continue to monitor areas subject to siltation and deposition of soils which could have a detrimental effect upon water quality and the marine biosphere.

3.5.3.4 Paleontological Resources

City of Seal Beach General Plan

The Cultural Resources Element of the City of Seal Beach General Plan describes methods for protecting historical, archaeological, and paleontological resources. The element also includes local policies to guide implementation of cultural resource preservation beyond the protection afforded by applicable federal, state, and local laws. Future development within the City of Seal Beach is subject to these policies and laws to preserve known and unknown sites and properties of a cultural and historic nature. The following goals and policies are applicable to paleontological resources:

Goal 1: Preserve and protect historical, archaeological, and paleontological resources.

Policy 1: Balance the benefits of development with the project's potential impacts to existing cultural resources.

The Cultural Resources Element requires assessment of development proposals for potential impacts to significant paleontological resources pursuant to CEQA Guidelines Section 15064.5. If a project involves earthwork, a study must be 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 project must either be modified to avoid impacting the materials or require measures to mitigate the impacts.

City of Long Beach

The City of Long Beach General Plan does not include goals and polices related to paleontological resources.

Society for Vertebrate Paleontology Guidelines

The SVP Guidelines (SVP, 2010) outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment,

mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological resource-specific Laws, Ordinances, Regulations, and Standards (LORS) accept and use the professional standards set forth by the SVP.

As defined by the SVP (2010:11), significant nonrenewable paleontological resources are:

> *Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

A geologic unit known to contain significant fossils is considered to be "sensitive" to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either directly or indirectly disturb or destroy fossil remains. Paleontological sites indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case (SVP, 2010).

Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

Paleontological Resources Significance Criteria

Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries (e.g., Eisentraut and Cooper, 2002; Murphey and Daitch, 2007; Scott and Springer, 2003, etc.). In general, these studies assess fossils as significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
1. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
2. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
3. The fossils demonstrate unusual or spectacular circumstances in the history of life; or

4. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

In summary, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important (Eisentraut and Cooper, 2002; Murphey and Daitch, 2007; Scott and Springer, 2003). Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer, 2003; Scott et al., 2004).

3.5.4 Significance Thresholds and Methodology

This section describes the impact analysis relating to geology, soils, and paleontological resources for the proposed program. It describes the methods and applicable thresholds used to determine the impacts of the proposed program.

3.5.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the CEQA Guidelines, the proposed program would have a significant impact on geology and soils if it would:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
   ii) Strong seismic ground shaking;
   iii) Seismic-related ground failure, including liquefaction;
   iv) Landslides;
b) Result in substantial soil erosion or the loss of topsoil;
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;[7]
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

[7] The CBC, based on the IBC and the now-defunct UBC, no longer includes a Table 18-1-B. Instead, CBC Section 1803.5.3 describes the criteria for analyzing expansive soils.

As detailed in the NOP/IS (refer to Appendix A of this PEIR), the proposed program would result in no impacts to thresholds "a-iv", "c" and "e." Although not required, evaluation of the proposed program's impact to thresholds "a-iv", "c" and "e" were conducted in this section.

3.5.4.2 Methodology

This impact section assesses potential impacts related to geology, soils, and paleontological resources based on the potential for the proposed program to adversely change those conditions or expose facilities or people or the environment to adverse impacts, using existing site conditions as a baseline for comparison. Information for this assessment of impacts relative to geology, soils, and paleontological resources is based on a review of literature research (geologic, seismic, soils, and paleontological resources reports and maps), information from seismic and paleontological databases, and the General Plans for the cities of Seal Beach and Long Beach. This information was used to identify potential impacts to workers, the public, or the environment.

For purposes of this analysis, construction activities would include the excavation, grading, and movement of fill and soil to restore habitat; removal or raising of some existing oil production facilities (wells, piping, and associated infrastructure); and construction of a visitor center, trails, and access roads. These construction activities would occur at various times spread out over time across the entire program area. Operations activities would include the operational phases of the restored habitat, visitors center, and trails. In addition, the operations activities include the post-treatment monitoring activities conducted to verify that habitat restoration objectives have been achieved.

The plugging and relocation of oil wells and associated infrastructure on the Northern and Southern Synergy Oil Field sites, Long Beach City Property site, and the Pumpkin Patch site were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083), and are not repeated or analyzed within this PEIR. In addition, the plugging and relocation of oil wells and associated infrastructure, if any, on the Hellman Retained site, Isthmus LCWA Site, or the Alamitos Bay Partners site are not proposed at this time, but are anticipated to occur in the long-term when production falls to below economic levels. As proposed in the Termination of Oil and Gas Lease and Grant of Easement agreement between Signal Hill Petroleum, Inc., and the LCWA, Signal Hill Petroleum, Inc. would relocate or modify aboveground pipelines and utilities on the Central LCWA site and remediate soils that have been impacted by oil operations to accommodate the restoration. Thus, restoration in the near-term would include pipeline relocation, but not well relocation. Additionally, outside of this agreement, existing Signal Hill Petroleum, Inc. wells would be protected in place by proposing to raise the wells. When the owner/operators of those oil operations within the program area elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The change or closure procedures and impacts analysis would be similar to those described and analyzed within this PEIR.

The proposed program would be regulated by the various laws, regulations, and policies summarized in the Regulatory Framework. Compliance by the proposed program with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state

agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with many of the regulations is a condition of permit approval.

A significant impact would occur if, after considering the program features described in Chapter 2, *Project Description*, of this PEIR, and the required compliance with regulatory requirements, a significant impact would still occur. For those impacts considered to be significant, mitigation measures are proposed to reduce the identified impacts.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. No issues related to geology and soils were identified.

3.5.5 Program Impacts and Mitigation Measures

Impact GEO-1a: The proposed program would result in a significant impact if the proposed program would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.

As discussed above in Section 3.5.2, *Environmental Setting*, the Newport-Inglewood Fault Zone is designated by the state as an Alquist-Priolo Earthquake Fault Zone (i.e., on a state-recognized active fault trace) that crosses the program area, as shown in Figure 3.5-2. In the event of an earthquake along the Newport-Inglewood Fault Zone, fault rupture could occur on the program area.

Construction

Construction activities would be temporary, and thus, are not anticipated to exacerbate the exposure of people or structures to substantial adverse effects involving fault rupture. Therefore, relative to fault rupture, impacts during construction would be less than significant.

Operation

Portions of the program area, including levees, berms and flood walls, trails, and restored ecosystem area would be located within the Newport-Inglewood Fault Zone and could be exposed to fault rupture. These proposed program components do not include aboveground structures that could be damaged by fault rupture during operation; the proposed visitor center on the State Lands Parcel site and not within the fault zone (see Figure 3.5-2). Damage to levees, berms and flood walls, trails, and the restored ecosystem area would consist only of earth movement, which would not expose people to risks because people would not be inside collapsing buildings or under bridges. The levees, berms and flood walls, and trails could be relatively easily restored and repaired, if damaged. Further, restored areas would not contain large amounts of people during operation. The trails would only be open to the public for specific daytime hours and in limited areas, thereby limiting the use and presence of persons on-site.

Finally, some pipelines for the Signal Hill Petroleum operations in the Central Area would be relocated from their present locations. As summarized above in Section 3.5.3, *Regulatory Framework, The California Pipeline Safety Act of 1981*, codified in California Government Code Sections 50001–51298.5, all oil pipelines are required to be designed to accommodate some movement in the event of an earthquake. In addition, all oil pipelines have safety shutoff systems that close pipeline sections in the event of a loss of pressure due to a leak or break, thus minimizing spillage. Note that Signal Hill Petroleum has also committed to updating their Spill Prevention and Response Plan. Therefore, based on compliance with existing regulations, the proposed uses, limited hours of use, and anticipated number of people visiting the site, exposure of people to fault rupture impacts on the program area during operation would be unlikely, and impacts would be less than significant.

The operation of the oil fields includes the extraction of oil and associated produced water. However, the proposed program would not exacerbate the potential for earthquakes because the proposed program does not include changes to the existing injection and extraction of oil and produced water. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GEO-1b: The proposed program would result in a significant impact if the proposed program would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

The region will likely experience a large regional earthquake within the operational life of the proposed program. There is a potential for strong to very strong intensity ground shaking at the program area that would be associated with such an earthquake. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the magnitude, the duration of shaking, and the nature of the geologic materials on which the proposed program components would be constructed. Intense ground shaking and high ground accelerations would affect the entire program area. The primary and secondary effects of ground shaking could damage levees, berms and flood walls, trails, the visitor center, and modified infrastructure and utilities; and place people and/or the environment at risk.

Construction

Construction activities would be temporary, and thus, are not anticipated to exacerbate the exposure of people or structures to substantial adverse effects involving seismic shaking. Therefore, relative to seismic shaking, impacts during construction would be less than significant.

Operation

Portions of the program area, including levees, berms and flood walls, trails, and restored ecosystem area would be located within or close to the Newport-Inglewood Fault Zone and could be exposed to seismic shaking. With the exception of the visitor center, the program components do not include aboveground structures that could be damaged by seismic shaking during operation. Damage to levees, berms and flood walls, trails, and the restored ecosystem area would consist only of earth movement, which would not expose people to risks because people would not be inside collapsing buildings or under bridges. The levees, berms and flood walls, trails could be easily restored and repaired. Further, restored areas would not contain large amounts of people during operation. The trail would only be open to the public for specific daytime hours and in limited areas, thereby limiting the use and presence of persons on-site. Therefore, based on the proposed uses, limited hours of use and anticipated number of people visiting the site, exposure of people to seismic shaking impacts on the program area during operation would be unlikely, and impacts would be less than significant.

With regard to the visitor center on the State Lands Parcel site in the South Area, the structure would be required to comply with the CBC since the structure would be occupied by people. The structural elements of the visitor center would be required to undergo appropriate project level design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements of the CBC and local ordinances, and ensuring that all buildings and structures are constructed in compliance with the law is the responsibility of the project engineers and building officials. As described in Section 3.5.3, *Regulatory Framework*, the CBC describes required standards for the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California. The standards include earthquake design requirements that determine the seismic design category and then describe the structural design requirements. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California, which, in the case of the visitor center, would be the City of Seal Beach. The California Professional Engineers Act (Building and Professions Code Sections 6700–6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. The local building officials are typically with the local jurisdiction (i.e., the City of Seal Beach) and are responsible for inspections and ensuring CBC and local code compliance prior to approval of the building permit. As discussed above, the geotechnical investigations would include recommendations to address geotechnical issues, including seismic shaking. With compliance with the regulatory requirements and the implementation of geotechnical design recommendations as required by the CBC, impacts relative to seismic shaking would be less than significant.

As discussed in Section 2.7, *Program Characteristics*, of Chapter 2, *Project Description*, of this PEIR, oil wells and associated pipelines would be plugged or phased out over time. As described in Section 3.5.3, *Regulatory Framework*, the construction, operation, and removal or plugging of oil and natural gas wells, storage facilities, and pipelines would be under the permitting, design

specifications, and inspection jurisdiction of CalGEM, as summarized in the CalGEM Publication No. PRC10, *California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*. Similar to the CBC, the registered professionals designing, constructing, operating, and plugging wells, pipelines, and associated infrastructure are required to comply with CalGEM regulations. The removal of wells and associated infrastructure would reduce the exposure of wells and infrastructure to seismic shaking. With compliance with the regulatory requirements and the removal of wells and infrastructure, impacts relative to seismic shaking would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GEO-1c: The proposed program would result in a significant impact if the proposed program would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, lateral spreading, and landslides.

As previously discussed, the region will likely experience a large regional earthquake within the operational life of the proposed program. There is a potential for strong to very strong intensity ground shaking at the program area that would be associated with such an earthquake. Seismic shaking can result in seismic-induced ground failures, such as liquefaction, lateral spreading, and landslides. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the magnitude, the duration of shaking, and the nature of the geologic materials on which the proposed program components would be constructed. Intense ground shaking and high ground accelerations would affect the entire program area. The primary and secondary effects of ground shaking could damage levees, berms and flood walls, trails, the visitor center, and modified infrastructure and utilities; and place people and/or the environment at risk.

As discussed above in Section 3.5.2, *Environmental Setting*, the program area has a relatively flat topography. Based on a review of aerial photographs and available geotechnical reports and topographic conditions, no landslides are present on or at a location that could impact the program area. The proposed program facilities would not alter the topography so substantially as to introduce the potential for landslides to occur on-site. Therefore, construction and operational impacts pertaining to landslides would be less than significant and landslides are not discussed further.

Construction

Construction activities would be temporary, and thus, are not anticipated to exacerbate the exposure of people or structures to substantial adverse effects involving seismic-induced ground

failures, such as liquefaction and lateral spreading. Therefore, relative to liquefaction and lateral spreading, impacts during construction would be less than significant.

Operation

Portions of the program area, including levees, berms and flood walls, trails, and restored ecosystem area would be located within or close to the Newport-Inglewood Fault Zone and could be exposed to seismic shaking that may result in seismic-induced ground failures, such as liquefaction and lateral spreading. With the exception of the visitor center, the proposed program components do not include aboveground structures that could be damaged by liquefaction and lateral spreading during operation. Damage to levees, berms and flood walls, trails, and the restored ecosystem area would consist only of earth movement, which would not expose people to risks because people would not be inside collapsing buildings or under bridges. The levees, berms and flood walls, trails could be easily restored and repaired. Further, restored areas would not contain large amounts of people during operation. The trail would only be open to the public for specific daytime hours and in limited areas, thereby limiting the use and presence of persons on-site. Therefore, based on the proposed uses, limited hours of use, and anticipated number of people visiting the site, exposure of people to liquefaction and lateral spreading impacts on the program area during operation would be unlikely, and impacts would be less than significant.

With regard to the visitor center on the State Lands Parcel site in the South Area, the structure would be required to comply with the CBC since the structure would be occupied by people. As discussed in Section 3.5.3, *Regulatory Framework*, and in Impact GEO-1b, the structural elements of the visitor center would be required to undergo appropriate design-level geotechnical evaluations prior to final design, permitting, and construction. Implementing the regulatory requirements of the CBC and local ordinances, and ensuring that all buildings and structures are constructed in compliance with the law is the responsibility of the project engineers and building officials and the geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care. As discussed above, the geotechnical investigations would include recommendations to address geotechnical issues, including liquefaction and lateral spreading. With compliance with the regulatory requirements and the implementation of geotechnical design recommendations as required by the CBC, impacts relative to liquefaction and lateral spreading would be less than significant.

As discussed in Section 2.7, *Program Characteristics*, in Chapter 2, *Project Description*, of this PEIR, and above in Impact GEO-1b, oil wells and associated pipelines would be plugged or phased out over time throughout the program area. As described in Section 3.5.3, *Regulatory Framework*, the construction, operation, and removal or plugging of oil and natural gas wells, storage facilities, and pipelines would be under the permitting, design specifications, and inspection jurisdiction of CalGEM, as summarized in the CalGEM Publication No. PRC10, *California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*. Similar to the CBC, the registered professionals designing, constructing, operating, and plugging wells, pipelines, and associated infrastructure are required to comply with CalGEM regulations. The removal of wells and associated infrastructure would reduce the exposure of wells and infrastructure to liquefaction and lateral spreading. With compliance with the regulatory

requirements and the removal of wells and infrastructure, impacts relative to liquefaction and lateral spreading would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GEO-2: The proposed program would result in a significant impact if the proposed program would result in substantial soil erosion or the loss of topsoil.

Program construction would involve localized ground disturbance activities (e.g., grading, excavation, construction of berms, flood walls, and the visitor center, and the raising, removal or plugging of wells and pipelines). The ground disturbing activities could result in erosion or the loss of topsoil.

As discussed in Chapter 2, *Project Description*, of this PEIR, the program goals and objectives are the restoration of wetland habitat. Consequently, unless certain soils are contaminated from the previous oil operations such that removal and disposal is required, all topsoil would be kept on-site and reused to restore the wetlands habitat. Therefore, there would be no loss of topsoil, resulting in no impact, and the loss of topsoil is not discussed further.

Construction

Because the overall footprint of construction activities would exceed 1 acre, the proposed program would be required to comply with the *NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit), the *Seal Beach Grading and Stormwater Pollution Prevention Implementation Manual*, and the *Long Beach Storm Water Management Program Manual*, all of which are described above in Section 3.5.3, *Regulatory Framework*. These state and local requirements were developed to ensure that stormwater is managed and erosion is controlled on construction sites. The Construction General Permit requires preparation and implementation of a SWPPP, which requires applications of BMPs to control run-on and runoff from construction work sites. The BMPs would include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during construction. The Seal Beach and Long Beach storm water programs, similar to the SWPPP, require implementation of temporary construction and permanent post-construction erosion control measures for construction sites of all sizes. The applicable erosion control ordinances restrict grading activities during winter months and require preparation of an erosion control plan prior to issuance of building permits. With compliance with the regulations discussed above,

impacts associated with soil erosion during construction would be less than significant for all proposed program components.

Although much of the program area is within disturbed areas, the construction activities would be purposely designed to retain and restore what topsoil there is and reuse that soil to restore the ecosystem. As discussed in Chapter 2, *Project Description*, of this PEIR, soil would be rearranged for habitat restoration. No topsoil would be exported off-site unless the topsoil has been contaminated with petroleum hydrocarbons above action levels requiring off-site disposal (see Section 3.7, *Hazards and Hazardous Materials*, of this PEIR, for discussion of contaminated materials). Therefore, there would be no impacts related to the loss of topsoil.

Operation

The proposed program would restore the wetland habitat and tidal connection, which would increase the amount of water moving within the program area with the tides, and could in turn cause erosion. In a healthy and properly functioning marsh system, tidal channels deposit or scour in response to the size of the tidal prism that the channels convey. When the tidal prism (the volume of water moving during a tidal cycle) increases, tidal channels scour to accommodate the additional flow. Since the proposed program would increase the tidal prism by allowing the tides to flood the marshplain to the south of the slough, the slough is expected to experience some erosion; however, hydraulic modeling showed that the increased velocities in the slough due to the proposed program would not be high enough to cause wide-spread erosion, nor would they require erosion and/or bank protection. After some initial channel adjustment, erosion during typical tides is expected to be minimal. In a stable estuary, mature marshes remain in a dynamic equilibrium between erosional and depositional processes. The marsh vegetation and its root structures help hold sediments in place, so the marsh would be expected to capture sediment running onto the site, reducing erosion. Finally, as summarized in Section 2.7.1, *Overview of Comment Program Features, Flood Risk and Stormwater Management*, the existing Los Angeles County Drainage Area project structures and facilities are maintained in such a manner and operated at such times and for such periods as necessary to obtain the maximum flood protection benefits (33 C.F.R. §208.10). The implementation of the proposed program would require revisions to the U.S. Army Corps of Engineers' OMRR&R Manual to reflect changes made to the existing Los Angeles County Drainage Area project structures and facilities within the program area. Section 3.8, *Hydrology and Water Quality*, provides a detailed analyses of water movement within the program area, which concludes that impacts from erosion during operations would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GEO-3: The proposed program would result in a significant impact if the proposed program would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed program, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

As discussed above in Section 3.5.3, *Environmental Setting*, and Impact GEO-1c, the program area is relatively flat and the wetlands habitat restoration efforts would not result in slope susceptible to landslides. Impacts from landslides during construction and operations would be less than significant.

Although liquefaction and lateral spreading can occur without a seismic event, these ground failures are primarily caused by seismic shaking. As discussed above in Impact GEO-1c, impacts from liquefaction and lateral spreading during construction and operations would be less than significant.

As discussed in Section 3.5.2, *Environmental Setting*, subsidence and collapse can be caused by the withdrawal of oil and/or groundwater. The produced water from oil extraction is injected back into production zones to prevent subsidence. The proposed program does not include changes to the existing oil methodology. In addition, as oil production is phased out, oil extraction would be reduced and eventually end, eliminating the need to inject the produced water back into the production zones. The proposed program does not include the extraction of shallow groundwater and collapse would not occur. Relative to impacts from subsidence and collapse during construction and operations, there would be no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

Impact GEO-4: The proposed program would result in a significant impact if the proposed program would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

The CBC, based on the IBC and the now-defunct UBC, no longer includes a Table 18-1-B. Instead, CBC Section 1803.5.3 describes the criteria for analyzing expansive soils. As discussed in Section 3.5.2, *Environmental Setting*, the geotechnical investigation at the Pumpkin Patch site concluded that the fill and soil materials have a low to moderate expansion potential (KCG 2016a). It is assumed this condition may also apply to other areas within the program area.

Expansion and contraction of expansive soils in response to changes in moisture content can cause differential and cyclical movements that can result in damage and/or distress to structures and equipment.

Construction

There would be no construction-related impacts relative to expansive soils. Until construction has been completed, there would be no structures that expansive soils could damage, and there would be no impact.

Operation

Portions of the program area, including levees, berms and flood walls, trails, and restored ecosystem area would be located on fill and/or soil that could be expansive. With the exception of the visitor center, the proposed program components do not include aboveground structures that could be damaged by expansive soils during operation. Damage to levees, berms and flood walls, trails, and the restored ecosystem area would consist only of earth movement, which would not expose people to risks because people would not be inside collapsing buildings or under bridges. The levees, berms and flood walls, trails could be easily restored and repaired. Further, restored areas would not contain large amounts of people during operation. The trail would only be open to the public for specific daytime hours and in limited areas, thereby limiting the use and presence of persons on-site. Finally, the areas around the existing Signal Hill Petroleum well heads that would be raised would use imported engineered fill that would not be subject to expansion. Therefore, based on the proposed uses, limited hours of use, and anticipated number of people visiting the site, exposure of people to expansive soil impacts on the program area during operation would be unlikely, and impacts would be less than significant.

With regard to the visitor center on the State Lands Parcel site in the South Area, the structure would be required to comply with the CBC since the structure would be occupied by people. As discussed in Section 3.5.3, *Regulatory Framework*, and in Impact GEO-1b, the structural elements of the visitor center would be required to undergo appropriate design-level geotechnical evaluations prior to final design, permitting, and construction. Implementing the regulatory requirements of the CBC and local ordinances, and ensuring that all buildings and structures are constructed in compliance with the law is the responsibility of the project engineers and building officials and the geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care. As discussed above, the geotechnical investigations would include recommendations to address geotechnical issues, including expansive soils. With compliance with the regulatory requirements and the implementation of geotechnical design recommendations as required by the CBC, impacts relative to expansive soils would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GEO-5: The proposed program would result in a significant impact if the proposed program would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

The proposed program does not include the construction or operation of septic tanks or alternative waste water disposal systems, resulting in no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

Impact GEO-6: The proposed program would result in a significant impact if the proposed program would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Construction

Geologic mapping indicates that the surface of the program area is composed almost entirely of artificial fill, with small areas of old shallow marine deposits (Qom) present within the southern-most program area. The artificial fill has been placed over native sediments that likely consist of alluvial, estuarine, and marine deposits ranging in age from relatively recent times to the middle Pleistocene (up to 780,000 years old).

As discussed above in the Paleontological Resources subsection of Section 3.5.2, *Environmental Setting*, artificial fill and estuarine deposits have no or low paleontological sensitivity, respectively. However, they overlie young alluvium and old shallow marine deposits at an undetermined depth, which have low-to-high or high paleontological sensitivity, respectively. Therefore, the program area is considered to have low-to-high paleontological potential, increasing with depth. While the exact depth of the artificial fill overlying the majority of the program area is unknown and may vary across the program area, 5 feet bgs is used as a conservative estimate of the transition from low to high potential since there have been fossil discoveries in the region from a similar depth.

Ground disturbing activities related to development of the proposed program have the potential to encounter significant paleontological resources. Disturbance of such resources could constitute a significant impact on the environment. Mitigation Measures GEO-1 through GEO-7 would reduce impacts to paleontological resources by requiring retention of qualified professionals; a project-level review to assess the potential for each project to encounter paleontological resources; training for construction personnel on how to identify paleontological resources and the procedures to follow should they be encountered; paleontological resources monitoring in sensitive sediments; and treatment, curation, and reporting of significant discoveries. With implementation these measures, impacts to paleontological resources would be less than significant.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor centers and associated parking lots. Any ground disturbance associated with these activities would occur within soils that have already been subject to ground disturbance, and they are unlikely to disturb paleontological. Impacts to paleontological resources from operation of the proposed program would be less than significant.

Mitigation Measure

Mitigation Measure GEO-1: Retention of a Qualified Professional Paleontologist. Prior to the start of construction of any near-term, mid-term, or long-term project, LCWA shall retain a Qualified Professional Paleontologist as defined by the Society of Vertebrate Paleontology to carry out all mitigation related to paleontological resources including: project-level review (**GEO-2**); paleontological resources sensitivity training (**GEO-3**); oversight of paleontological resources monitoring (**GEO-4**); and recovery, treatment, analysis, curation, and reporting (**GEO-5**, **GEO-6**, and **GEO-7**).

Mitigation Measure GEO-2: Project-Level Paleontological Resources Review and Monitoring Recommendations. Prior to LCWA approval of any near-term, mid-term, and long-term project, the Qualified Professional Paleontologist shall review the *Los Cerritos Wetlands Program Paleontological Resources Assessment* (ESA, 2019), grading plans, and any available geotechnical reports/data to determine the potential for ground disturbance to occur within older alluvium and old shallow marine deposits. If available data is sufficient to accurately determine the depth of older alluvium and old shallow marine deposits within a project site, monitoring shall be required beginning at or just above that depth. If available data is insufficient to determine the depth of older alluvium and old shallow marine deposits, monitoring shall be required beginning at 5 feet below surface (consistent with the accepted depth at which high sensitivity sediments could occur based on regional evidence). The results of the reviews shall be documented in technical memoranda to be submitted to LCWA prior to the start of ground disturbance, along with recommendations specifying the locations, depths, duration, and timing of any required monitoring. The technical memoranda shall include map figures that outline where monitoring is required and at what depths, and shall stipulate whether screen washing is necessary to recover small specimens. Any required screen washing shall follow SVP Guidelines.

Mitigation Measure GEO-3: Paleontological Resources Sensitivity Training. Prior to the start of ground disturbance for any near-term, mid-term, or long-term project, the Qualified Professional Paleontologist shall conduct paleontological resources sensitivity training. The training shall focus on the recognition of the types of paleontological resources that could be encountered within the program area, the procedures to be followed if they are found, confidentiality of discoveries, and safety precautions to be taken when working with paleontological monitors. LCWA shall ensure that construction personnel are made available for and attend the training, and retain documentation demonstrating attendance. The training should be repeated as necessary for incoming construction personnel.

Mitigation Measure GEO-4: Paleontological Resources Monitoring. A qualified paleontological monitor, as defined by the Society of Vertebrate Paleontology, shall

monitor all ground-disturbing activities occurring in the older alluvium and old shallow marine deposits for each near term, mid-term, or long-term project. Monitoring shall be implemented consistent with the locations, depths, duration, and timing recommendations specified in the technical memorandum for the project. Monitors shall work under the direction of the Qualified Professional Paleontologist. The number of monitors required to be on-site during ground-disturbing activities shall be determined by the Qualified Professional Paleontologist and shall be based on the construction scenario – specifically the number of pieces of equipment operating at the same time, the distance between these pieces of equipment, and the pace at which equipment is working – with the goal of monitors being able to effectively observe sediments as they are exposed. Monitors shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens, and to request assistance from construction equipment operators to recover samples for screen washing as necessary. Monitors shall prepare daily logs detailing the types of activities and soils observed, and any discoveries. The Qualified Professional Paleontologist, in consultation with LCWA, shall have the ability to modify (i.e., increase, reduce, or discontinue) monitoring requirements based on observations of soil types and frequency of discoveries. Requests for modifications shall be submitted in writing to LCWA for approval prior to implementation.

Mitigation Measure GEO-5: Paleontological Discoveries. If any potential fossils are discovered by paleontological resources monitors or construction personnel, all work shall cease at that location (within 100 feet) until the Qualified Professional Paleontologist has assessed the discovery and made recommendations as to the appropriate treatment. The paleontological resources monitor (if one is present) or construction personnel (if a monitor is not present) shall flag the fossiliferous area for avoidance until the Qualified Professional Paleontologist can evaluate the discovery and develop plans for avoidance or removal/salvage of the specimen(s), if deemed significant. Significant discoveries shall be salvaged following SVP Guidelines.

Mitigation Measure GEO-6: Preparation, Identification, Cataloging, and Curation Requirements. All significant fossil discoveries shall be prepared to the point of identification to the lowest taxonomic level possible, cataloged, and curated into a certified repository with retrievable storage (such as a museum or university). All GPS data, field notes, photographs, locality forms, stratigraphic sections, and other data associated with the recovery of the specimens shall be deposited with the institution receiving the specimens. The Qualified Professional Paleontologist shall be responsible for obtaining a signed curation agreement from a certified repository in southern California prior to the start of the program. Given the length of the program, multiple agreements may be necessary due to changing capacities of repositories.

Mitigation Measure GEO-7: Reporting Requirements. The Qualified Professional Paleontologist shall prepare weekly status reports detailing activities and locations observed (with maps) and summarizing any discoveries to be submitted to LCWA via email for each week in which monitoring activities occur. Monthly progress reports summarizing monitoring efforts shall be prepared and submitted to LCWA for the duration of monitored ground disturbance. Reports detailing the results of monitoring for any near-term, mid-term, or long-term project and treatment of significant discoveries shall be submitted to LCWA within 120 days of completion of treatment, or within 30 days of completion of monitoring if no significant discoveries occurred. If significant fossils are recovered, the Qualified Professional Paleontologist shall file the final report with the Natural History Museum of Los Angeles County and the certified repository.

Significance after Mitigation

Less than Significant with Mitigation

3.5.6 Cumulative Impacts

This section presents an analysis of the cumulative effects of the proposed program in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively considerable impacts.

As previously discussed, the proposed program would have no impact with respect to fault rupture, landslides, subsidence or collapse, loss of topsoil, septic tanks, or alternative wastewater disposal systems. Accordingly, the proposed program could not contribute to cumulative impacts related to these topics and are not discussed further.

The geographic area affected by the proposed program and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. The geographic scope of analysis for cumulative geologic impacts encompasses and is limited to the program area and its immediately adjacent area. This is because impacts relative to geologic hazards are generally site-specific. For example, the effect of erosion would tend to be limited to the localized area of a project and could only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped.

The timeframe during which proposed program could contribute to cumulative geologic hazards includes the construction and operations phases. For the proposed program, the operations phase is permanent. However, similar to the geographic limitations discussed above, it should be noted that impacts relative to geologic hazards are generally time-specific. Geologic hazards could only be cumulative if two or more geologic hazards occurred at the same time, as well as overlapping at the same location.

3.5.6.1 Construction

Significant cumulative impacts related to geology and soils could occur if the incremental impacts of the proposed program combined with the incremental impacts of one or more of the cumulative projects identified in Table 3-1, *List of Cumulative Projects*, to substantially increase risk to people or the environment would be exposed to hazardous materials. Note that while three cumulative projects are within proximity of the proposed program (Cumulative Projects 22 and 23 listed on Table 3-1), only Project 24, Los Cerritos Wetlands Oil Consolidation and Restoration Project, listed on Table 3-1 would geographically overlap the proposed program. Cumulative Project No. 24 is a marsh restoration project with the same proposed activities as the Los Cerritos Wetlands Restoration Plan: operate existing oil wells until no longer productive, remove unproductive wells, and restore marshland areas.

As described in Impact GEO-2, construction activities have the potential to cause soil erosion. If the cumulative projects were constructed at the same time, the erosion effects could be

cumulatively significant if appropriate measures were not taken; however, the state Construction General Permit and the Long Beach Storm Water Management Program would require each cumulative project to prepare and implement a SWPPP. The SWPPPs would describe BMPs to control runoff and prevent erosion for each project. Through compliance with the Construction General Permit, the potential for erosion impacts would be reduced to less-than-significant levels. The Construction General Permit has been developed to address cumulative conditions arising from construction throughout the state, and is intended to maintain cumulative effects of projects subject to this requirement below levels that would be considered significant. For example, two adjacent construction sites would each be required to implement BMPs to reduce and control the release of sediment and/or other pollutants in any runoff leaving their respective sites, including from erosion. The runoff water from both sites would be required to achieve the same action levels, measured as a maximum amount of sediment or pollutant allowed per unit volume of runoff water. Thus, even if the runoff waters were to combine after leaving the sites, the sediments and/or pollutants in the combined runoff would still be at concentrations below action levels and would not be cumulatively considerable (less than significant). Similarly, the impacts of the proposed program combined with other cumulative projects within the region would not cause a significant cumulative impact related to soil erosion and the proposed action's contribution to cumulative impacts on soil erosion would not be cumulatively considerable (less than significant).

Until the construction of structures has been completed, there would be no impacts from seismic events (e.g., seismic shaking, seismic-induced ground failures such as liquefaction or lateral spreading) or non-seismically induced ground failures (e.g., expansive soil) due largely to the relatively short period that construction would take place and the likelihood of a seismic event occurring at that time. Therefore, the cumulative impacts during construction would not be cumulatively considerable (less than significant).

As described in Impact GEO-6, construction activities have the potential to impact paleontological resources. Cumulative impacts to paleontological resources could occur if one or more of the cumulative projects identified in Table 3-1 in conjunction with the proposed program, would have impacts on paleontological resources that, when considered together, would be significant.

Potential impacts to paleontological resources would be mitigated through the implementation of Mitigation Measures GEO-1 through GEO-7, which would reduce the impact by requiring retention of qualified professionals; a project-level review to assess the potential for each project to encounter paleontological resources; training for construction personnel on how to identify paleontological resources and the procedures to follow should they be encountered; paleontological resources monitoring in sensitive sediments; and treatment, curation, and reporting of significant discoveries. These measures would reduce the impact to a level of less than significant. The activities for Project 24 would also be required to implement similar measures to address the potential for paleontological resources, if any. As such, the proposed program's contribution to impacts on paleontological resources is less than cumulatively considerable.

Mitigation Measure

Mitigation Measures GEO-1 through GEO-7.

Significance after Mitigation

Less than Significant with Mitigation

3.5.6.2 Operation

Impacts from seismic events (e.g., seismic shaking, seismically induced ground failures such as liquefaction or lateral spreading) or non-seismically induced ground failures (e.g., expansive soil) tend to be confined to each given site due to varying conditions and distance to epicenter. In addition, each cumulative project would also be required to comply with the requirements of the CBC and local building codes, which would require geotechnical investigations to identify potential geotechnical issues and provide recommendations to reduce or eliminate the risks. Each cumulative project would be required to conduct geotechnical investigations and develop recommendations to address geotechnical hazards. With compliance with applicable regulations, the cumulative impacts would be reduced and would not be cumulatively considerable (less than significant).

Upon completion of the proposed program and any nearby cumulative projects, each project would be required to comply with local MS4 Permits, which contain requirements to control surface water runoff and erosion. Similar to the discussion above in Impact GEO-2 of how SWPPPs would control runoff and prevent erosion for cumulative construction impacts, because each cumulative project would be required to comply with the same regulations and to the same action levels, the impacts would not be cumulatively considerable (less than significant with mitigation).

No impacts to paleontological resources are anticipated during project operations. Therefore, cumulative impacts during operations would not be cumulatively considerable.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

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SECTION 3.6
Greenhouse Gas Emissions and Energy

3.6.1 Introduction

This section evaluates the potential GHG and energy impacts associated with construction activities, mobile sources, and other aspects of the proposed program's construction and operations. The objectives of this analysis are to:

- Evaluate the construction and operational GHG emissions associated with program level restoration process and the potential for GHG impacts based on applicable standards and thresholds;
- Identify GHG benefits from improving habitat areas and restoring wetlands;
- Provide, if needed, GHG mitigation measures as required to meet applicable GHG standards and thresholds; and
- Identify potential energy impacts with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

This section relies on the analysis conducted in the Greenhouse Gas Emissions Technical Report, provided in Appendix F, and is consistent with Section 15126.2(b) of the 2019 CEQA Guidelines to evaluate a project's energy use. Detailed energy calculations can be found in Appendix G. All information sources used are included as citations within the text; sources are listed in Section 3.6.7, *References*.

3.6.2 Environmental Setting

3.6.2.1 Global Climate Change and Greenhouse Gases

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however, current data increasingly indicate that the current global conditions differ from past climate changes in rate and magnitude. Global climate change attributable to anthropogenic (human) GHG emissions is currently one of the most important and widely debated scientific, economic and political issues in the United States and the world. The extent to which increased concentrations of GHGs have caused or will cause climate change and the appropriate actions to limit and/or respond to climate change are the subject of significant and rapidly evolving regulatory efforts at the federal and state levels of government.

GHGs are compounds in the Earth's atmosphere which play a critical role in determining temperature near the Earth's surface. More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere, but retain some of the low frequency infrared energy which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. Not all GHGs possess the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the units of equivalent mass of carbon dioxide (CO_2e). Mass emissions are calculated by converting pollutant specific emissions to CO_2e emissions by applying the proper global warming potential (GWP) value.[1] These GWP ratios are provided by the Intergovernmental Panel on Climate Change (IPCC) in its Fourth Assessment Report (AR4) (IPCC, 2017). By applying the GWP ratios, program-related CO_2e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline. The CO_2e values are calculated for construction years as well as existing and program build-out conditions in order to generate a net change in GHG emissions for construction and operation. Compounds that are regulated by the State of California as GHGs are discussed below.

- **Carbon Dioxide (CO_2):** CO_2 is the most abundant anthropogenic GHG in the atmosphere and is primarily generated from fossil fuel combustion from stationary and mobile sources. CO_2 is the reference gas (GWP of 1) for determining the GWPs of other GHGs.
- **Methane (CH_4):** CH_4 is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, anaerobic decomposition of organic matter in landfills, manure management, and leaks in natural gas pipelines. The GWP of CH_4 is 21 in the IPCC SAR and 25 in the IPCC AR4.
- **Nitrous Oxide (N_2O):** N_2O produced by human-related sources including agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of N_2O is 310 in the IPCC SAR and 298 in the IPCC AR4.
- **Hydrofluorocarbons (HFCs):** HFCs are fluorinated compounds consisting of hydrogen, carbon, and fluorine. They are typically used as refrigerants in both stationary refrigeration and mobile air conditioning systems. The GWPs of HFCs range from 140 for HFC-152a to 11,700 for HFC-23 in the IPCC SAR and 124 for HFC-152a to 14,800 for HFC-23 in the IPCC AR4.
- **Perfluorocarbons (PFCs):** PFCs are fluorinated compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. The GWPs of PFCs range from 6,500 to 9,200 in the IPCC SAR and 7,390 to 17,700 in the IPCC AR4.
- **Sulfur Hexafluoride (SF_6):** SF_6 is a fluorinated compound consisting of sulfur and fluoride. It is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF_6 has a GWP of 23,900 in the IPCC SAR and 22,800 in the IPCC AR4.

[1] GWPs and associated CO_2e values were developed by the Intergovernmental Panel on Climate Change (IPCC), and published in its Second Assessment Report (SAR) in 1996. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's SAR. The IPCC updated the GWP values based on the latest science in its Fourth Assessment Report (AR4). The California Air Resources Board (CARB) reports GHG emission inventories for California using the GWP values from the IPCC AR4. Therefore, the analysis below reflected the GWP values from IPCC AR4. Although the IPCC has released AR5 with updated GWPs, CARB reports the statewide GHG inventory using the AR4 GWPs, which is consistent with international reporting standards.

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model it, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the IPCC's Fifth Assessment Report, Summary for Policy Makers states that, "it is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together" (IPCC, 2014, p. 5). A report from the National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity.

According to the California Air Resources Board (CARB), the potential impacts in California due to global climate change may include: loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, more drought years, increased erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems, and increased pest infestation.

3.6.2.2 Adaptation

Adaptation refers to proposed program's resiliency to potential climate change impacts. Global warming is already having a profound impact on water resources. Climate change already altered the weather patterns and water supply in California leading to increased water shortages (i.e., a dwindling snowpack, bigger flood flows, rising sea levels, longer and harsher droughts). Water supplies are also at risk from rising sea levels. Risks may include degradation of California's estuaries, wetlands, and groundwater aquifers that would threaten the quality and reliability of the major California fresh water supply.

Climate change could potentially affect: the amount of snowfall, rainfall and snow pack, the intensity and frequency of storms, flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events), sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Adaptation includes the responses to the changing climate and policies to minimize the predicted impacts (e.g., building better coastal defenses to sea level rise). Adaptation strategies are not included in this report directly, but the project design did consider sea level rise. It should be noted that adaptation is not mitigation. Mitigation includes intervention or policies to reduce GHG emissions or to enhance the sinks of GHGs.

3.6.2.3 Greenhouse Gas Emission Inventories

Global

To put perspective on the emissions generated by a program and to better understand the sources of GHGs, it is important to look at global emission inventories. The Global Carbon Project has been tracking greenhouse gases and the global carbon cycle since its establishment in 2001. The Global Carbon Project estimate for CO_2 emissions for the world and for the top ten CO_2 producing countries is presented in **Table 3.6-1**, *Top Ten CO_2-Producing Nations in 2017 (Million Metric Tons [MMT] CO_2)*.

TABLE 3.6-1
TOP TEN CO_2-PRODUCING NATIONS IN 2017 (MILLION METRIC TONS [MMT] CO_2)

Country	Emissions	Percent of Global
1. China	9,839	27%
2. United States	5,270	15%
3. India	2,467	7%
4. Russian Federation	1,693	5%
5. Japan	1,205	3%
6. Germany	799	2%
7. Iran	672	2%
8. Saudi Arabia	635	2%
9. South Korea	616	2%
10. Canada	573	2%
Remaining Countries	*12,384*	*34%*
Total Global	**36,153**	**100%**

SOURCE: Global Carbon Atlas, http://www.globalcarbonatlas.org/en/CO2-emissions, accessed April 2019.

Global CO_2 emissions totaled about 36,153 $MMTCO_2$ in 2017. China released more than a quarter of the global CO_2 emissions. The United States was second and has historical significance for releasing GHG emissions, but it has been slowly decreasing its annual emissions since its peak in 2007 (Global Carbon Atlas, 2019). The data in Table 3.6-1 emphasize the major role that the United States and China play in climate change with the two countries accounting for 42% of the emissions. India has increased its emissions at an annual rate of 5 percent from 2004 to 2014 as the population grew and improved their living standards (Global Carbon Atlas, 2019).

State of California

CARB compiles GHG inventories for the State of California. Based on the 2017 GHG inventory data prepared by CARB in 2019, California emitted 429.1 million metric tons of CO_2e ($MMTCO_2e$) including emissions resulting from imported electrical power (CARB, 2019). Between 1990 and 2017, the population of California grew by approximately 9.7 million (from 29.8 to 39.5 million) (US Census Bureau, 2017. California Department of Finance, 2018). This represents an increase of approximately 33 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $2.75 trillion in 2017

representing an increase of approximately three times the 1990 gross state product) (California Department of Finance, 2019). Despite the population and economic growth, California's net GHG emissions were reduced to below 1990 levels in 2017 (California's 2016 GHG emissions were also below 1990 levels). According to CARB, the declining trend coupled with the state's GHG reduction programs (such as the Renewables Portfolio Standard, Low Carbon Fuel Standard, vehicle efficiency standards, and declining caps under the Cap and Trade Program) demonstrate that California has met the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32) (CARB, 2017). **Table 3.6-2**, *State of California Greenhouse Gas Emissions*, identifies and quantifies statewide anthropogenic GHG emissions and sinks (e.g., carbon sequestration due to forest growth) in 1990 and 2017. As shown in the table, the transportation sector is the largest contributor to statewide GHG emissions at approximately 40 percent in 2017.

TABLE 3.6-2
STATE OF CALIFORNIA GREENHOUSE GAS EMISSIONS

Category	Total 1990 Emissions using IPCC SAR ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2017 Emissions using IPCC AR4 ($MMTCO_2e$)	Percent of Total 2017 Emissions
Transportation	150.7	26%	169.9	40%
Electric Power	110.6	3%	62.4	15%
Commercial	14.4	7%	15.1	4%
Residential	29.7	24%	26.0	6%
Industrial	103.0	0%	89.4	21%
Recycling and Waste[a]	–	–	8.9	2%
High GWP/Non-Specified[b]	1.3	<1%	20.0	5%
Agriculture/Forestry	23.6	-2%	32.4	8%
Forestry Sinks	-6.7		—[c]	—
Net Total (IPCC SAR)	**426.6**	**100%**	**—**	**—**
Net Total (IPCC AR4)[d]	**431**	**100%**	**429.1**	**100%**

[a] Included in other categories for the 1990 emissions inventory.
[b] High GWP gases are not specifically called out in the 1990 emissions inventory.
[c] Revised methodology under development (not reported for 2017).
[d] CARB revised the State's 1990 level GHG emissions using GWPs from the IPCC AR4.
SOURCE: CARB, 2019.

These categories are broadly defined as (CARB, 2018):

- **Transportation** includes the combustion of fuels sold in-state that are used by on-road and off-road vehicles, aviation, rail, and water-borne vehicles, as well as a few other smaller sources.
- **Industrial** GHG emissions are produced from many industrial activities. Major contributors include oil and natural gas extraction, refineries, cement manufacturing, chemical manufacturing, and a portion of cogeneration emissions attributed to thermal energy output.
- **Electric generation** includes both emissions from in-state power generation (including the portion of cogeneration emissions attributed to electricity generation) and emissions from imported electricity.

- **Agriculture** includes enteric fermentation and manure management from livestock, crop production (fertilizer use, soil preparation and disturbance, and crop residue burning), and fuel combustion associated with agricultural activities (water pumping, cooling or heating buildings, and processing commodities).
- **Commercial and residential** uses generate GHG emissions primarily from the combustion of natural gas and other fuels for space and water heating, cooking, or steam generation.
- **Recycling and waste** includes primarily landfills and a small fraction from compost production facilities.
- **High (GWP)** emissions consist of releases of ozone depleting substance substitutes and electricity losses from the transmission and distribution system.

3.6.2.4 Electricity

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

Energy capacity, or electrical power, is generally measured in watts (W) while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts (MW), which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

Southern California Edison is the electricity provider for the program area. SCE provides electricity to approximately 15 million people, 180 incorporated cities, 15 counties, 5,000 large businesses, and 280,000 small businesses throughout its 50,000-square-mile service area (CEC, 2017b). SCE is required to commit to the use of renewable energy sources for compliance with the Renewables Portfolio Standard. SCE is required to meet the requirement to procure at least 33 percent of its energy portfolio from renewable sources by 2020 through the procurement of energy from eligible renewable resources. Senate Bill (SB) 350 (Chapter 547, Statues of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. Most recently, SCE provided approximately 32 percent of its 2017 electric supply from renewable power (CEC, 2017).

3.6.2.5 Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, but relies upon out-of-state imports for nearly 90 percent of its natural gas supply (CEC, 2019a). A majority of natural gas consumed in California is for electricity generation, along with the industrial, residential, and commercial sections (CEC, 2019a). Among energy

commodities consumed in California, natural gas accounts for one-third of them (CEC, 2019b). Natural gas is measured in terms of cubic feet (cf).

Natural gas is provided to the proposed program by the Southern California Gas Company (SoCalGas). SoCalGas is the principal distributor of natural gas in Southern California, serving residential, commercial, and industrial markets. SoCalGas serves approximately 21.6 million customers in more than 500 communities encompassing approximately 20,000 square miles throughout Central and Southern California, from the City of Visalia to the Mexican border (SoCalGas, 2018).

SoCalGas receives gas supplies from several sedimentary basins in the western United States and Canada, including supply basins located in New Mexico (San Juan Basin), West Texas (Permian Basin), the Rocky Mountains, and Western Canada as well as local California supplies (California Gas and Electric, 2018~~a~~). The traditional, southwestern United States sources of natural gas will continue to supply most of SoCalGas' natural gas demand. The Rocky Mountain supply is available but is used as an alternative supplementary supply source, and the use of Canadian sources provide only a small share of SoCalGas supplies due to the high cost of transport (California Gas and Electric Utilities, 2016b). Gas supply available to SoCalGas from California sources averaged 84 million standard cubic feet (scf) per day in 2017 (the most recent year for which data are available) (California Gas and Electric Utilities, 2018~~a~~). Total annual natural gas sale to customers in 2017 was approximately 913,960 million scf (California Gas and Electric Utilities, 2018~~b~~).[2]

3.6.2.6 Transportation Energy

According to the California Energy Commission (CEC), transportation accounts for nearly 38.5 percent of California's total energy consumption in 2015 (California Energy Commission, 2017). In 2017, California consumed 15.5 billion gallons of gasoline and 3.8 billion gallons of diesel fuel (California Energy Commission, 2018). Petroleum-based fuels currently account for more than 90 percent of California's transportation fuel use (California Energy Commission, 2016). However, the state is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, gasoline consumption in California has declined. The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels (California Energy Commission, 2015). According to fuel sales data from the CEC, fuel consumption in Los Angeles County was approximately 3.66 billion gallons of gasoline and 0.301 billion gallons of diesel fuel in 2017 (California Energy Commission, 2018). Fuel consumption in Orange County was approximately 1.38 billion gallons of gasoline and 0.061 billion gallons of diesel fuel in 2017 (California Energy Commission, 2018).

[2] Daily natural gas usage in 2017 was 2,504 million scf, annual value derived by multiplying daily values by 365 days.

3.6.3 Regulatory Framework

3.6.3.1 Federal

Voluntary Programs

The United States Environmental Protection Agency (USEPA) is responsible for implementing federal policy to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

Light Duty Vehicle GHG and Fuel Efficiency Standards

In August 2012, the USEPA and USDOT adopted standards for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2020, vehicles are required to achieve a combined standard of 41.7 mpg and 213 grams of CO_2 per mile. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (USEPA, 2012). In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022-2025. In August 2018, the USEPA and NHTSA proposed the Safer Affordable Fuel-Efficient Vehicles Rule that would, if adopted, maintain the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. The proposal, if adopted, would also exclude CO_2-equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020 (NHTSA and USEPA, 2018).

Medium- and Heavy-Duty GHG Standards

GHG emissions and fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by the USEPA and the National Highway Traffic Safety Administration (NHTSA). For vocational vehicles, which consist of a variety of work vehicles including dump trucks, the Phase 1 Heavy-Duty Vehicle Greenhouse Gas Regulation started with model year 2014 and the standard requires up to a 10 percent reduction in CO_2 emissions by model year 2017 over the 2010 baseline. The Phase 2 standards start in model year 2021 and require the phase-in of a 12 to 24 percent reduction in CO_2 emission reduction from vocational vehicles by model year 2027 over the 2017 baseline. The USEPA states that the Phase 2 standards reduce oil consumption by up to two billion barrels (84 billion gallons) over the lifetime of the vehicles sold under the program (USEPA 2018).

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.[3]

3.6.3.2 State

Executive Order S-3-05, Executive Order B-30-15, and Executive Order B-55-18

In June, 2005, through Executive Order S-3-05, the following GHG emission reduction targets were established:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

In April, 2015, Governor Brown issued Executive Order B-30-15 that:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

[3] A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

In September 2018, Governor Brown issued Executive Order B-55-18, which establishes a statewide goal of achieving carbon neutrality as soon as possible and no later than 2045.

California Global Warming Solutions Act of 2006 (Health and Safety Code § 38500 et seq.)

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. In general, CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

AB 32 takes into account the relative contribution of each source or source category to protect adverse impacts on small businesses and others by requiring CARB to recommend a *de minimis* (minimal importance) threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 and AB 197 amend HSC Division 25.5, establish a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure that the benefits of state climate policies reach into disadvantaged communities.

The Climate Change Scoping Plan was first approved by CARB in 2008. The First Update to the Climate Change Scoping Plan was approved by the Board on May 22, 2014. CARB published the latest 2017 Climate Change Scoping Plan to reflect the 2030 target established in Executive Order B-30-15.

CARB Mandatory Reporting Regulations

Under AB 32, CARB propounded regulations to govern mandatory greenhouse gas emissions reporting for certain sectors of the economy, most dealing with approximately 94 percent of the industrial and commercial stationary sources of emissions. Regulated entities include electricity generating facilities, electricity retail providers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons of CO_2 from stationary source combustion.

Assembly Bill 1493 (2002) (Health and Safety Code § 43018.5)

AB 1493 required CARB to develop and adopt the nation's first GHG emission standards for automobiles. Not only have litigants challenged their legality in federal court, but also USEPA initially denied California's request for a Clean Air Act waiver to implement its regulations in 2008, but a June 2009 decision overturned the denial. AB 1493 reduces GHG emissions in new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017–2025 (Phase II). AB 1493 also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020.

Executive Order S-01-07

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates the following: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. In the proposed 2017 Climate Change Scoping Plan Update, CARB's preferred recommendation includes increasing the stringency of the LCFS by reducing the carbon intensity of transportation fuels by 18 percent by 2030, up from the current target of 10 percent by 2020. In April 2017, the LCFS was brought before the Court of Appeal challenging the analysis of potential nitrogen dioxide impacts from biodiesel fuels. The Court directed CARB to conduct an analysis of nitrogen dioxide impacts from biodiesel fuels and froze the carbon intensity targets for diesel and biodiesel fuel provisions at 2017 levels until CARB has completed this analysis. On March 6, 2018, CARB issued its *Draft Supplemental Disclosure Discussion of Oxides of Nitrogen Potentially Caused by the Low Carbon Fuel Standard Regulation*. CARB posted modifications to the amendments on August 13, 2018. Final approval of regulatory changes from CARB's analysis of nitrogen dioxide impacts from biodiesel fuels was made on January 4, 2019.

Senate Bill 375

In September 2008, SB 375 was signed by Governor Schwarzenegger. SB 375 is a comprehensive global warming bill that helps to achieve the goals of AB32. Under SB 375, CARB is required, in consultation with the state's Metropolitan Planning Organizations, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. In February 2011, CARB adopted the final GHG emissions reduction targets for the state's Metropolitan Planning Organizations, including the Southern California Association of Governments (SCAG), which is the Metropolitan Planning Organization for the region including both Los Angeles County and Orange County; CARB updated these targets in 2018 (CARB, 2018). Of note, the reduction targets explicitly exclude emission reductions expected from the AB 1493 and the low carbon fuel standard regulations. SB 375 requires MPOs, such as SCAG, to incorporate a "sustainable communities strategy" (SCS) in their regional transportation plans (RTPs) that will achieve GHG emission reduction targets set by CARB. Certain transportation planning and programming activities would then need to be consistent with the RTP/SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

Title 24, Part 6, California Code of Regulations

The California Energy Commission first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Title 24, Part 11, California Code of Regulations

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality" (California Building Standards Commission, 2010). The CALGreen Code was updated in 2016 to include new mandatory measures for residential and nonresidential uses including energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. These new measures took effect on January 1, 2017. The CALGreen code was most recently updated in 2019, with new measures taking effect on January 1, 2020.

Senate Bill 1368

SB 1368 required the California Public Utilities Commission ("PUC") to establish a "GHG emission performance standard" by February 1, 2007, for all electricity providers under its jurisdiction, including the state's three largest privately owned utilities. These utilities provide approximately 30 percent of the state's electric power. After the PUC acted, the California Energy Commission (CEC) adopted a performance standard "consistent with" the PUC performance standard and applied it to local publicly-owned utilities on May 23, 2007 (over one month ahead of its June 30, 2007, deadline). Cal. Pub. Res. Code § 8341(e)(1). However, the California Office of Administrative Law ("OAL") found four alleged flaws in the CEC's rulemaking. The CEC overcame these alleged flaws and adopted reformulating regulations in August 2007.

Senate Bill 1389

Senate Bill 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code Section 25301[a]). The 2015 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in Southern California, an update on trends in California's sources of crude oil, an update on California's nuclear plants, and other energy issues.

Renewables Portfolio Standard

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Executive Order S-14-08 was signed, which expands the state's Renewables Portfolio Standard (RPS) to 33 percent renewable power by 2020. Pursuant to Executive Order S-21-09, CARB was also preparing regulations to supplement the RPS with a Renewable Energy Standard that would result in a total renewable energy requirement for utilities of 33 percent by 2020. On April 12, 2011, SB X1-2 was signed to increase California's RPS to 33 percent by 2020. SB 350 (Chapter 547, Statues of 2015) further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 was signed into law on October 7, 2015.

On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased California's Renewables Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10-percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas and hydrogen.

California Air Resource Board Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, the CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

California Air Resource Board Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

California Air Resource Board Cap-and-Trade Regulation

The California Air Resource Board has implemented a cap-and-trade type program, pursuant to the AB-32 directed Scoping Plan, applicable to specific industries that emit more than 25,000 MTCO2e. The AB 32 Scoping Plan identifies a Cap-and-Trade program as one of the strategies California will employ to reduce the greenhouse gas (GHG) emissions that cause climate change. Under Cap-and-Trade, an overall limit on GHG emissions from capped sectors will be established by the Cap-and-Trade program and facilities subject to the cap will be able to trade permits (allowances) to emit GHGs. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions for GHG emissions from stationary sources. The petroleum and natural gas systems sector is covered starting in 2013 for stationary and related combustion, process vents and flare emissions if the total emissions from these sources exceed 25,000 MTCO2e per year. Suppliers of natural gas and transportation fuels are covered beginning in 2015 for combustion emissions from the total volume of natural gas delivered to non-covered entity or for transportation fuels.

Cap-and-Trade is designed to reduce the emissions from a substantial percentage of GHG sources (about 80% of GHG emissions will come under the program) within California through a market trading system. The system would reduce GHG emissions by reducing the available GHG "allowances" over time up until the year 2020. The program beyond the year 2020 has not been designed yet, but the program is intended to extend beyond that timeframe through 2030. Facilities are required to obtain an "allowance", either through purchasing on auction or through freely allocated "industry assistance" allowances from CARB, for each MTCO2e of GHG they emit. CARB issues the "industry assistance" allocations for free for a number of industries. These are based, in part, on a pre-defined "benchmark" of GHG emissions per unit of production.

For the oil recovery production sector, allowances are provided as a function of the amount of crude oil produced, thereby establishing, in effect, a level of efficiency in regards to GHG emissions for that sector. Other sectors are also allocated allowances based on their own respective activities. If an operation within the sector operates less efficiently than the specified

"benchmark", thereby receiving an insufficient number of "free" allowances to cover their emissions, they would be required to implement efficiency improvements or purchase additional allowances from the CARB auction. Some availability of "offsets" is also included in the program which can be obtained from specific, allowable offset programs, such as GHG reduction projects related to forestry, livestock and ozone depleting chemicals. Offsets outside of these three options are not allowed at this time. The first group of sectors began trading in allowances in 2012. That group includes the oil and gas sector as well as most stationary sources. Compliance obligation began for distributers of transportation fuels, natural gas and other fuels in 2015. Under Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program's duration and on July 17, 2017, the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through 2030.

2017 Climate Change Scoping Plan Update

CARB adopted the 2017 Climate Change Scoping Plan at a public meeting held in December 2017 (CARB, 2017b). The 2017 Scoping Plan outlines the strategies the state will implement to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 established by SB 32. The 2017 Scoping Plan is also intended to "substantially advance" toward the EO S-3-05 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels by 2050.

The 2017 Scoping Plan builds on the Cap-and-Trade Regulation, the Low Carbon Fuel Standard (LCFS), improved vehicle, truck and freight movement emissions standards, increasing renewable energy, and strategies to reduce methane emissions from agricultural and other wastes by using it to meet our energy needs. The 2017 Scoping Plan also comprehensively addresses GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. The 2017 Scoping Plan considered a number of different alternatives to achieve the 2030 GHG reduction goal. The "Scoping Plan Scenario" was ultimately adopted and relies on the continuation of ongoing and statutorily required programs and continuation of the Cap-and-Trade Program. The Scoping Plan Scenario was modified from the January 2017 Proposed Scoping Plan to reflect AB 398, including removal of the 20 percent GHG reduction measure for refineries (CARB, 2017b).

CARB states that the Scoping Plan Scenario "is the best choice to achieve the state's climate and clean air goals" (CARB, 2017b). Under the Scoping Plan Scenario, the majority of the reductions would result from continuation of the Cap-and-Trade regulation. Additional reductions are achieved from electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived climate pollutant strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan.

3.6.3.3 Regional

South Coast Air Quality Management District

The program area is located in the South Coast Air Basin (Air Basin), which consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties, in addition to the San Gorgonio Pass area in Riverside County. The South Coast Air Quality Management District (SCAQMD) is responsible for air quality planning in the Air Basin and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds (CARB, 2008). On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where the SCAQMD is Lead Agency. A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds (SCAQMD, 2008). The aforementioned Working Group has been inactive since 2011 and the SCAQMD has not formally adopted any GHG significance threshold.

3.6.3.4 Local

City of Seal Beach

The City of Seal Beach General Plan, adopted in December 2003, does not contain a stand-alone air quality element or a Climate Action Plan.

City of Long Beach

The City of Long Beach adopted an "Air Quality Element," (adopted December 3, 1996). The Element does not contain specific control strategies for greenhouse gases except a policy to support reduced energy consumption through conservation improvements that would reduce greenhouse gas emissions (Policy 7.1.7).

The City of Long Beach is in the process of developing a Climate Action and Adaptation Plan (CAAP). The City released a working draft of the CAAP on May 31, 2019. The CAAP will be incorporated into the City of Long Beach General Plan as a mitigation measure to the Land Use Element. The CAAP goals include:

- Distinguish Long Beach as a leader in climate mitigation and adaptation planning
- Be inclusive of the entire community while prioritizing vulnerable and disproportionately impacted populations
- Create a healthier community by addressing climate change
- Consider social, environmental, and economic co-benefits holistically

- Empower young people to be leaders in creating a most sustainable community
- Invoke personal sense of responsibility among residents and businesses
- Be an actionable plan (right balance of innovation and practicality)

It is anticipated that the CAAP will be adopted by City Council by the Fall of 2019 (http://www.longbeach.gov/lbds/planning/caap/).

3.6.4 Significance Thresholds and Methodology

3.6.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the CEQA Guidelines, the proposed program would have a significant impact on greenhouse gas emissions if it would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The proposed program would have a significant impact on energy if it would:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

On December 5, 2008, the SCAQMD adopted an interim GHG significance threshold for projects where the SCAQMD is lead agency. The threshold utilizes a tiered approach, with a screening significance threshold of 10,000 $MTCO_2e$ per year for industrial projects. Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. Tier 2 consists of determining whether or not the project is consistent with a GHG reduction plan. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If the project is not consistent with a local GHG reduction plan, there is no approved plan, or the GHG reduction plan does not consist of all the required components, then the project would move to Tier 3. Tier 3 establishes a screening significance threshold level that is intended to have a 90 percent emission capture rate approach. If the project exceeds the GHG screening significance threshold level and GHG emissions cannot be mitigated to less than the screening level, the project would move to Tier 4. Tier 4 is a decision tree approach to achieve compliance, but is not recommended for approval by SCAQMD. Tier 5 requires the project proponent to implement off-site mitigation to reduce GHG emission impacts to below the proposed screening level. For this proposed program, the most appropriate threshold to use is the 10,000 $MTCO_2e$ per year because it is a program level evaluation of a wetlands restoration program with eventual phasing out of oil fields and oil operation infrastructure. The SCAQMD's working group is currently inactive and has not set a date for finalizing these recommendations.

3.6.4.2 Methodology

Greenhouse Gas Emissions

Existing Site

For the purposes of this program-level analysis, it is conservatively assumed that the program activities would result in all net new emissions. Most of the program area is either vacant or an active oil field. Existing emissions from oil fields within the boundaries of the Los Cerritos Wetlands Oil Consolidation and Restoration Project, located in the northern portion of the program area, have already been addressed in a previously certified EIR. As the program activities would restore habitats and eventually decommission and phasing out existing oil operations, the net change for emissions in the long term could be negative. However, this cannot be accurately quantified at this program-level since the timing and commitments to cease oil operations in the future is unknown. As a conservative approach, no existing emissions were subtracted from estimated program emissions before comparison to emission thresholds.

Construction

GHG emissions have been quantified using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software, an emissions inventory software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professions to quantify potential criteria pollutant and GHG emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying GHG emissions from land use projects throughout California and is recommended by the SCAQMD. For on-road vehicle emissions, CalEEMod uses the emission factors and fleet mix based on the CARB on-road vehicle emissions model (EMFAC), which is incorporated into CalEEMod. On-road vehicle emission factors from the USEPA-approved EMFAC2017 model were used for the analysis. It is assumed that a tugboat would be used to pull the barges for soil transport and that there would be two crew/survey boats at most on any given day. Tugboat and crew/survey boat emissions were calculated using emission factors from USEPA marine engine rules for Tier 2 engines.

The input values used in this analysis were adjusted to account for the nature of wetlands restoration activities and referenced the equipment and assumptions used for the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) for consistency (Table 3 of the Greenhouse Gas Emissions Technical Report). Specialized construction equipment was added as appropriate according to the activities listed in Chapter 2, *Project Description*, of this PEIR. Construction is phased by location (South, Isthmus, Central, and North Areas) and by time (Near-Term, Mid-Term, and Long-Term). In order to calculate a conservative emissions estimate and because the sequence of restoration is uncertain, a worst-case year in the Near-Term (2020) was formulated. Emission factors decline in later years because of the requirement and development of cleaner and more efficient equipment. Maximum daily GHG emissions were calculated by subphase using CalEEMod and then multiplied by a

conservatively estimated maximum total number of days for that construction subphase to obtain an estimated total construction GHG emissions for the entire program restoration activities. Construction activities and schedule are discussed in further detail in the Greenhouse Gas Emissions Technical Report. Modeling input and output files provided in Appendix A of the Greenhouse Gas Emissions Technical Report, provided in Appendix F, of the PEIR.

Operation

Similar to construction, GHG emissions have been quantified using CalEEMod version 2016.3.2. CalEEMod was used to forecast the annual emissions from mobile sources that would occur during long-term program operations. The operational year was set to 2021 for a conservative emissions estimate. This consists mostly of truck trips for maintenance of the trails and wetlands and emissions from passenger vehicles from visitors. The analysis relied on the Institute of Transportation Engineers (ITE) Manual, 10th Edition "Public Park" category trip rates (i.e., denoted in the ITE Manual as "Land Use [LU] 411").

Area source emissions are based on natural gas (building heating and water heaters), landscaping equipment, and consumer product usage (including paints) rates provided in CalEEMod for the visitor center building. Most of the emissions would be associated with passenger cars traveling to and from the visitor center. Painting and re-painting of this facility will contribute to emissions. Additional emissions will come from maintenance of the wetlands and trails.

Operational GHG impacts are presented as net new emissions and added to amortized construction emissions. Modeling input and output files are provided in Appendix A of Greenhouse Gas Emissions Technical Report, provided in Appendix F, of the PEIR.

The proposed program's GHG emissions are also evaluated by assessing consistency with applicable GHG reduction strategies. As discussed previously, the GHG regulations have been adopted primarily at the federal and state levels to reduce emissions of GHGs from program sources, such as trucks and energy, under the Clean Air Act and the state's GHG regulatory framework under HSC Division 25.5 (AB 32). In addition, the SCAG 2016 RTP/SCS outlines goals for improving air quality and encouraging active transportation to reduce per capita vehicle miles traveled and associated transportation GHG emissions. Impacts are evaluated based on consistency with these applicable GHG regulations and plans.

Energy

Existing Site

For the purposes of this program-level analysis, it is conservatively assumed that the program activities would result in all net new energy demand. Most of the program area is either vacant or an active oil field. Existing energy demand from oil fields within the boundaries of the Los Cerritos Wetlands Oil Consolidation and Restoration Project, located in the northern portion of the program area, have already been addressed in a previously certified EIR. As the proposed program activities would restore habitats and eventually decommission and phase out existing oil operations, the net change for energy demand in the long term could be negative. However, this cannot be accurately quantified at this program-level since the timing and commitments to cease

oil operations in the future is unknown. As a conservative approach, existing energy emissions was not subtracted from estimated program energy demand in the quantitative analysis.

Construction

Construction of the proposed program would result in energy demand as a result of the use of heavy-duty construction equipment, on-road trucks, and workers commuting to and from the program area. The assumption that diesel fuel would be used for all equipment represents the most conservative scenario for maximum potential energy use during construction. Energy demand from heavy-duty construction equipment is estimated based on the equipment analyzed in the California Emissions Estimator Model (CalEEMod), consistent with the air quality analysis in the proposed program's Air Quality Technical Report and Greenhouse Gas Emissions Technical Report. For on-road vehicle energy demand, on-road vehicle fuel demand factors were obtained from the USEPA-approved EMFAC2017. It is assumed that a tugboat would be used to pull the barges for soil transport and that there would be two crew/survey boats at most on any given day. Tugboat and crew/survey boat energy demand were calculated based on USEPA marine engine rules for Tier 2 engines, similar to the GHG emissions estimate, and the carbon content in a gallon of diesel fuel. Detailed energy calculations can be found in Appendix G. Construction activities, including the construction of new buildings and hardscape, typically do not involve the consumption of natural gas. Accordingly, natural gas would not be needed to support program construction activities, and no natural gas demand would be generated by construction of the proposed program.

Operation

Energy would be required in the form of electricity and natural gas for operation of the visitor center. The energy usage takes into account building energy standards pursuant to the Title 24 Building Standards Code and CALGreen Code. Energy for transportation would include fuel used for employee and visitor trips to the program area. The estimated fuel economy for vehicles is based on fuel consumption factors from the CARB EMission FACtors model (EMFAC2017). It is assumed that the wetland itself would not require any imported water or associated energy for water pumping and conveyance (the Visitor's Center would require potable water). Detailed energy calculations can be found in Appendix G.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to greenhouse gas emissions were identified.

3.6.5 Program Impacts and Mitigation Measures

Impact GHG-1: The proposed program would result in a significant impact if the proposed program would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction

Construction of the proposed program would generate GHG emissions from multiple sources (**Table 3.6-3**, *Program Construction GHG Emissions*). GHG emissions would be generated from tailpipe emissions of heavy duty construction equipment and mobile trips for maintenance. The proposed program would require special equipment such as low ground pressure equipment, mats, long reach excavators, clamshell and dragline crane, amphibious excavator, rotary ditcher, floating equipment, and a hydraulic dredge. Complete equipment lists are shown in Table 3 of the Greenhouse Gas Emissions Technical Report.

TABLE 3.6-3
PROGRAM CONSTRUCTION GHG EMISSIONS

Construction Subphase	Total Program $MTCO_2e$
Demolition/Site Preparation	3,426
Grading/Excavation	22,191
Drainage/Utilities/Subgrade	2,682
Building Construction	379
Paving	86
Architectural Coating	6
Total	*28,772*
Amortized over 30 years ($MTCO_2e$/year)	959

SOURCE: Appendix A, Greenhouse Gas Emissions Technical Report, ESA, 2019.

Operation

Operational emissions would be generated at the visitor center by electric consumption for lighting and natural gas consumption for space heating. In addition, there would be emissions from motor vehicles traveling to and from the visitor center and other trailheads. A minimal amount of emissions is anticipated for periodic maintenance activities. It is anticipated that no water would be pumped into the wetland so the only water use would be to serve the visitor center. Annual operational emissions were calculated using CalEEMod and shown in **Table 3.6-4**, *Program Operational GHG Emissions*. Emissions were then compared to the SCAQMD GHG threshold of 10,000 $MTCO_2e$/year for industrial projects. The program annual emissions would be below the 10,000 $MTCO_2e$/year threshold. Because CalEEMod has a default assumption of 0 $MTCO_2$/acre for the wetland land use category, no carbon sequestration from the increase in wetland vegetation is incorporated into the GHG emissions analysis. Impacts from the program GHG emissions would be less than significant and mitigation measures would not be required.

TABLE 3.6-4
PROGRAM OPERATIONAL GHG EMISSIONS

Phase	Program $MTCO_2e$/year
Area	<0.1
Energy	9.43
Mobile	464.88
Waste	17.02
Water	2.19
Operational Total	*493.5*
Amortized over 30 years ($MTCO_2e$/year)	959
Total	**1,453**

SOURCE: Appendix A, Greenhouse Gas Emissions Technical Report, ESA, 2019.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact GHG-2: The proposed program would result in a significant impact if the proposed program would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Construction

The proposed program would utilize construction contractors that would be in compliance with regulations including the USEPA Heavy Duty Vehicle Greenhouse Gas Regulation and the CARB ACTM that limits heavy-duty diesel motor vehicle idling. For vocational vehicles, which consist of a variety of work vehicles including dump trucks, the Phase 1 Heavy-Duty Vehicle Greenhouse Gas Regulation requires up to a 10 percent reduction in CO_2 emissions by model year 2017 over the 2010 baseline. The Phase 2 standards require the phase-in of a 12 to 24 percent reduction in CO_2 emission reduction from vocational vehicles by model year 2027 over the 2017 baseline. Compliance with anti-idling provisions would minimize unnecessary GHG emissions. Implementation of these measures would ensure that GHG-efficient equipment and practices in accordance with applicable plans, policies, and regulations would be used. Therefore, the proposed program would not conflict with applicable regulations to reduce GHG emissions and construction impacts would be less than significant.

Operation

GHG emissions associated with mobile sources would only occur from periodic vehicle trips by workers for inspection and maintenance purposes and recreational visitors accessing the program

area, which would not generate substantial emissions. Nonetheless, workers and visitors to the program area would utilize vehicles that comply with state motor vehicle emissions standards.

The Seal Beach visitor center and any other new facilities would be built to the CALGREEN standards, which would reduce water consumption, improve energy efficiency, and decrease waste. The proposed program would be compliant to all state and city codes and regulatory requirements. As of June 2019, the City of Seal Beach and City of Long Beach do not have any certified GHG-related policies, plans, or regulations. The City of Long Beach CAAP is expected to be certified by City Council in the Fall of 2019. The CAAP will serve as a guidance document for future climate change planning for the City of Long Beach and address both mitigation and adaptation. The proposed program is expected to align with these strategies since its design considered sea level rise to adapt to a warming climate.

While the proposed program is not a transportation project or a residential, commercial, or mixed-use project that would generate substantial numbers of vehicle trips, the proposed program would contribute to the non-automotive transportation network for both the City of Seal Beach and City of Long Beach. The proposed program would provide improved public access to the wetlands both on foot and by bicycle within a populated urban area in the City of Seal Beach and the City of Long Beach that would be accessible to local area residents, employees, and visitors. These recreational opportunities for City of Seal Beach and City of Long Beach residents, employees, and visitors would reduce transportation-related air pollutants and GHG emissions by providing nearby recreational amenities including visitor centers and trails. Therefore, the proposed program would not conflict with the SCAG 2016 RTP/SCS goals of improving air quality, increasing accessibility to natural areas, preserving open space, and encouraging active transportation (e.g., bicycling and walking).

Therefore, impacts from the proposed program's GHG emissions would be less than significant with regard to a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact EN-1: The proposed program would result in a significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during program construction or operation.

Construction

Construction of the proposed program would result in energy consumption from the use of heavy-duty construction equipment, on-road trucks, and workers commuting to and from the program area. Energy demand from heavy-duty construction equipment is estimated based on the

equipment analyzed in CalEEMod, consistent with the proposed program's air quality and GHG emissions assessment. The conservatively estimated total and annual average construction energy demand (i.e., total diesel and gasoline fuel) for heavy-duty construction equipment and construction worker vehicle trips are shown in **Table 3.6-5**, *Program Construction Fuel Usage*.

TABLE 3.6-5
PROGRAM CONSTRUCTION FUEL USAGE

Source	Total Gallons of Diesel Fuel	Total Gallons of Gasoline Fuel
Construction:		
Heavy-Duty Construction Equipment	2,977,544	—
Tugboats and Crew/Survey Boats	2,213,058	—
Haul Trucks	65,909	—
Vendor Trucks	4,762	—
Worker Trips	—	127,191
Total (over the approximately 22-year construction duration)	**5,261,273**	**127,191**
Annual Average (over the approximately 22-year construction duration)	**239,149**	**5,781**

SOURCE: ESA 2019

For comparison purposes, the proposed program's construction energy demand from transportation fuel is compared to the Los Angeles County transportation fuel sales. As shown in **Table 3.6-6**, *Comparison of Project Construction and County Fuel Usage*, the conservatively estimated construction energy demand for the proposed program would represent a very small fraction of the County's total fuel consumption. Actual construction energy demand is likely to be lower than the values shown in Table 3.6-6 as construction of the proposed program would be intermittent and variable over the near-, mid-, and long- term depending on the construction schedule, volume of construction activities, and specific location of such activity across the 503-acre program area. Program construction trucks would be required to comply with fuel saving regulations such as the USEPA Phase 2 standards, which affect model year 2021 through model year 2027 medium- and heavy-duty trucks. According to the USEPA, the Phase 2 standards would reduce oil consumption by up to two billion barrels (84 billion gallons) over the lifetime of the vehicles sold under the program (USEPA 2018), and a portion of the fuel savings would be from those model year 2017 through 2027 medium- and heavy-duty trucks used for the proposed program. Program construction trucks would also be required to comply with the CARB Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13 California Code of Regulations [CCR] Section 2485) as applicable. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location (unless specifically exempted from the regulation[4]). While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling. As such, the proposed

[4] For instance, the regulation exempts concrete pouring trucks where idling is a necessary function of the equipment.

program would result in a less than significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during program construction.

TABLE 3.6-6
COMPARISON OF PROGRAM CONSTRUCTION AND COUNTY FUEL USAGE

Source	Gallons of Diesel Fuel	Gallons of Gasoline Fuel
Los Angeles County (in 2017)[a]	590,196,078	3,659,000,000
Orange County (in 2017)[a]	119,607,843	1,382,000,000
Annual Program Construction	239,149	5,781
Percent of Los Angeles County	0.041%	0.0002%
Percent of Orange County	0.200%	0.0004%

[a] California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2017. Available at: https://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html. Accessed February 2019. Diesel is adjusted to account for retail (51%) and non-retail (49%) diesel sales.

SOURCE: ESA 2019.

Operation

Operational energy consumption would occur as a result of building energy needs for the visitor center and the use of transportation fuels (e.g., diesel and gasoline) from vehicles traveling to and from the program area. Daily operation of the proposed program would consume energy in the form of electricity and natural gas. Additionally, a minimal amount of energy would be consumed for the conveyance and treatment of water, wastewater, and the disposal of solid waste off-site to service the visitor center. Building energy use factors and water demand factors from CalEEMod, consistent with the proposed program analyses conducted for air quality and GHG emissions, are used to estimate building energy use. The wetland would not require imported water. The proposed program's estimated net operational electricity demand, including from water demand, is provided in **Table 3.6-7**, *Program Operational Electricity Usage*. As previously discussed, the proposed program's electricity consumption would have no impact on SCE's electricity generation.

TABLE 3.6-7
PROGRAM OPERATIONAL ELECTRICITY USAGE

Source	Electricity per Year (million kWh)
SCE Electricity Sales (2017)[a]	85,879
Program Operations:	
Building Electricity[b]	0.026
Water Electricity[c]	0.006
Program Net Total	**0.032**

[a] CEC, 2017b.

[b] Electricity is calculated in the proposed program's Greenhouse Gas Emissions Technical Report (ESA 2019) using CalEEMod (includes water-related electricity for conveyance and treatment).

[c] Electricity for water supply, treatment, distribution, and wastewater treatment.

SOURCE: ESA 2019

The proposed project's estimated net operational natural gas demand is provided in **Table 3.6-8**, *Program Operational Natural Gas Usage*. Operation of the proposed program would use a minimal amount of energy, not increase the need for new energy infrastructure, and not cause a wasteful, inefficient, and unnecessary consumption of energy. Therefore, operational energy impacts would be less than significant.

TABLE 3.6-8
PROGRAM OPERATIONAL NATURAL GAS USAGE

Source	Natural Gas per Year (million kBtu)
SoCalGas Natural Gas Sales (2017)[a]	913,960
Program Operations[b]	0.02
Percent of SoCalGas	0.000002%
Program Net Total	**0.032**

[a] California Gas and Electric Utilities, 2018~~b~~.
[b] Natural gas is calculated in the proposed program's Greenhouse Gas Emissions Technical Report (ESA 2019) using CalEEMod.
SOURCE: ESA 2019

Operation of the proposed program would result in transportation energy use by visitors and employees coming and going to the program area. The proposed program's estimated operational transportation fuel demand is provided in **Table 3.6-9**, *Program Operational Fuel Usage*.

TABLE 3.6-9
PROGRAM OPERATIONAL FUEL USAGE

Source	Gallons of Diesel Fuel per Year	Gallons of Gasoline Fuel per Year
Los Angeles County (2017)[a]	590,196,078	3,659,000,000
Orange County (in 2017)[a]	119,607,843	1,382,000,000
Program Operations	8,514	46,964
Percent of Los Angeles County	0.001%	0.001%
Percent of Orange County	0.007%	0.003%

[a] California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2017. Available at: https://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html. Accessed February 2019. Diesel is adjusted to account for retail (51%) and non-retail (49%) diesel sales.
SOURCE: ESA 2019.

As shown above, operation of the proposed program would result in energy demand from building energy usage and transportation-related energy associated with vehicles traveling to and from the program area. The amount of energy used would not represent a substantial fraction of the available energy supply in terms of building energy or transportation fuels and would not increase the need for new energy infrastructure. The program area is surrounded by urban developed uses such that visitors to the program area would not need to travel long distances thus minimizing VMT. Furthermore, as discussed in the GHG analysis, while the proposed program is not a transportation project or a residential, commercial, or mixed-use project that would generate substantial numbers of vehicle trips, the proposed program would provide improved public access

to the wetlands both on foot and by bicycle within a populated urban area in the City of Seal Beach and the City of Long Beach that would be accessible to local area residents, employees, and visitors. These recreational opportunities for the City of Seal Beach and the City of Long Beach residents, employees, and visitors would reduce transportation-related fuel demand by providing nearby recreational amenities including visitor centers and trails. The proposed program would incorporate green building measures consistent with energy efficiency standards in city policy and CALGreen. Therefore, operation of the proposed program would not result in the wasteful, inefficient, and unnecessary consumption of building energy or transportation energy usage and operational energy impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact EN-2: The proposed program would result in a significant impact if the proposed program would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The proposed program would be consistent with energy efficiency standards in the City of Seal Beach municipal code, City of Long Beach municipal code, and CALGreen Code. The City of Seal Beach, where the visitor center is to be located, does not have a specific, local plan or policy for energy efficiency or renewable energy. Nonetheless, the proposed program would provide recreational opportunities for City of Seal Beach and City of Long Beach residents, employees, and visitors that would reduce transportation-related fuel demand by providing nearby recreational amenities including visitor centers and trails. The proposed program would not conflict with the SCAG 2016 RTP/SCS general goals and strategies of increasing accessibility to natural areas, preserving open space, and encouraging active transportation (e.g., bicycling and walking) thereby minimizing transportation fuel demand. As the proposed program is to restore a wetland and has a small building footprint of 2,000-square-foot for a visitor center, the proposed program would use minimal energy and have a less than significant impact with regard to conflicting with or obstructing a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.6.6 Cumulative Impacts

3.6.6.1 Greenhouse Gas Emissions

The emissions of a single project will not cause or exacerbate global climate change. Climate change is a global phenomenon and the significance of a project's GHG emissions is inherently cumulative in nature. CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs from even relatively small (on a global basis) increases in GHG emissions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant. A cumulatively considerable impact is the impact of a proposed program in addition to impacts of the related projects. However, in the case of global climate change, the proximity of the proposed program to other GHG-generating activities is not directly relevant to the determination of global GHG cumulative impacts.

As shown in Table 3.6-4, the proposed program would not exceed the SCAQMD screening level threshold of 10,000 $MTCO_2e$/year. The proposed program would be consistent with the goals in the SCAG 2016 RTP/SCS, USEPA Heavy Duty Vehicle Greenhouse Gas Regulation, the CARB ACTM, and CALGREEN. Because GHG emissions are considered cumulative in nature, the proposed program would not result in GHG emissions that are cumulatively considerable.

3.6.6.2 Energy

Future development would result in the irreversible use of electricity and natural gas resources that could limit future energy availability. However, the use of such resources would be minor compared to existing supply and infrastructure within the SCE and SoCalGas service area and would be consistent with growth expectations. The proposed program would have a relatively small footprint with the majority of land set aside for wetland restoration and a 2,000-square-foot visitor center. Accordingly, the impacts related to electricity and natural gas consumption would not be cumulatively considerable, and thus would be less than significant. Likewise, the demand for transportation energy would be driven by mobile trips from visitors and employees. As the proposed program's impact to transportation energy would be considered less than significant, the proposed program's cumulative impact to transportation energy would also be less than significant.

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SECTION 3.7
Hazards and Hazardous Materials

3.7.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts associated with hazards or hazardous materials. The analysis is based on review of available hazards and hazardous materials reports, websites, and maps of the program area and vicinity, including reports and information posted on websites by the State Water Resources Control Board (SWRCB), the Department of Toxic Substances Control (DTSC), and the California Geologic Energy Management Division (CalGEM) [formerly known as the Division of Oil, Gas, and Geothermal Resources (DOGGR)], as well as information gathered from site-specific investigations conducted for sites within or near the program area. The relevant regulatory requirements are discussed, as are the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section analyzes the potential for both program-level and cumulative environmental impacts. All information sources used are included as citations within the text; sources are listed in Section 3.7.7, *References*.

3.7.2 Environmental Setting

Figure 2-1, *Regional Location*, and Figure 2-2, *Project Site and Local Vicinity*, in Chapter 2, *Project Description*, of this PEIR, show the program area, which is comprised of four program areas made up of 17 individual sites. The study area for evaluation of hazards and hazardous materials impacts includes the four program areas, along with nearby properties with the potential to affect or be affected by the proposed program. In addition, the larger program vicinity up to 0.25 mile from program area is considered relative to proximity to schools and up to 2 miles relative to proximity to airports. Note that hazards and hazardous materials impacts for the Synergy Oil Field site within the North Area, the City Property site within the Central Area, and the western portion of the Pumpkin Patch site were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083).

3.7.2.1 Historical and Present Land Uses in the Program Vicinity

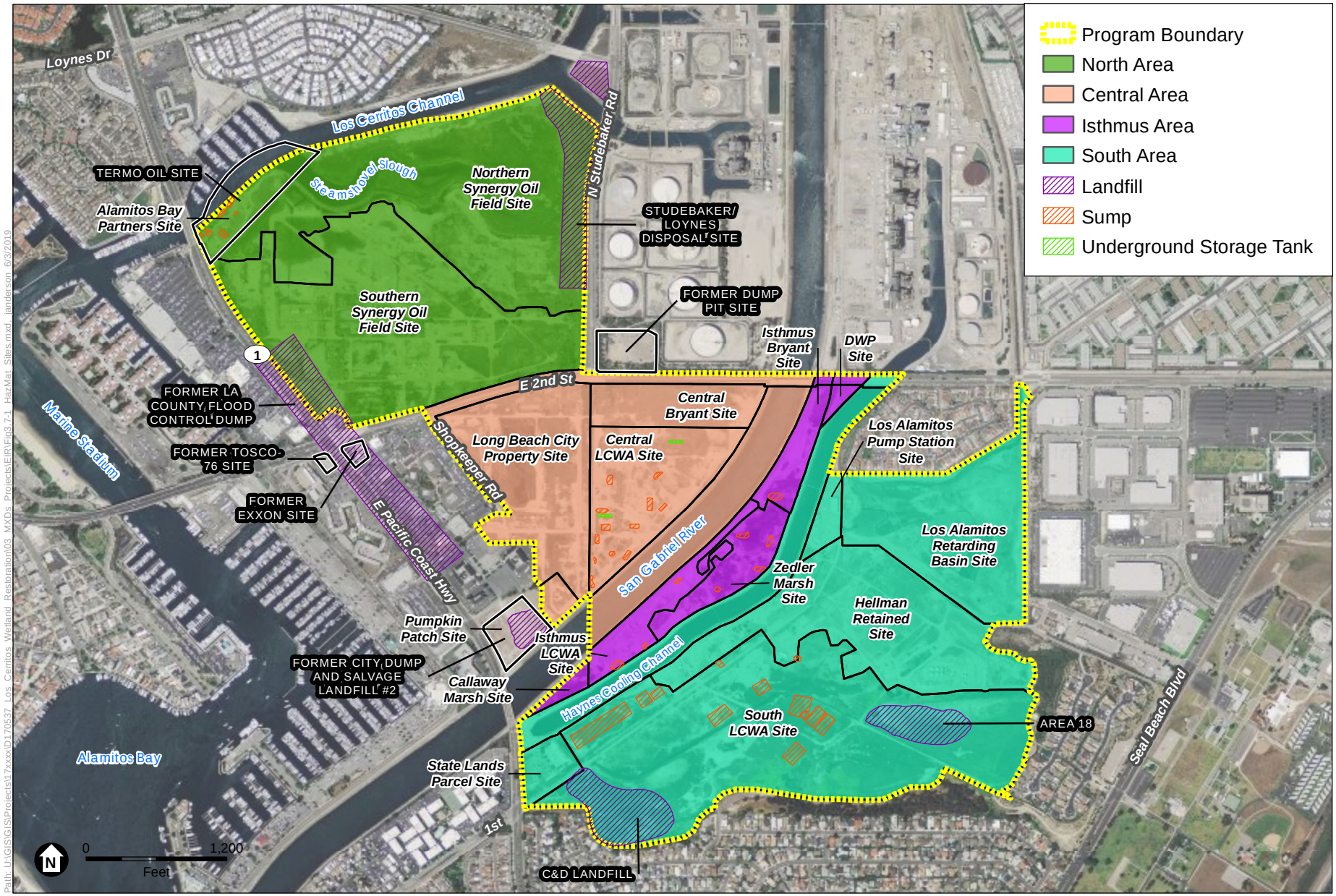
Various past and current land uses associated with the use, generation, or disposal of hazardous materials exist in the program area, including the ongoing production of oil and natural gas, other industrial and commercial uses such as gasoline service stations, and historical agricultural use. In

general, these land uses have the potential to have contributed to surface and subsurface contamination as described below:

- **Oil and Natural Gas Production**—Oil and natural gas production in the vicinity began as early as 1921. Oil production within the program area is discussed further below. Oil field production typically includes the extraction, storage, and transportation of oil and natural gas; and the reinjection of produced water back into the production zone. The maintenance of equipment requires the use of oils and greases, solvents, paints, and thinners. The four program areas have never been used for petroleum refining and no active refineries are located in the immediate vicinity.
- **Commercial/Industrial Uses**—Commercial and industrial land uses include former and current gasoline service stations, and other facilities that typically involve the use and storage of fuel, lubricants and oil, solvents, and other hazardous materials. Facilities with known releases of hazardous materials that have affected soil or groundwater are discussed further below.
- **Landfills**—Several locations within the program area have been used in the past as landfills, as discussed further below. Depending on the nature of the waste materials disposed of in the landfills, the timing of the landfilling operations (early landfills were typically lightly regulated and unlined), and the level of compliance with regulations, the landfilled waste materials may have included hazardous materials or have generated hazardous materials as the buried waste decomposed; however, based upon preliminary investigations, these landfills appear to have been used for limited periods of time for primarily municipal and construction wastes.
- **Agricultural Uses**—Portions of the program area were used for raising cattle and beets in the 1800s and early 1900s. Historical agricultural land uses may have left behind residual levels of fertilizers, pesticides, and herbicides in soils. In addition, fuels, oils, lubricants, and cleaning solvents for farm equipment maintenance may have been released during use or storage on the prior agricultural areas; however, considering the length of time since agricultural use was conducted on these individual sites, it is unlikely that residual chemicals associated with agricultural use would be present and natural attenuation would be expected to have degraded most, if not all, of the chemicals down to inert and nonhazardous compounds.

3.7.2.2 Hazardous Materials within the Program Area

This section assesses the potential for hazardous materials to be present in soil and groundwater at the program area as a result of past and present land uses, and documented releases of hazardous materials. The discussion of past and present uses of hazardous materials and documented releases is based on a review of environmental assessments and hazardous materials investigation reports, regulatory agency databases, and hazardous materials investigation reports available on regulatory agencies' websites, and site reconnaissance. In addition to the Phase I and II assessments conducted for various individual sites, the following regulatory agency databases of hazardous materials sites that are compiled pursuant to Government Code Section 65962.5 were reviewed for information: the SWRCB GeoTracker database and the DTSC EnviroStor database. The locations of the hazardous materials sites are shown on **Figure 3.7-1**, *Hazardous Materials Sites*.



SOURCE: Mapbox, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.7-1
Hazardous Materials Sites

ESA

Synergy Oil Field Site

A Phase I environmental site assessment (Phase I assessment) was conducted for the Synergy Oil Field site to identify recognized environmental conditions[1] (Rincon 2015a). The Phase I report also summarized the results of previous assessments, investigations, and remediation activities. The Synergy Oil Field site is listed on the GeoTracker and EnviroStor websites for two landfill sites and one polychlorinated biphenyl (PCB) cleanup action; the Phase I assessment included discussion of other spills and cleanups not listed on GeoTracker or EnviroStor websites. The following summarizes the information and is based on the Rincon Phase I assessment, unless otherwise cited. More recent soil investigations are discussed in the 2016 and 2017 Soil Investigations section further below.

Oil Production and Associated Infrastructure

The Synergy Oil Field site currently consists of an active oil field and vacant land, the northern part of which is wetland habitat along the Los Cerritos Channel. The site includes 22 active (producing), seven idle, and 13 plugged (abandoned or destroyed) oil and natural gas production wells, eight water injection wells,[2] a network of piping and roads, a field office building, vapor recovery equipment, tank battery areas, two sheds, and numerous transformers. The type, status, and location of all wells on the program area are identified on Figure 3.5-3, *Oil Production and Injection Wells*, in Section 3.5, *Geology, Soils, and Paleontological Resources*. Historically, it was a common practice during the drilling of oil wells to excavate earthen sumps that would contain the produced oil, water, and drilling fluids (AEC 2016a). Sediment was allowed to settle and the oil was removed and sent to refineries for processing. After production ceased, the sump would be backfilled with drilling mud and other sediment, and left in place. An unknown number of these backfilled sumps are expected to be present on the Synergy Oil Field site adjacent to oil wells. The Phase I assessment noted that staining was observed on and in the vicinity of some of the producing and idle wells and in the vicinity of the transformers that were observed on-site.

Subsurface geologic materials sometimes contain naturally occurring radioactive materials, referred to in the oil industry as Naturally Occurring Radioactive Material (NORM)[3] (USGS 1999). This can occur due to the presence of the radioactive forms of radium, radon, and uranium, all of which occur naturally with low levels of radioactivity. The cited USGS study noted that the level of radioactivity in scale in California oil production sources tends to be at background or marginally detectable (i.e., imperceptible or trace levels). There is the potential for concentrations of dissolved NORM constituents may result in scale in pipes and storage tanks that handle oil. This scale is referred to as a type of "diffuse NORM waste" and can have low levels of radioactivity above background levels. During operations, oil processing facilities routinely remove scale to the extent

[1] A recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

[2] The production of oil actually produces much more water than oil. This is called produced water, which is returned to the production zone using injection wells to prevent land subsidence. For current production on the Synergy Oil Field site, typically less than 5 percent of the pumped fluid is oil and remainder is water (Rincon 2015a).

[3] NORM consists of materials, usually industrial wastes or by-products, enriched with radioactive elements found in the environment.

feasible from pipelines and tanks (API 2014). After operations when the pipeline is removed, the pipeline segments are tested for radioactivity and managed accordingly.

Documented Spill/Release Incidents

Four spill/release incidents of oil or grease were documented between 2006 and 2010 on the Synergy Oil Field (and/or Long Beach City Property site discussed further below) site; all of these spills were reportedly cleaned up with the oversight and approval of regulatory agencies, as summarized below:

- On March 28, 2006, an unknown oil material (10 barrels) mixed with produced water (30 barrels) spilled onto soil from a punctured aboveground storage tank (AST) in a tank farm. Remedial action included a cleanup crew on-site physically removing the spilled material.
- In July 2007, an internal flow line broke resulting in the discharge of crude oil and produced water (approximately 1 barrel) onto the ground.
- On February 4, 2010, an unknown amount of pipe grease was released. The area was cleaned up and was witnessed by an EPA coordinator.
- On February 15, 2010, an unknown amount of crude oil was released from a pinhole leak on the production line of an oil well that resulted in the release of oil onto off-site private property. In response, the line was clamped and booms were placed to contain the oil.

The Phase 1 assessment also noted that various other older site investigations and cleanups were conducted from 1992 through 2004 to assess the extent and concentrations of petroleum hydrocarbons in soil across the site. The combined result of the various investigations indicated that released petroleum hydrocarbons were predominantly composed of heavier hydrocarbons with carbon chain lengths of greater than C_{36}. This means the majority of the molecules in the residual oil in the soil have 36 or more carbon atoms in each molecule; gasoline is in the range of C_4 to C_{12} and diesel in the range of C_8 to C_{24}. The hydrocarbon range heavier than C_{36} includes heavier, less mobile hydrocarbons such as heavy fuel oils, lubricating oils, asphalts, pitch, waxes, and related compounds. Recent soil investigations conducted in 2016 and 2017 further tested soil, as discussed below in the 2016 and 2017 Soil Investigations section.

Closed On-Site Landfills

The Studebaker/Loynes Disposal Site or City Dump and Salvage #4 Landfill was located on a narrow strip in the northeastern portion of the Synergy Oil Field site, as shown in Figure 3.5-4, *Landfill Areas and Oil Production Sumps*, in Section 3.5, *Geology, Soils, and Paleontological Resources*, and Figure 3.7-1. The landfill was a Class II landfill permitted to accept Class II waste including household and commercial refuse such as cans, metals, paper products, lawn clippings, sod, shrubs, garbage, market refuse, ashes, and inert solid materials such as rock, gravel, asphalt, earth, brick, glass, plaster products, rubber, and street sweepings. No reported liquid or hazardous wastes were deposited at the site and maximum depth to refuse is estimated to be up to 25 feet. The waste was placed in a previously existing depression area, compacted, and covered with new soil in conformance with slope and final cover requirements. Approximately 160,000 cubic yards of waste materials were landfilled during the 1960s. The landfill was closed in mid-April 1980.

The former LA County Flood Control Dump may have extended onto the southwestern corner of the Synergy Oil Field site. The records are unclear as the precise location and extent. This possible landfill was reportedly used to dispose of vegetation growing along the banks of the San Gabriel River. No hazardous materials are known to have been disposed of at this location.

PCB Removal

Historical records indicate that there had been a release of PCBs at transformer locations on the Synergy Oil Field and City Property sites. To address the releases, several site assessments and remedial excavations were performed in 2009 and 2010. The U.S. Environmental Protection Agency (USEPA) directed that soils having PCB concentrations above 1 milligram per kilogram (mg/kg) be removed and disposed of off-site. One of the transformer locations on the Synergy Oil Field site required remediation and was excavated to approximately 3 feet below ground surface (bgs). Two excavations approximately 10 feet wide by 10 feet long by 3 feet deep were excavated and the material removed for off-site disposal. The USEPA issued a No Further Action letter for the PCB remedial action on February 24, 2010.

Asbestos-Containing Materials and Lead-Based Paint

A 2003 survey of the on-site structures indicated that asbestos-containing materials (ACM) and lead-based paint (LBP) had been identified in the office building, north shed, and south shed areas. In addition, tank batteries and pipelines may have ACM insulation or LBP (AEC 2017b).

2016 and 2017 Soil Investigations

Based on the results of the previously summarized Phase I assessment, additional soil testing was conducted in December 2016, February 2017, and April 2017 (AEC 2017a). The samples were tested for total petroleum hydrocarbons (TPH) in the gasoline, diesel, and oil range; volatile organic compounds (VOCs); and metals. Not all samples were analyzed for all chemicals; the selection of analytical tests depended on the sample location, surrounding land use, and previous testing results.

The testing results were mostly below detection levels or at low concentrations below regulatory screening levels. Elevated concentrations of TPH and other chemicals were detected for some of the samples collected near the locations of the storage tanks and along Steamshovel Slough. Some of the detected concentrations exceeded screening levels for TPH in the gasoline and diesel range, naphthalene, and arsenic. Note that the DTSC has established a regional background arsenic concentration of 12 mg/kg in soil used as screening criteria for sites in Southern California (Chernoff et al. 2008); all of the arsenic concentrations are below background levels. The concentrations of TPH and naphthalene are above screening levels. Based on the analytical results, the affected soil above screening levels is scheduled to be excavated and disposed at a landfill permitted to accept the soil. The lateral limits of the excavation and the volume of soil to be removed would depend on the results of additional sampling proposed to define the extent of the affected area. As previously noted, the scheduled removal actions were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083).

Termo Oil Site

The Termo Oil Site is an active oil production site operated by the Alamitos Bay Partners (see Figure 3.7-1) and adjacent to the northwest of the Synergy Oil Field site. The site has been used for the production of oil since the 1920s and currently has three active oil production wells, two plugged wells, one idle well, a tank farm, and associated infrastructure (Arcadis 2018). The site has been undergoing soil, soil gas, and groundwater investigations to characterize the nature and extent of petroleum hydrocarbons since 1991, primarily associated with former oil sumps adjacent to wells. In 1998, soil excavation, dewatering, and land treatment was conducted to treat contaminated soil and remove oily water. Groundwater monitoring was conducted from 1997 to 1999 to confirm successful groundwater treatment and subsequent sampling indicates low to non-detectable petroleum hydrocarbon levels below action levels. Subsequent soil sampling in 2017 indicated the following:

- **Soil Gas** – No VOCs or TPH compounds were reported in soil gas above the applicable soil gas screening levels.
- **Soil** – No VOCs, semivolatile organic compounds (SVOCs), PCBs, chlorinated herbicides, organochlorine pesticides, or organophosphorus pesticides were reported above the applicable soil screening levels. TPH in the oil range (TPH-oil) was detected in some soil samples at concentrations ranging from 3.38 to 18,900 mg/kg. The source of heavy-end TPH is crude oil production.
- **Groundwater** – Groundwater samples were collected from the three on-site monitoring wells. Based on prior groundwater monitoring reports, groundwater flows primarily to the southwest. TPH concentrations ranged from 0.28 to 1.039 milligrams per liter (mg/L) Pentachlorophenol was detected in one groundwater sample at a concentration of 17 micrograms per liter (µg/L), which exceeded the maximum contaminant level (MCL; also known as the primary drinking water standard) of 1 µg/L. No other constituents were reported in groundwater above the MCLs.

Long Beach City Property Site

A Phase I assessment was conducted for the Long Beach City Property site to identify recognized environmental conditions (Rincon 2015b). The Phase I assessment also summarized the results of previous assessments, investigations, and remediation activities. The Long Beach City Property site is listed on the GeoTracker and/or EnviroStor websites for the landfill sites and PCB cleanup described above in the Synergy section; the Phase I assessment included discussion of other spills and cleanups not listed on GeoTracker or EnviroStor websites. The following summarizes the information and is based on the 2015 Rincon Phase I assessment unless otherwise cited.

Oil Production and Associated Infrastructure

As shown in Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*, the Long Beach City Property site has eleven active, two idle, and nine plugged oil wells. As previously discussed for the Synergy Oil Field site, it is assumed that some of the wells may have backfilled sumps adjacent to the oil wells.

Documented Spill/Release Incidents

Spills and/or releases documented between 2006 and 2010 are discussed above (see Synergy Oil Field site information above); all of these spills were reportedly cleaned up with the oversight and approval of regulatory agencies, as summarized below.

PCB Removal

Investigations and cleanups for the release of PCBs at transformer locations on the Long Beach City Property site are discussed above (see Synergy Oil Field site information above). The USEPA issued a No Further Action letter for the PCB remedial action on February 24, 2010.

2016 and 2017 Soil Investigations

As a part of the previously discussed 2016 and 2017 soil investigations conducted on the Synergy Oil Field site, one soil sample was collected at the northeast corner of the Long Beach City Property site (AEC 2017a). The sample was tested for TPH in the gasoline, diesel, and oil range; lead; and arsenic. The testing results were either below detection levels (TPH-gasoline) or at low concentrations below regulatory screening levels (all other chemicals). Similar to the other testing results, arsenic was detected above screening levels but below regional background levels. Additional testing has been proposed for the area around two storage tanks in the southern part of the Long Beach City Property site (AEC 2017c). Based on the sampling results to date, no remediation has been proposed for the City Property site.

Pumpkin Patch Site

A Phase I assessment was conducted for the Pumpkin Patch site to identify recognized environmental conditions (AEC 2016a). As discussed in Chapter 2, *Project Description*, of this PEIR, the program area includes only the eastern portion of the Pumpkin Patch property. The former City Dump and Salvage Landfill #2 shown on Figure 3.7-1, is just west and outside of the program area; that former landfill is discussed further below in the section on Hazardous Materials at Nearby Sites. The eastern portion that is within the program area is discussed below.

Oil Production and Associated Infrastructure

The eastern one-third of the Pumpkin Patch site has one active oil well with a pumpjack type pumping unit (also called a horsehead, rocking horse, and other names) and surface and subsurface pipelines for oil delivery. Oil production from this site dates to the 1920s and is part of the Seal Beach Oil Field. As shown in Figure 3.5-3 Section 3.5, *Geology, Soils, and Paleontological Resources*, the Pumpkin Patch site has one active and one plugged oil well. As previously discussed, backfilled earthen sumps are anticipated to be adjacent to some wells that would contain produced oil and drilling mud. The Phase I assessment review of 1928 and 1938 aerial photographs indicated within the central-eastern portion of the site two side-by-side sumps adjacent to the drilling derrick. The two sumps and the derrick were removed by 1947. Future grading may encounter crude oil and/or drilling fluids in undocumented former sumps in this area, if any remain.

Central LCWA Site

The Central LCWA site is located within the Central Area (see Figure 2-2 in Chapter 2, *Project Description*, and Figure 3.7-1) and has seven active oils wells, 14 plugged oil wells (see Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*), oil pipelines, and dirt access roads (CalGEM, 2019). Oil production started as early as 1944. Given the age of this oil production area, the oil wells are assumed to also have sumps adjacent to the well heads; Figure 3.5-4 in Section 3.5, *Geology, Soils, and Paleontological Resources*, shows the locations of known sumps (Geosyntec, 2017).

Central Bryant Site

The Central Bryant site is located within the Central Area (see Figure 2-2 in Chapter 2, *Project Description*, and Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*) and has two oil wells, installed in 1945 and 1946, and plugged in 1973 (CalGEM, 2019). It is unknown whether any oil pipelines are still present. Given the age of this oil production area, the oil wells are assumed to also have sumps adjacent to the well heads. No development is visible on this site.

Isthmus Area

The Isthmus LCWA site portion of the Isthmus Area has four active oil wells, one idle oil well, 12 plugged wells, and oil infrastructure consisting of an access road, oil pipelines, three storage tanks, and eight buildings (see Figure 2-2 in Chapter 2, *Project Description*, and Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*) (CalGEM, 2019). The Isthmus Bryant portion of the Isthmus Area has one plugged oil well. Oil production started as early as 1946. Given the age of this oil production area, the oil wells are assumed to also have sumps adjacent to the well heads. The locations of known sumps are shown on Figure 3.5-4 in Section 3.5, *Geology, Soils, and Paleontological Resources*, and Figure 3.7-1 (Geosyntec 2017).

Hellman Oil Fields

The Hellman oil fields originally consisted of the Hellman Retained site and the South LCWA site in the South Area, as shown on Figure 2-2 in Chapter 2, *Project Description*. LCWA acquired the South LCWA site, which is no longer used for oil production. The combined Hellman oil field has 46 active oils wells, 11 idle well, 9 plugged wells, 17 storage tanks, along with several buildings and pipelines (see Figure 2-2 in Chapter 2, *Project Description*, and Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*) (CalGEM, 2019). Four plugged wells are on the South LCWA site. Oil production started as early as 1936. Given the age of this oil production area, the oil wells are assumed to also have sumps adjacent to the well heads. The location of known sumps are shown on Figure 3.5-4 in Section 3.5, *Geology, Soils, and Paleontological Resources* (Kinnetic 2012).

Former C&D Landfill

The former C&D landfill is located with the South Area (see Figure 3.7-1). The landfill area is not known to have had any oil wells (CalGEM, 2019). The landfill was investigated for hazardous materials in 2004 and 2006 (Anchor 2006). The landfill reportedly accepted clean fill material from

city projects, private projects, and the U.S. Army Corps of Engineers (USACE) in conjunction with dredging of the San Gabriel River. When investigated further in 2006, the observed landfilled materials consisted of layered sand, silt, clay, and gravel, with chunks of concrete and asphalt of varying sizes; no other waste types were observed other than one license plate.

Although not considered to be associated with the former landfilling activities, crude oil was observed along the southern portion of the landfill in 2006. The extent of the crude oil in 2006 was approximately 100 feet wide by 500 feet long by 3 to 6 inches thick at a depth of about 10 feet below the ground surface. The source is believed to be a former oil pipeline that crossed this area that was removed between 1954 and 1958.

Area 18

Area 18 is located in the eastern portion of the South LCWA site (see Figure 3.7-1) (Geosyntec, 2017). Stockpiled and buried materials consisted of asphalt-like materials consisting of "tank bottom sludge" – heavy petroleum material removed from the bottom of tanks or sumps, which was mixed with sand or other aggregate and used for improvised road paving.

3.7.2.3 Hazardous Materials at Nearby Sites

The following regulatory agency databases of hazardous materials sites that are compiled pursuant to Government Code Section 65962.5 were reviewed to identify documented releases of hazardous materials in soil and groundwater within 0.25 mile (1,320 feet) of the program area: the SWRCB GeoTracker and DTSC EnviroStor website databases. The relevant individual site documents are cited below. A 0.25-mile search radius from the program area was selected because sites beyond this distance would be unlikely to affect the program area due to the typically limited migration of shallow groundwater contaminant plumes from leaking underground storage tank (LUST) cases.

Open environmental cases and their distance from project components are summarized below in **Table 3.7-1**, *Environmental Cases Identified within 0.25 Miles of the Program Area*. The location of environmental cases identified within this area is shown in Figure 3.7-1. LUST sites and other sites that have been closed by the regulatory agency are not discussed because site closure indicates that the regulatory agency considers such sites to pose a low threat to human health and groundwater quality. In addition, sites listed with operational permits are not listed unless the website indicates active investigation and cleanup in response to releases. The landfills within the program area are discussed above. The Former Dump Pit Site identified on Figure 3.7-1, located just north of the Central Area, another LCWA site but located just outside of the program area, is also included below.

TABLE 3.7-1
ENVIRONMENTAL CASES IDENTIFIED WITHIN 0.25 MILES OF THE PROGRAM AREA

Site Name/Address	Approximate Distance and Direction from Program Area	Status and Comments
Pumpkin Patch site	Adjacent and southwest of Long Beach City Property site	Active—Groundwater monitoring
Former Dump Pit site	Adjacent; east of Synergy Oil Field site and north of Central Bryant site	Inactive investigation
Termo Oil site	Adjacent and northwest of Synergy Oil Field site	Active—Site assessment
Former Exxon #7-3047	East corner of Pacific Coast Highway and Westminster Avenue; just south of Synergy Oil Field site	Active—Groundwater remediation in progress
Former Tosco—76 Station #5379	South corner of Highway 1 and Westminster Avenue; just south of Synergy Oil Field site	Active—Groundwater remediation in progress

SOURCES: AEC, 2016a; Arcadis, 2018; Blaes, 2016; Northgate, 2019.

Pumpkin Patch Site

A Phase I assessment was conducted for the Pumpkin Patch site to identify recognized environmental conditions (AEC 2016a). As discussed in Chapter 2, *Project Description*, of this PEIR, the program area includes only the eastern portion of the Pumpkin Patch property. The former City Dump and Salvage Landfill #2 shown on Figure 3.7-1 is just west and outside of the program area and is discussed below.

Closed Landfill

The western two-thirds of the Pumpkin Patch property was previously operated as the City Dump and Salvage Landfill #2; the extent of the landfilled material is shown in Figure 3.5-4 in Section 3.5, *Geology, Soils, and Paleontological Resources*, and Figure 3.7-1. In September 1960, City Dump and Salvage received a permit from the County of Los Angeles, Industrial Waste Division, to accept household and construction waste in the eastern half of the site at a minimum of at least 300 feet from Pacific Coast Highway (PCH). The following waste was permitted for acceptance:

- Non-water soluble, non-decomposable inert solids;
- Ordinary household and commercial refuse, including decomposable organic refuse and scrap metal; and
- Garbage and market refuse.

The disposal of liquids, semi-liquids, and hazardous waste was not permitted. The landfill commenced waste acceptance operations at the site in mid-1960 and ceased operations in early 1961 after filling the “trench” landfill to its permitted capacity. The disposal permit allowed for the excavation of a trench to below the groundwater table and the subsequent filling with refuse. Final cover of the landfill was completed by May 16, 1961.

Various investigations have been conducted beginning in 1987 to delineate the extent of the landfill, and to characterize the nature and extent of chemicals associated with both the landfill and the oil production. The combined investigations indicate the landfill is rectangular-shaped,

encompasses the eastern half of the property, and that the refuse in the central portion of the burial area extends to a depth of 30 feet bgs. The refuse in the landfill consists of newspaper, plastic, metal, wood, glass, plant debris, rubber tubes and tires, and green waste.

Soil and groundwater investigation was initiated in July 2016 and included the installation of six groundwater monitoring wells, along with the sampling and analysis of soil and groundwater samples (AEC 2019). The measured depths to groundwater have ranged from 12.92 to 15.37 feet bgs, and fluctuate with the tides, primarily derived by sea water intrusion.

The soil samples were analyzed for TPH, VOCs, polynuclear aromatic hydrocarbons (PNAs or PAHs), Title 22 metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc), and PCBs. The soil analytical results identified numerous detections of TPH as gasoline, diesel and oil, along with various VOCs at two locations within the former landfill trench. In addition, the shallow soil sample in or near the former oil well sump associated with the on-site oil well indicated the presence of crude oil and the soil sample exhibited a crude oil odor. One soil sample in the boring within the former landfill trench was the only soil sample to exceed an industrial environmental screening level (ESL)[4] with diesel at 2,000 mg/kg. The ESL for diesel is 1,100 mg/kg.

The groundwater samples have been analyzed for TPH, VOCs, PNAs, Title 22 metals, PCBs, and water quality parameters of chloride, sulfate, and total dissolved solids (TDS) (AEC 2019). The groundwater analytical results identified numerous detections of TPH as gasoline, diesel, and oil, along with various VOCs in groundwater. As previously discussed, the two locations within the former landfill trench have the most and highest detections of chemicals. The results from one well exceeded industrial land use ESLs for gasoline and diesel, the VOCs 1,4-dichlorobenzene, benzene, ethylbenzene, naphthalene, and tertiary butyl alcohol (TBA; a gasoline additive) and Aroclor-1242 and 1258 (PCB compounds). The chloride, sulfate, and TDS concentrations from all groundwater wells exceeded their respective secondary maximum contaminant levels (SMCLs) of 250 mg/L, 250 mg/L, and 50 mg/L, respectively. The landfill continues to be monitored under the requirements of General Order No. R4-2002-022 for post closure maintenance of closed, inactive, or abandoned landfills (LARWQCB 2002).

Former Dump Pit Site

A Phase I assessment was conducted for the Former Dump Pit site to identify recognized environmental conditions (AEC 2016b) (see Figure 3.7-1). The Phase I report also summarized the results of previous Phase I and II assessments. The following assessment results are from the Phase I assessment unless otherwise cited.

Recent Land Use

The Former Dump Pit site consists of a level grade, hard packed dirt and gravel pad with a perimeter chain-link fence. An off-site earthen berm borders the northern and eastern borders of

[4] Although the AEC report did not provide a source for the ESL, it is assumed to be from the San Francisco Bay RWQCB ESLs, screening levels that are commonly used throughout the state to screen analytical results and assess whether further action is needed. Note that ESLs do not necessarily represent cleanup action levels but are rather used for preliminary screening to assess whether further action is needed.

the site and provides containment for the adjacent large volume crude oil ASTs that are also located to the north and east of the Former Dump Pit site. At the time of the Phase I site inspection in 2016, concrete K-Rails, two locked metal "sea train" type storage containers, several roll-off type metal containers containing dirt and cement/asphalt construction debris, and concrete wash-out containers were located throughout the site. Stockpiles of waste dirt and construction debris were observed throughout the site and it was reported that the subject site had been built up with approximately 20 feet of undocumented fill soil that was brought on-site over a long period previous to 1973.

A large stockpile of plastic traffic barricades was located along the northeast corner of the site and an outdoor workspace was located near the steel containers within the northwest corner of the site. Visible within this area were 55-gallon drums, as well as smaller metal and plastic containers and miscellaneous scrap metal and construction waste including wood, concrete and scrap metal. Several 55-gallon drums of "Spec Strip 100 VOC", which prevents bonding of concrete to forms and form liners, were located on wooden pallets; this material is used as a "non-stick" agent for off-site construction projects. A large amount of windblown household waste was also observed along the southern and western perimeter of the site adjacent to the chain-link fence. Possible drainage features were additionally observed on-site but did not appear to be in working condition at the time of the Phase I assessment.

Oil Production and Associated Infrastructure

The Former Dump Pit site is within the Seal Beach Oil Field. Historical aerial photographs, topographic maps, and CalGEM Map 132 indicates one plugged oil well along the southern edge of the site (Cal Resources "Bryant" 9) and numerous active and abandoned oil wells off-site to the west and south (see Figure 3.5-3 in Section 3.5, *Geology, Soils, and Paleontological Resources*). Otherwise, the site has remained undeveloped and no other permanent structures are known to have existed.

Dump Pit

A previous 2004 Phase II report, included in the above-cited 2016 Phase I assessment, described an area in the central-western portion of the Former Dump Pit site as a "dump pit" previously used for dumping waste cement and asphalt debris prior to 2004. The location of the dump pit is shown in Figure 3.7-1, but the areal extent of the pit is uncertain. During the Phase II investigation, a solid-stem auger dropped approximately 5 feet in an area where the buried concrete debris included a void space. A visual inspection inside the annular space indicated a small cavern in the shallow subsurface.

The 2004 chemical testing of soil indicated soil with elevated concentrations of arsenic lead, nickel, and vanadium. Soil gas concentrations for VOCs did not exceed the conservative shallow soil gas ESLs for the commercial/industrial land use scenario published by the San Francisco Bay Area RWQCB.[5] Hydrogen sulfide gas was not detected in the 10 soil gas samples collected at the site. Methane concentrations in soil gas samples were several orders of magnitude below the

[5] As discussed in Section 3.7.3, Regulatory Framework, other regions within California also use the San Francisco Bay Area RWQCB ESLs.

lower explosive limit (LEL) of 5 percent (50,000 parts per million [ppm]). No VOCs or SVOCs were detected in groundwater samples collected at the Former Dump Pit site.

In light of elevated concentrations of arsenic, lead, nickel and vanadium in soil at two locations identified during the 2004 investigation, additional soil testing was conducted in June 2017 at two locations proximal to earlier sampling locations within the central portion of the site (AEC 2017d). The results indicated that the metals concentrations were below screening levels, arsenic concentrations were all below regional background levels, and no further investigation or remediation was recommended for the Former Dump Pit site.

Former Exxon #7-3047

The former Exxon Station #7-3047, now called the Circle K Store, is located at 6401 Pacific Coast Highway, south of the Synergy Oil Field site and is an active gasoline service station (Blaes 2016, 2019) (see Figure 3.7-1). The station had a release of gasoline and is currently undergoing monitoring and cleanup. Liquid phase gasoline was removed from various on-site wells between 1988 and 2012, after which liquid phase gasoline has not been observed floating on groundwater in any of the wells. A vapor extraction system operated at the station from 1998 to 2006 to further remove gasoline from the subsurface. An air sparge system has been installed and periodically operated to the present. Air sparge wells bubble air into groundwater to transfer the gasoline components from groundwater to air, which is then pumped out of the subsurface and treated by a soil vapor extraction and treatment system. The March 2019 groundwater monitoring results indicate the extent of gasoline in groundwater is on the site and to the west away from the program area.

Former Tosco-76 Station #5379

The former Tosco-76 Station #5379, is located at 6280 East 2nd Street, south of the Synergy Oil Field site and is a now removed gasoline service station (Northgate 2019) (see Figure 3.7-1). The gasoline service station operated at the site between 1968 and 1998 and had releases of fuel and waste oil from leaking underground storage tanks and related equipment such as dispensers, product pipelines, pumps, and valves. The station previously underwent soil and groundwater investigation and cleanup from 1998, when the USTs were removed and the station demolished, to 2018, when the last soil excavation action was completed. Confirmation samples indicated that fill and soil with petroleum hydrocarbon concentrations above regulatory action levels had been removed. Subsequent sampling of groundwater did not detect any free floating fuel or oil product and did not detect any VOCs including the volatile components of gasoline. The fuel additives of methyl tertiary butyl ether (MTBE) and tributyl alcohol (TBA) were detected at low concentrations but were attributed to the adjacent former Exxon station discussed above. Groundwater flow directions range from southwest to northwest, and are influenced by tidal action. The groundwater flow directions are away from the program area.

3.7.2.4 Nearby Airports

The Los Alamitos Army Airfield is located about 2.7 miles northeast of the Synergy Oil Field site. The Long Beach Airport is located about 3.2 miles northwest of the Synergy Oil Field site. No public or private airports are located within 2 miles of the program area. The Boeing Seal

Beach complex, located about 1 mile east of the program area, has a rooftop helicopter pad; however, a helicopter pad would not have the flight path restrictions that planes and jets have. Therefore, this helicopter pad is not considered further.

3.7.2.5 Nearby Schools

The nearest schools are the JH McGaugh Elementary School, located about 0.36-mile south of the South LCWA Site at 1698 Bolsa Avenue in Seal Beach, and the Charles F. Kettering Elementary School, located about 0.40-mile north of the Synergy Oil Field site at 550 Silvera Avenue. No schools are located within 0.25 mile of the program area.

3.7.2.6 Wildfire Hazards

California Department of Forestry and Fire Protection (CAL FIRE) maps identify fire hazard severity zones in state and local responsibility areas for fire protection. The program area is not located within or near a very high or high fire hazard severity zone (CAL FIRE 2007, 2011).

3.7.3 Regulatory Framework

The primary program activities that have the potential for resulting in potential impacts with respect to hazards and hazardous materials consist of encountering existing on-site contaminants. Portions of the program area contain amounts of regulated materials from past oil drilling and production operations, requiring certain treatment and disposal techniques; removal of landfill material that may be present on portions of the program area; and the potential for leaks and other hazards from the equipment and oil field facilities to be used as part of the ongoing oil production operations. For the most part, the majority of these activities are heavily regulated by existing state and local laws and regulations. The discussion below identifies the numerous federal, state and local laws and regulations that will govern the proposed activities, and how those regulations serve to avoid or minimize potentially significant effects.

3.7.3.1 Federal

Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act of 1986

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund or CERCLA, provides for the response and cleanup of hazardous substances that may endanger public health or the environment. The Superfund Amendments and Reauthorization Act (SARA) amended Superfund to increase state involvement and required Superfund actions to consider state environmental laws and regulations.

Relevant to this program, SARA also established a regulatory program for the Emergency Planning and Community Right-to-Know Act. The applicable part of SARA for the proposed program is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986. Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous

substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key provisions require notification when extremely hazardous substances are present above their threshold planning quantities, immediate notification to the local emergency planning committee and the state emergency response commission when a hazardous material is released in excess of its reportable quantity, and that material safety data sheets for all hazardous materials or a list of all hazardous materials be submitted to the state and local emergency planning agencies and local fire department.

Resource Conservation and Recovery Act of 1976, Toxic Substances Control Act of 1976, and Hazardous and Solid Waste Act of 1984

Implementation of the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA) of 1976 resulted in the creation of a major federal hazardous waste regulatory program that is administered by USEPA. USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended by the associated Hazardous and Solid Waste Amendments (HSWA), which affirmed and extended the concept of regulating hazardous wastes from generation through disposal. HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous wastes. Under RCRA, individual states may implement their own hazardous waste programs instead of RCRA, as long as the state program is at least as stringent as the federal RCRA requirements. USEPA approved California's program to implement federal hazardous waste regulations on August 1, 1992.

Clean Water Act of 1972 as amended by the Oil Pollution Act of 1990

Under the authority of the Clean Water Act (CWA), as amended by the Oil Pollution Act, USEPA adopted, implements, and enforces the Oil Pollution Prevention regulations of 40 Code of Federal Regulations (CFR) Parts 109–114. The regulations establish requirements for preventing, preparing for, and responding to oil discharges at specific non-transportation-related facilities that have a reasonable expectation of an oil discharge into or upon navigable Waters of the US or adjoining shorelines. The regulations also establish procedures, methods, and equipment requirements, in addition to the Spill Prevention, Control, and Countermeasure (SPCC) plan. Onshore oil well drilling/production facilities are subject to SPCC rule if a single oil container has a storage capacity equal to or greater than 55 gallons, the total aboveground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons and, due to its location, the facility could reasonably be expected to discharge oil into or upon the navigable Waters of the U.S. Typically, any facility that could not reasonably be expected to have a discharge due to the facility's location is not subject to the regulations. That applicability determination must be based solely upon considering the geographical and location aspects of the facility, such as proximity to navigable waters or adjoining shorelines, land contour, and drainage. The determination cannot be based in whole or part on manmade features (e.g., dikes or equipment) that may restrain, contain, or otherwise prevent a discharge. The SPCC plans covered in these regulatory programs apply to oil storage and transportation facilities and terminals, tank farms, bulk plants, oil refineries, and production facilities, as follows:

- Part 109 establishes the minimum criteria for developing oil-removal contingency plans for certain inland navigable waters by state, local, and regional agencies in consultation with the regulated community, i.e., oil facilities.

- Part 110 prohibits discharge of oil such that applicable water quality standards would be violated, or that would cause a film or sheen upon or in the water. These regulations were updated in 1987 to adequately reflect the intent of Congress in CWA Section 311(b)(3) and (4), specifically incorporating the provision "in such quantities as may be harmful."
- Part 112 deals with oil spill prevention and preparation of SPCC plans. These regulations establish procedures, methods, and equipment requirements to prevent the discharge of oil from onshore and offshore facilities into or upon the navigable waters of the United States. These regulations apply only to non-transportation-related facilities. One of the requirements of the SPCC is that storage tanks be equipped with secondary containment systems to prevent oil spills from migrating into soil, groundwater, or surface water.
- Part 113 established financial liability limits; however, these limits were preempted by the Oil Pollution Act of 1990.
- Part 114 provides civil penalties for violations of the oil spill regulations.

U.S. Department of Transportation Hazardous Materials Transport Act of 1974

The U.S. Department of Transportation (USDOT), in conjunction with USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the USDOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. CFR 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

Hazardous Liquid Pipeline Safety Act of 1979 and Transportation of Hazardous Liquids by Pipeline

The Department of Transportation Office of Pipeline Safety is responsible for enforcement and implementation of regulations pertaining to the minimum requirements for materials, design, fabrication, assembly, construction, operation, inspection, testing, and maintenance of pipelines transporting hazardous liquids including petroleum products. The regulations within 49 CFR 195 include the following:

- Part 195.30 incorporates many of the applicable national safety standards of the American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), and American Society for Testing and Materials (ASTM).
- Part 195.50 requires an accident report by telephone and in writing for each failure in a pipeline system in which there is a release of the hazardous liquid or carbon dioxide (CO_2).
- Part 195.100 includes minimum design requirements for new pipeline systems including for the temperature environment; variations in pressure; internal design pressure for pipe specifications; external pressure and external loads; and new and used pipe, valves, fittings and flanges.
- Part 195.200 provides minimum pipeline construction requirements for standards such as compliance, inspections, welding, siting and routing, bending, welding and welders, inspection and nondestructive testing of welds, external corrosion and cathodic protection, installing in-ditch and covering, clearances and crossings, valves, pumping, breakout tanks, and construction records.

- Part 195.300 provides minimum requirements for pressure testing of steel pipes (including test pressures and duration, test medium, and records), and
- Part 195.400 provides minimum requirements for operating and maintaining pipeline systems constructed with steel pipeline.

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act was passed to address employee safety in the workplace. The act created the Occupational Safety and Health Administration (OSHA), whose mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. Some OSHA regulations contain standards related to hazardous materials handling, including workplace conditions, employee protections requirements, first aid, and fire protection. The regulations in 29 CFR et seq. include the following:

- Part 1910.38 requires facilities to have an emergency action plan to ensure the safe response to emergencies.
- Part 1910.119 contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals, which may result in toxic, fire, or explosion hazards.
- Part 1910.1200 ensures that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets, and employee training.

3.7.3.2 State

Division of Oil, Gas, and Geothermal Resources

All California oil and gas wells (development and prospect wells), enhanced-recovery wells, water-disposal wells, service wells (i.e., structure, observation, temperature observation wells), core-holes, and gas-storage wells, onshore and offshore (within 3 nautical miles of the coastline), located on state and private lands, are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by the Department of Conservation's CalGEM.

Regulations pertaining to oil and natural gas production are summarized in the CalGEM Publication No. PRC10, *California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*, dated January 2017. Regulations for the installation and abandonment of oil and natural gas wells are also in 14 CCR 1712 through 1724.10. Environmental protection regulations for oil and natural gas well installations, operations, and abandonments are in 14 CCR 1750 through 1789.

Additionally, CalGEM publishes instruction manuals related to the oil drilling. Instruction Manual M06 pertains to the testing of oil and gas wells and explains the formation tester

mechanism, engineering principles, testing methods, and result analyses. Instruction Manual M07 pertains to blowout prevention equipment (BOPE) and explains the functions and operating characteristics of BOPE for oil, gas, and geothermal wells drilled in California.

CalGEM requires written approval prior to changing the condition of any well (e.g., making an "idle" well "active," or plugging and abandoning a well). For new wells or alteration of existing wells, approval depends on protection of subsurface hydrocarbons and fresh waters; protection of the environment; utilization of adequate BOPE; and utilizing approved drilling and cementing techniques.

California Pipeline Safety Act of 1981

The California Pipeline Safety Act of 1981, codified in Chapter 5.5, Sections 50001–51298.5, applies to pipelines that carry hazardous liquids (e.g., crude oil) and authorizes the State Fire Marshal to implement the federal Hazardous Liquid Pipeline Safety Act, as summarized above. This act imposes additional specific safety requirements on intrastate pipelines carrying hazardous liquids, including a time schedule for conformance to federal regulations, hydrostatic testing requirements, pipeline maps, contingency plans, and pipeline incident reporting.

NPDES Construction General Permit

The National Pollutant and Discharge Elimination System (NPDES) Construction General Permit is applicable to this program. Details of the Construction General Permit are provided in Section 3.5, *Geology, Soils, and Paleontological Resources*, which describes the required SWPPP and BMPs designed to control and prevent the release of sediments and pollutants into water ways.

Hazardous Materials Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act of 1985, codified in Health and Safety Code, Sections 25500 et seq., also known as the Business Plan Act, requires businesses using hazardous materials to prepare a Hazardous Materials Business Plan (HMBP) that describes their facilities, inventories, emergency response plans, and training programs. HMBPs contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed. This code and the related regulations in 19 California Code of Regulations (CCR) Sections 2620 et seq. require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a HMBP to their local Certified Unified Program Agency (CUPA) and to report releases to their CUPA and the State Office of Emergency Services. The California Office of Emergency Services is responsible for implementing the accident prevention and emergency response programs established under the Act and implementing regulations.

Hazardous Waste Control Act

The Hazardous Waste Control Act of 1972, codified in Health and Safety Code Sections 25100 et seq., created the state hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The Act is implemented by regulations contained in CCR Title 26, which describes the following required aspects for the proper management of

hazardous waste: identification and classification; generation and transportation; design and permitting of recycling treatment, storage and disposal facilities; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), codified in Health and Safety Code Sections 25404 et seq., requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a CUPA. The following Program Elements are consolidated under the Unified Program:

- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs (a.k.a. Tiered Permitting);
- Aboveground Petroleum Storage Tanks and Spill Prevention Control and Countermeasure Plans (SPCCs);
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know");
- California Accidental Release Prevention Program;
- Underground Storage Tank (UST) Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Within Seal Beach, the CUPA is the Orange County Environmental Health Division. Within Long Beach, the CUPA is the Long Beach/Signal Hill Joint Powers Authority.

California Occupational Safety and Health Act

The California Occupational Safety and Health Act of 1973, codified in California Labor Code, Sections 6300 et seq., addresses California employee working conditions, enables the enforcement of workplace standards, and provides for advancements in the field of occupational health and safety. The act also created the California Occupational Safety and Health Administration (Cal OSHA), the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal OSHA's standards are generally more stringent than federal regulations. Under Cal OSHA standards, the employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

License to Transport Hazardous Materials

A valid Hazardous Materials Transportation License, issued by the California Highway Patrol, is required by the State of California Vehicle Code Section 32000.5 for transportation of hazardous materials shipments for which the display of placards is required by state regulations; or hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the California Highway Patrol under the authority of the State Vehicle Code Sections 32100–33002. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150–1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157–1157.8).

Utility Notification Requirements

The regulations in 8 CCR Section 1541 require excavators to determine the approximate locations of subsurface installations, such as sewer, telephone, fuel, electric, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Sections 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members of, participate in, and share in the costs of a regional notification center, such as Underground Services Alert of Southern California, more commonly referred to as DigAlert, are in compliance with this section of the code. DigAlert receives planned excavation reports from public and private excavators and transmits those reports to all participating members that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig.

Hazardous Materials Storage and Handling

The California Fire Code (Chapter 27) and 24 CCR, Part 9, Sections 2700 et seq. includes specific requirements for the safe storage and handling of hazardous materials. These requirements reduce the potential for a release of hazardous materials and for mixing of incompatible chemicals, and specify the following specific design features to reduce the potential for a release of hazardous materials that could affect public health or the environment:

- Separation of incompatible materials with a noncombustible partition, or appropriate distance separation;
- Spill control in all storage, handling, and dispensing areas; or
- Separate secondary containment for each chemical storage system. The secondary containment must hold the entire contents of the tank, plus the volume of water needed to supply the fire suppression system for a period of 20 minutes in the event of a catastrophic spill.

California Fire Code (Chapter 14) addresses fire safety during construction and demolition and includes requirements for smoking, waste disposal, cutting and welding, fire protection equipment, fire reporting, access for firefighting.

Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater

The USEPA Regional Screening Levels (RSLs)[6] and San Francisco Bay Area RWQCB ESLs[7] are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred. Screening levels have been established for both residential and commercial/industrial land uses, and for construction workers. Residential screening levels are the most restrictive; soil with chemical concentrations below these levels generally would not require remediation and would be suitable for unrestricted uses if disposed of off-site. Commercial/industrial screening levels are generally less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures). Screening levels for construction workers are also less restrictive than for commercial/industrial workers because construction workers are only exposed to the chemical of concern during the duration of construction, while industrial workers are assumed to be exposed over a working lifetime.

Hazardous Waste Levels in Soil or Groundwater

TTLCs and Soluble Threshold Limit Concentrations (STLCs) are chemical-specific concentrations used to define whether a material is a hazardous, designated, or nonhazardous waste. TTLCs and STLCs are listed in CCR Title 22, Chapter 11, Article 3, Section 66261. TTLCs and STLCs are used as acceptance criteria for landfills. For example, waste materials with chemical concentrations above TTLCs or STLCs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.

Screening Levels for NORM

There currently exist no federal or California regulations that specifically address the handling and disposal of oil-field NORM wastes (USGS 1999). Texas, Louisiana, New Mexico, and Mississippi have enacted specific NORM regulations; NORM regulations or modifications to general radiation protection statutes are under consideration in California; however, McKittrick Landfill is permitted by California to accept NORM waste. Its Waste Discharge Requirements permit it to accept radioactive materials that do not requiring federal or state license and regulation, which includes unregulated low-level radioactive materials such as NORM (Kern County 2013). Materials with NORM at a 13 microroentgens per hour (μR/hr) readings or higher are considered to be NORM (Spec Services 2017).

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6 RSLs were previously referred to as Preliminary Remediation Goals (PRG), cited in older investigation reports.

7 Although promulgated by the San Francisco Bay Area RWQCB, ESLs are commonly used by regulatory agencies throughout the state to screen analytical results and assess whether further action is needed.

3.7.3.3 Local

Orange County Drainage Area Management Plan (DAMP) and Orange County MS4 Permit

The Orange County Drainage Area Management Plan (DAMP), is the principal policy, programmatic guidance, and planning document for the Orange County Stormwater Program, a municipal regulatory compliance initiative focused on the management and protection of Orange County's streams, rivers, creeks and coastal waters. The participants in this program include the City of Seal Beach. The stormwater program was initiated in 1990 as a cooperative local government response to requirements stemming from the Clean Water Act regulations and the NPDES permitting program. In response to those regulations, the County of Orange, the Orange County Flood Control District and the incorporated cities of Orange County (collectively referred to as Permittees) have obtained, renewed and complied with NPDES Stormwater Permits from the Santa Ana and San Diego Regional Water Quality Control Boards. For the Seal Beach area, the current permit is R8-2009-0030 NPDES No. CAS618030, as amended by Order No. R8-2010-0062.

The NPDES Permit includes (1) a requirement to effectively prohibit non-storm water discharges into municipal storm sewers; and (2) controls to reduce the discharge of pollutants from municipal storm drains to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the state determines appropriate for the control of such pollutants. Details of the DAMP are provided in Section 3.5, *Geology, Soils, and Paleontological Resources*.

City of Seal Beach Municipal Code

Chapter 5.55 Oil and Gas Production

5.55.090 Operation Standards. Drilling shall be conducted in accordance with the following operation standards:

I. The operation of any oil and gas well and production therefrom drilled pursuant to an oil/gas production permit shall be in accordance with the rules and regulations of the Division of Oil and Gas of the state, or any successor agency or body thereto.

5.55.095 Additional Standards. No oil/gas production permit shall be issued where all or any part of the proposed drill site is located within the city without the following additional standards being required and made a part and condition of such permit; provided, however, that the city council may in the event the proposed drill site is more than 1,000 feet from any current or proposed residential or commercial area, waive any or all of such following standards upon a finding that the standards would impose a hardship on the permittee and would not serve to protect the citizens of the city. The city council may require the following additional standards to be made a condition of any permit for wells drilled from a site outside the city, if such drill site is within 1,000 feet of any developed residential or commercial area.

F. Within 90 days after the completion of drilling operations or abandonment of further drilling, the derrick and all drilling equipment, including temporary tanks, shall be removed from the drill site. Well abandonment shall be in accordance with the requirements of the Division of Oil and Gas of the state. Upon such well abandonment, the permittee shall restore the property as nearly as possible to its

original condition and shall remove all concrete foundations, oil-soaked soil, and debris; all holes or depressions shall be filled to the natural surface.

J. All drilling and production equipment installed or operated upon any controlled drill site shall be so constructed, operated, and maintained that no noise, vibration, odor, or other harmful or annoying substances of effects therefrom which can be eliminated or diminished by the use of modern and approved types of equipment silencers or greater care shall ever be permitted to result from operations on any controlled drill site to the injury or annoyance of persons in the vicinity of such controlled drill site. Proven technological and mechanical improvements in methods of drilling and production and in the type of equipment used therefore shall be adopted from time to time, as the same become available if the use of such equipment, improvements, and methods will reduce noise, vibration, odors, or the harmful effects of annoying substances. The use of equipment in any controlled drill site, which equipment causes noise or vibration, shall at all times be subject to the approval of the city council, and the city council may amend any permit and require the permittee to abate any noise or vibration which constitutes a nuisance and is detrimental to persons or property in the vicinity where such equipment is being operated.

M. No earthen sump shall be used or maintained on any controlled drill site, and all waste water, mud, oil, or other waste products from drilling and producing operations shall be accumulated in steel tanks, and such tanks shall not be permitted to overflow at any time.

Chapter 9.20 Storm Water Management Program

9.20.015 Controls for Water Quality Management.

A. New Development and Significant Redevelopment.

1. All new development and significant redevelopment within the city shall be undertaken in accordance with:

   a. The DAMP, including without limitation the development project guidance.

   b. Any conditions and requirements established by the responsible city department, which are reasonably related to the reduction or elimination of pollutants in storm water runoff from the project site.

2. Prior to the issuance by the city of a grading permit, building permit or nonresidential plumbing permit for any new development or significant redevelopment, the responsible city department shall review the project plans and impose terms, conditions and requirements on the project in accordance with this chapter.

Chapter 9.50 Grading

9.50.015 Grading Permit Requirement. No person shall perform any of the following activities without first obtaining from the city engineer, and maintaining in full force and effect, a grading permit:

A. Grading or land disturbing or land filling on existing grade that is preparatory to grading.

B. Clearing, brushing and grubbing.

C. Construction of pavement surfacing in excess of 2,499 square feet on existing grade for the purpose of a road or parking lot. This provision does not include resurfacing or maintenance of existing paved surfaces.

D. Alteration of an existing watercourse, channel or revetment by means of excavation, fill placement or installation of rock protection or structural improvements. (Ord. 1515)

Chapter 9.60 Building Code

Section 101 General

101.4.1 Building Code. The provisions of the California Building Code as adopted and amended by City of Seal Beach shall apply to all buildings and structures other than those meeting the scoping limitations contained in the California Residential Code.

101.4.7 Fire Code. The mandatory provisions of the California Fire Code as adopted and amended by City of Seal Beach shall apply to all new and existing buildings, structures and premises.

City of Seal Beach General Plan

Topic 2: Hazardous Materials

Policy 2S. Minimize changes in hydrology and pollutant loading, require incorporation of control, including structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows, ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat, minimize the quantity of storm water directed to impermeable surfaces and the MS4s, and maximize the percentage of permeable surfaces to allow more percolation of storm water into the ground.

Policy 2T. Preserve wetlands, riparian corridors, and buffer zones and establish reasonable limits on the clearing of vegetation from the project site.

Policy 2U. Encourage the use of water quality wetlands, biofiltration swales, watershed-scale retrofits, etc. where such measures are likely to be effective and technically and economically feasible.

Policy 2V. Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.

Long Beach Storm Water Management Program

This City of Long Beach Program reinforces the Construction General Permit Stormwater Pollution Prevention Plan (SWPPP) requirements for projects disturbing more than an acre, and lists minimum requirements to be met at every construction site regardless of the construction site's size. The Long Beach Storm Water Management Program is noted but discussed in detail in Section 3.5.3, *Regulatory Framework*, in Section 3.5, *Geology, Soils, and Paleontological Resources*, of this PEIR.

Long Beach MS4 Permit

The City of Long Beach is covered under the Long Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach; Order No. R4-2014-0024. The Long Beach MS4 Permit is discussed in detail in Section 3.5, *Geology, Soils, and Paleontological Resources.*

Long Beach Low-Impact Development Manual

The City adopted low-impact development regulations for the purpose of encouraging the beneficial use of rainwater and urban runoff; reducing stormwater/urban runoff while improving water quality; reducing off-site runoff and providing increased groundwater recharge; reducing erosion and hydrologic impacts downstream; and enhancing the recreational and aesthetic values in our communities. The Low-Impact Development Manual is discussed in Section 3.5, *Geology, Soils, and Paleontological Resources*.

Adopted Southeast Area Development and Improvement Plan and Proposed Southeast Area Specific Plan 2060

The individual sites are located in the Southeast Area Development and Improvement Plan (SEADIP) area. This plan is in the process of revision. In July 2016, the City of Long Beach circulated a draft of the Southeast Area Specific Plan (SEASP) 2060, and includes re-designating land uses for the program area. The SEADIP does not contain standards relative to hazardous materials use or storage; however, the SEASP 2060 contains standards relevant to hazards and hazardous materials which apply to this proposed program. Chapter 5, Section 5.10, Wetland Buffers, and Chapter 8, Section 8.1.2, Storm Drains, of the SEASP 2060 are discussed in Section 3.5.3. Chapter 5, Section 5.11, Coastal Act Compliance, has not formerly been addressed and is explained below.

Chapter 5, Development Standards, Section 5.11, Coastal Act Compliance—Protection from Oil Spills or Hazardous Substances (Section 30232)

The SEASP 2060 allows for ongoing oil drilling and production and consolidation of wells that comply with Title 12, Oil and Gas Production, of the LBMC and also California Coastal Act Section 30262, Oil and Gas Development. These regulations include provisions that help to protect against the spillage of crude oil, gas, petroleum products, or hazardous substances in relation to any development or transportation of such materials as well as requiring effective containment and cleanup facilities and procedures for accidental spills that do occur.

Long Beach Municipal Code

Title 8. Health and Safety

Chapter 8.86: Hazardous Materials Release Response Plans and Inventory. This chapter designates the Long Beach/Signal Hill CUPA as the local agency responsible for enforcing regulations regarding Hazardous Materials Release Response Plans within the City.

Chapter 8.87: Hazardous Waste Control. This chapter designates the Long Beach/Signal Hill CUPA as the local agency responsible for enforcing regulations regarding hazardous waste control within the City.

Chapter 8.88: Hazardous Materials Cleanup. This chapter reinforces the requirements for site characterization and remediation for hazardous materials spills, and requires characterization and remediation permits be acquired from the Health Officer of the City of Long Beach and any deputy Health Officer or designee. The Health Officer shall determine the compliance with the hazardous waste control laws by responsible parties.

Chapter 8.96: Storm Water and Runoff Pollution Control. This chapter reinforces the requirements of the Federal Clean Water Act and the State Porter Cologne Act (including Construction General Permit requirements) within the City.

Title 12. Oil Production Regulations

Chapter 12.12.050: Drilling Permit—Application Contents. This chapter describes the requirements for oil well drilling permits, which include setbacks from specific facilities, drilling procedures, operations procedures, and a certification that the means or method by which liquid spills will be removed from diked areas or catchment basins will conform to the regulations of the DOGGR.[8]

Chapter 12.16.050: Consolidated Drill Site Plans. This chapter describes locations exemption to encourage the consolidation of oil drilling surface facilities to make additional land available for non-oil production land uses.

Chapter 12.36.010: Abandonment Procedure. This chapter describes the permit requirements for well abandonment, including compliance with DOGGR[9] regulations, the removal of all unused equipment, the cleaning out of all sumps, cellars, and ditches of all oil, oil residue, drilling fluid, and rubbish removed therefrom and the sumps, cellars, and ditches leveled or filled, all in accordance with the DOGGR[10] regulations. Where such sumps, cellars, and ditches are lined with concrete, permittee shall cause the walls and bottoms to be broken up and removed and shall cause the premises to be cleaned and graded and left entirely free of oil, rotary mud, oil-soaked earth, asphalt, tar, concrete, litter, debris, and other substances, and left in a clean and neat condition, all to the satisfaction of the DOGGR.[11]

Chapter 12.12.100: Special conditions—Petroleum operations.

A. Storage of Equipment. All equipment or materials related to petroleum operations shall be stored within the fenced area of the site. There shall be no storage of material, equipment, machinery or vehicles which is either not intended for prompt use in connection with petroleum operations at the site or for the convenience of personnel at the site.

B. Removal of Petroleum. When pipeline connections are available, petroleum produced at the well site may be removed by underground pipeline or pipelines. Petroleum produced at well sites where pipeline connections are not available shall be removed by truck. Such trucking shall be limited to Monday through Saturday, excluding legal holidays, between the hours of seven-thirty a.m. and six-thirty p.m.

D. Tanks. The number of tanks shall be kept to a minimum and new tanks shall be installed so that the height of the tank does not exceed sixteen (16) feet above grade.

E. Process Operations. The only process operations permitted at the well site is the dehydration of crude oil and wet gas produced from the well and those process operations required for injection purposes unless otherwise required by the State Division of Oil and Gas.

F. Flaring or Venting. Gas shall not be vented to the atmosphere, nor burned by open flame, unless prior approval therefor is obtained from the State Division of Oil and Gas.

H. Fencing. For renewal of well permits for wells existing prior to July 1, 1980, such wells shall be enclosed with a chain-link fence in accordance with Section 12.28.030 or with approved alternate fencing prior to renewal of a well permit. For well permits issued

[8] Effective January 1, 2020, DOGGR was renamed to CalGEM.
[9] Effective January 1, 2020, DOGGR was renamed to CalGEM.
[10] Effective January 1, 2020, DOGGR was renamed to CalGEM.
[11] Effective January 1, 2020, DOGGR was renamed to CalGEM.

subsequent to July 1, 1980, the chain-link fence shall have opaque material of a neutral color approved by the Director inserted between the chain links. The Director may approve a fence of alternative material more effective in concealing the oil operations provided that it is compatible with the surrounding residential neighborhood. All existing masonry walls or alternate fencing that were constructed as a condition for drill permits shall remain in place. Fencing shall not be less than six feet (6') in height and shall be maintained in a neat and orderly condition.

J. Additional Requirements for Well Sites in the Coastal Zone. In recognition of the fact that the Coastal Zone is a unique asset of the State and in order to preserve and enhance the quality of this asset, the requirements set forth in these regulations for drilling and redrilling operations relating to fencing, landscaping and irrigation, and off-site improvements, Subsections C, D and E of this Section, shall be implemented at all well sites located in nonindustrial zones of the Coastal Zone by January 1, 1981. If permittees can show good cause why such improvement cannot be completed by January 1, 1981, then extensions of up to six (6) months may be granted to comply with these requirements, but in no event will extensions be granted past June 30, 1981. This chapter describes the permit requirements for well abandonment, including compliance with DOGGR[12] regulations, the removal of all unused equipment, the cleaning out of all sumps, cellars, and ditches of all oil, oil residue, drilling fluid, and rubbish removed therefrom and the sumps, cellars, and ditches leveled or filled, all in accordance with the DOGGR[13] regulations. Where such sumps, cellars, and ditches are lined with concrete, permittee shall cause the walls and bottoms to be broken up and removed and shall cause the premises to be cleaned and graded and left entirely free of oil, rotary mud, oil-soaked earth, asphalt, tar, concrete, litter, debris, and other substances, and left in a clean and neat condition, all to the satisfaction of the DOGGR. [14]

City of Long Beach General Plan

The City of Long Beach General Plan contains a Public Safety Element and Conservation Element, which are applicable to this proposed program.

Public Safety Element

Transport of Hazardous Materials

The California Department of Transportation (Caltrans) sets forth regulations and restrictions upon the transporting of dangerous fluids, chemicals, or explosives. In the City of Long Beach, designated truck routes are established. These routes are delineated on Plate 13, along with freeways and railroads. Aside from the routine safety precautions, the City Fire and Police Departments are alerted when shipments of particularly dangerous materials are due to pass through the City of Long Beach. For the safety of the workmen, Longshoremen and Teamster Unions also require shippers and transporters of dangerous materials to take precautionary measures.

In terms of public safety, the areas immediately adjacent to designated truck routes should be allocated for low occupancy land uses, thereby exposing a fewer number of people to potential risk. The difficulty, however, is that truck routes are generally major arterials, offering ease of access for commercial and multi-family residential uses. Through physical planning and spatial

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[13] Effective January 1, 2020, DOGGR was renamed to CalGEM.
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design, however, an effort should be made to buffer all uses from passing dangerous materials by way of set-backs or natural barriers.

"In 1967, Caltrans, the County of Los Angeles, and the California Highway Patrol negotiated with the Pacific and General Telephone Companies for the installation of call-boxes on approximately 310 miles of Los Angeles County freeways." The Long Beach Freeway south of Anaheim Street, however, is not state maintained and thus was not equipped with emergency phones. As this portion of the freeway is designated as Harbor District responsibility, the area is patrolled rather regularly by Harbor Department personnel. Because of the close observation of the area, accidents are likely to be detected rather quickly. Nonetheless, a number of recent freeway accidents have occurred, involving such things as gasoline carriers and the potential hazard may justify the installation of phones along this stretch of the freeway from Anaheim Street to the Harbor area. A cost benefit analysis of freeway phones installations in this area should be further examined.

Advance Planning Recommendations

- New development should be responsive to seismic considerations (see Seismic Safety Element).

Conservation Element

Soil Management Goals

- To minimize those activities which will have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.
- To continue to monitor areas subject to siltation and deposition of soils which could have a detrimental effect upon water quality and the marine biosphere.

3.7.4 Significance Thresholds and Methodology

This section describes the impact analysis relating to hazards and hazardous materials for the proposed program. It describes the methods and applicable thresholds used to determine the impacts of the proposed program.

3.7.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on hazards and hazardous materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

As detailed in the NOP/IS (refer to Appendix A of this PEIR), the proposed program would result in less than significant impacts to threshold "e" and no impacts to threshold "f." Although not required, evaluation of the proposed program's impact to thresholds "e" and "f" were conducted in this section.

3.7.4.2 Methodology

This impact section assesses potential impacts related to hazards and hazardous materials based on the potential for the proposed program to adversely change those conditions or expose facilities or people or the environment to adverse impacts, using existing site conditions as a baseline for comparison. Information for this assessment of impacts relative to hazards and hazardous materials is based on a review of literature research (Phase I assessments, Phase II investigations, and cleanup actions), information from regulatory agency databases, and the General Plans for the cities of Seal Beach and Long Beach. This information was used to identify potential impacts to workers, the public, or the environment.

For purposes of this analysis, construction activities would include the excavation, grading, and movement of fill and soil to restore habitat; removal of some existing oil production facilities (wells, piping, and associated infrastructure); and construction of a visitor center, trails, and access roads. These construction activities would occur at various times spread out over time across the entire program area. Operations activities would include the operational phases of the restored habitat, visitor center, and trails. In addition, the operations activities include the post-treatment monitoring activities conducted to verify that habitat restoration objectives have been achieved.

The plugging and relocation of oil wells and associated infrastructure and impacts associated with worst-case spill scenarios on the Northern and Southern Synergy Oil Field sites, Long Beach City property site, and the Pumpkin Patch site were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083), and are not repeated or analyzed within this PEIR.

The plugging and relocation of oil wells and associated infrastructure on the Hellman Retained site, the Isthmus LCWA site, or the Alamitos Bay Partners site are not proposed at this time, but are anticipated to occur in the long term when production falls to below economic levels. As proposed in the Termination of Oil and Gas Lease and Grant of Easement agreement between

Signal Hill Petroleum Inc., and the LCWA, Signal Hill Petroleum Inc. would relocate or modify aboveground pipelines and utilities on the Central LCWA site and remediate soils that have been impacted by oil operations to accommodate the restoration. Thus, restoration in the near term would include pipeline relocation, but not well relocation. Additionally, outside of this agreement, existing Signal Hill Petroleum Inc. wells would be protected in place by proposing to raise the wells. When the owner/operators of those oil operations within the program area elect to change or close those operations, the changes would be analyzed under separate CEQA documents. The change or closure procedures and impacts analysis would be similar to those described and analyzed within this PEIR.

The program would be regulated by the various laws, regulations, and policies summarized in the Regulatory Framework. Compliance by the proposed program with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with many of the regulations are a condition of permit approvals.

A significant impact would occur if, after considering the program features described in Chapter 2, *Project Description*, of this PEIR, and the required compliance with regulatory requirements, a significant impact would still occur. For those impacts considered to be significant, mitigation measures are proposed to reduce the identified impacts.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to hazards and hazardous materials were identified.

3.7.5 Program Impacts and Mitigation Measures

Impact HAZ-1: The proposed program would result in a significant impact if the proposed program would create a significant hazard to the public or the environment through the routine transport, use, or disposal, or reasonable foreseeable upset and accident conditions that release hazardous materials.

Impacts relative to encountering contaminated materials in fill, soil, and/or groundwater are analyzed further below in Impact HAZ-3.

Construction

Overall Construction Activities

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment for construction of all program components. Additionally, coatings, adhesives, and paints could be used and handled for construction of the visitor center. Despite the numerous protective and preventive measures, the routine use or reasonably foreseeable upset and accident conditions for the various hazardous materials that would be used during construction activities could result in inadvertent releases of

small quantities of hazardous materials, which could adversely affect construction workers or the environment.

Construction activities are required to comply with numerous hazardous materials and storm water regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, to reduce the potential for a release of construction-related fuels or other hazardous materials to affect storm water and downstream receiving water bodies, and to respond to accidental spills, if any. The numerous regulations discussed in Section 3.7.3, *Regulatory Framework*, such as RCRA, HMBP, the Aboveground Petroleum Storage Act, the California Fire Code, and others would require measures for the safe transportation, storage, handling, and disposal of hazardous materials used for construction, including appropriate containers, secondary containment to contain a potential release. In addition, and as discussed in Section 3.5, *Geology, Soil, and Paleontological Resources*, of this PEIR, construction contractors would be required to prepare a SWPPP for construction activities according to the NPDES General Construction Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction and describe spill prevention measures, equipment inspections, equipment and fuel storage, and protocols for responding immediately to spills. With compliance with existing regulations, properly storing any materials on-site, and implementing proper containment, the impacts would be reduced to less than significant.

Well Plugging and Abandonment

The proposed program includes the phased plugging and abandonment of existing oil wells within the program area in the long term. Because there are no agreements in place for oil well removal between the oil operators and LCWA, it is expected that overall level of oil and natural gas production would continue until production decreases to below economically viable levels, after which oil production would stop. A well is plugged by placing cement in the well-bore or casing at certain intervals. The purpose of the cement is to seal the wellbore or casing and prevent fluid from migrating between underground rock layers. Cement plugs are required to be placed across the oil or gas reservoir, across the base-of-fresh-water, and at the surface. Other cement plugs may be required at the bottom of a string of open casing, on top of tools that may become stuck down hole, on top of cut casing, or anywhere else where a cement plug may be needed. Also, the hole is filled with drilling mud to help prevent the migration of fluids.

Consistent with Public Resources Code (PRC) Section 3229, Division 3, before commencing any work to abandon any well, the operator shall file with CalGEM a written notice of intention to abandon the well, which may not proceed until approval is given by CalGEM. In addition to CalGEM regulations regarding the plugging and abandonment of oil wells, the operator is also required to comply with the California Department of Health Services regulations in Section 30346 of CCR Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 7. With compliance with existing regulations, impacts from well abandonment would be reduced to less than significant.

Removal of Oil Pipelines

Pipelines would be removed from service, cleaned, and disposed of per CalGEM and DTSC requirements. The pipelines to be demolished would be marked in the field and permanently isolated with blind flanges from sections of the system that would continue operating. All removed pipelines would be tested for NORM, and any NORM pipeline identified would be segregated from other materials for handling and disposal at the McKittrick Landfill in McKittrick, California, which is permitted to accept NORM materials. Any fluids within the pipelines would be flushed into vacuum trucks. The flushing areas where the pipes would be remediated would have spill prevention methods implemented (temporary containment, plastic sheeting, containers, etc.) to contain residual fluid. Once the aboveground pipelines are emptied of residual fluids, they would be cut into smaller sections for recycling or disposal. Spill containment equipment would be placed at all the cut points and the pipes will be capped prior to removal. Plastic tarps would be laid beneath the pipelines prior to removal to collect any pieces of the pipe that may be dislodged during the removal process to prevent them from falling into the wetlands. The pipe would be placed onto a flatbed truck and then hauled to on-site storage bins for subsequent removal off-site. With compliance with existing regulations, policies, and industry standards, and with utilization of adequate spill containment equipment and practices, potential impacts associated with pipeline removal due to leaked fluids would be reduced to less than significant.

Relocation of Oil Pipelines

In some cases (e.g., the oil well field on the Central LCWA site), removed oil pipelines would be replaced with relocated oil pipelines. Newly installed pipelines would be subject to federal regulations (49 CFR Part 192 and 49 CFR Part 195) that mandate hydrostatic testing of new, cathodically protected pipelines prior to placing the pipeline into operation. Such tests are designed to prove that the pipe, fittings, and weld sections would maintain mechanical integrity under pressure without failure or leakage.

Additionally, pipelines would be inspected in accordance with CalGEM regulations to ensure the ongoing integrity of the pipeline. Other inspection and maintenance of the connecting pipeline may include the use of pigs, which are devices inserted into the pipeline. Pigs would be used as needed to clean and/or inspect the connecting pipeline and “smart pigs” would be used to detect corrosion or other damage that has affected the wall thickness or shape of the pipe. Also, emergency isolation valves and shutdown instrumentation would be regularly tested for set points and functionality.

Further, “distributed strain and temperature sensing” fiber optic lines would be installed to detect leaks. This technology would be able to detect leaks immediately upon occurrence, and would also detect any soil disturbances in the line. Additionally, seismic accelerometers at the pipeline portions at the Central LCWA site would be installed. If a seismic event is detected, valves shut according to a timed sequence to prevent pressure surges.

New pipelines would be treated to decrease the potential for corrosion. All lines would have a baked-on external epoxy coating (fusion bonded epoxy) which would protect the outside carbon steel from corrosion. Field welds would have an epoxy coating at each seam. All lines with

corrosive material (wet gas, oil gathering, and water lines) would have an internal epoxy coating. Welded field connections would be joined with a specially designed welding insert ensuring the corrosive fluid does not come in contact with bare carbon steel. All coatings would be visually inspected prior to installation and after any field welds.

In addition to the state of the art leak detection mechanisms, rigorous maintenance, and pipeline treatments, earthen berms would be installed around oil wells and pipelines and would be designed to contain the estimated spill volume in the unlikely event of a pipeline spill or rupture. With compliance with existing regulations and policies, and implementing proper containment, the impacts from operation of the pipeline due to a spill or rupture of the line would be reduced to less than significant.

Raising of Signal Hill Petroleum Central LCWA Wells

Signal Hill Petroleum has active production wells in the Central LCWA area. These wells would remain in production until production drops to uneconomic levels, after which they would be plugged and abandoned, as previously described. Until then, these wells would remain in production during implementation of restoration activities. However, the well pads are currently too low and would be inundated as a result of restoration activities. To avoid this, the well pads and well heads are proposed to be raised to a higher elevation. To raise the oil well pads, the wells would be temporarily taken out of production and all equipment would be removed from each well (pumping units, concrete pads, electrical equipment, etc.). A temporary retrievable plug would be placed in each well and a casing riser would be installed. Once the well pad grading and construction are complete, the wells would go back into production.

The proposed program includes the ongoing operation of oil wells and pipelines, which would continue to be the responsibility of the well owners, in this case, Signal Hill Petroleum. As discussed above in Section 3.7.3, *Regulatory Framework*, *CalGEM*, there are numerous regulations for the design of oil extraction wells and wellheads. Changes to wellheads would continue to be under the regulatory oversight of CalGEM. In addition, note that Signal Hill Petroleum has committed to updating their Spill Prevention and Response Plan, which would include preventing spills during changes to wellheads. With compliance with existing regulations and policies, and the continued implementation of Signal Hill Petroleum's Spill Prevention and Response Plan, potential impacts associated with raising the Signal Hill Petroleum wells would be reduced to less than significant.

Operation

Restored Wetland Habitat

Upon completion of restoration activities, the operations would not use hazardous materials, resulting in no impact.

Oil Wells and Pipelines

The proposed program includes the ongoing operation of oil wells and pipelines, which would continue to be the responsibility of the well owners. As discussed above under Construction - Relocation of Oil Pipelines and in Section 3.7.3, *Regulatory Framework*, CalGEM, there are

numerous regulations requiring maintenance and inspection of the oil extraction operations. The various oil extraction operations would continue to operate under the regulatory oversight of CalGEM. Note that Signal Hill Petroleum has committed to updating their Spill Prevention and Response Plan.

To further evaluate impacts under worst-case spill scenarios, the following discusses worst-case spill volumes, responses, and impacts by site and as a cumulative scenario.

The impacts associated with worst-case spill scenarios on the Northern and Southern Synergy Oil Field sites, Long Beach City Property site, and the Pumpkin Patch site were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083), and are not repeated or analyzed within this PEIR. The Alamitos Bay Partners site, the Isthmus Area, and Hellman Retained site have on-going oil production. Worst-case spill scenario information has not been provided for the Termo, Signal Hill Petroleum, and Hellman operations, respectively. However, the long-term plan is to continue oil production in each existing well until production becomes uneconomic, after which each well would be properly abandoned, as previously described. No new wells would be drilled and put into production, and thus there would be no changes to operation that would increase the risk of a spill over the existing conditions. Therefore, over time, the production of oil would decrease, which would reduce the potential for oil spills. The Central LCWA Site will have the well heads raised to prevent the wells from being flooded as the wetlands are restored. However, similar to the other sites, no new wells would be drilled and put into production, and thus there would be no changes to operation that would increase the risk of a spill over the existing conditions. Therefore, over time, the production of oil would decrease, which would reduce the potential for oil spills.

Cumulative Worst Case

As discussed above, no new wells would be drilled and put into production for any of the sites, and thus there would be no cumulative changes to operation that would increase the risk of a spill over the existing conditions. Therefore, over time, the cumulative production of oil would decrease, which would reduce the potential for cumulative oil spills.

With compliance with existing regulations, potential impacts associated with oil pipeline removal due to leaked fluids would be reduced to less than significant.

General Office Building and Visitor Center

The visitor center would occasionally use small quantities of cleaning products and paints, solvents, and thinners for routine maintenance. As previously discussed, the HMBP would require the materials be stored and labeled in appropriate containers. Therefore, impacts related to hazardous materials routine use or accidental release during operation of the visitor center would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HAZ-2: The proposed program would result in a significant impact if the proposed program would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

There are no schools within one-quarter mile of the program area. Therefore, relative to proximity to schools, there would be no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HAZ-3: The proposed program would result in a significant impact if the proposed program would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

Construction

As discussed in Section 3.7.2, *Environmental Setting*, the program area has several individual sites listed on one or more hazardous materials lists for the presence of active, idle, or plugged oil wells; historical releases of contamination; and/or the presence of landfill materials. The restoration and construction activities could encounter hazardous materials associated with these sites, exposing workers or the environment to hazardous materials. Hazardous materials impacts associated with the plugging of oil wells, and the removal or relocation of oil pipelines is discussed above in Impact HAZ-1. Hazardous materials impacts associated with encountering contaminated fill, soil, and landfill materials are analyzed below.

Potential impacts from encountering contaminated fill, soil, and/or groundwater during restoration and construction activities on the Synergy Oil Field, Long Beach City Property, and Pumpkin Patch sites were evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083). Potential contamination issues associated with the oil field operations on the other program area sites in the Central, Isthmus, and South Areas have not yet been investigated. Given the similar oil field land uses that include oil wells, sumps, pipelines, and storage tanks, restoration and construction activities are anticipated to encounter similar contamination in fill, soil, and groundwater that would consist of crude oil, its degradation byproducts, and metals. Potential contamination issues associated with the known landfills on the other program area sites in the Central, Isthmus, and South Areas have been investigated to some degree. Restoration and construction activities are anticipated to

encounter contamination associated with those landfills that could include crude oil, its degradation byproducts, tank bottom sludge, and metals.

Impacts resulting from the potential release of or exposure to hazardous materials in fill, soil, landfilled materials, and/or groundwater would be reduced to a less-than-significant level with implementation of Mitigation Measures HAZ-1, Health and Safety Plan, and HAZ-2, Soil, Landfill Materials, and Groundwater Management Plan. Mitigation Measure HAZ-1 would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations. The plan would provide hazard recognition and monitoring information, specify personal protective equipment for workers, outline construction measures to reduce the potential for workers' exposures to hazardous materials in soil, landfill materials, and groundwater, and describe procedures for handling accidental hazardous materials releases and unanticipated contamination. Mitigation Measure HAZ-2 would require construction contractors to prepare and implement a Soil, Landfilled Materials, and Groundwater Management Plan in compliance with all relevant environmental regulations for the management and disposal of excavated fill, soil, and groundwater. The plan would include describing soil, landfilled materials, and groundwater testing procedures to identify the appropriate reuse and/or disposal options, the containers to be used to transport the materials, and the proposed recycling or disposal facilities along with each facilities acceptance criteria. With implementation of Mitigation Measures HAZ-1 and HAZ-2, the potential for harmful exposure to hazardous materials present in soil, landfilled materials, or groundwater during construction would be reduced to a less-than-significant level.

For landfilled areas where the fill materials are inappropriate for a wetlands habitat, it may be necessary to remove some or all of the landfill materials. If determined necessary, this work would consist of the following phases: (1) remove the dry materials from the site and haul to a disposal facility (transfer station or landfill) depending on the acceptance criteria of the transfer station and landfills and (2) using excavation equipment to remove wet landfill materials so the water would be allowed to drain back to within the confines of the excavation. Any residual water brought to the surface would be contained for transfer to an on-site liquid storage Baker-type tank; the collected water would be sampled and subsequently disposed at an approved off-site facility. If necessary, the wet landfill materials would be allowed to drain on a rack in the excavation pit before being hauled to a disposal site.

Analytical testing of the materials to be removed would characterize the waste either as hazardous (Class I), designated (Class II), or nonhazardous (Class III), and identify the appropriate disposal location. Designated and nonhazardous waste would be hauled to a Class II or III disposal facility, and hazardous waste would be hauled to a Class I facility, likely the Kettleman Hills Landfill. With compliance with existing regulations, and with implementation of Mitigation Measures HAZ-1 and HAZ-2, the potential for harmful exposure to hazardous materials present in soil, landfilled materials, or groundwater during removal of the landfill would be reduced to less than significant with mitigation.

Operation

Once the construction activities have been completed, the hazardous materials sites issues described above would have been addressed. The proposed program would not use hazardous materials during operations. The ongoing operations of the oil wells and pipelines are regulated outside of the proposed program under CalGEM and other regulations. During operations, there would be no impact.

Mitigation Measures

Mitigation Measure HAZ-1: Health and Safety Plan. The contractor(s) shall prepare and implement site-specific Health and Safety Plans as required by and in accordance with 29 CFR 1910.120 to protect construction workers and the public during all excavation and grading activities. This Plan shall be submitted to LCWA, the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), for review prior to commencement of construction. The Health and Safety Plans shall include, but are not limited to, the following elements:

- Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site Health and Safety Plan;
- A summary of all potential risks to construction workers and maximum exposure limits for all known and reasonably foreseeable site chemicals;
- Specified personal protective equipment and decontamination procedures, if needed;
- Emergency procedures, including route to the nearest hospital; and
- Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying the LCWA, and the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or the Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), the LARWQCB, or CalGEM, as appropriate, and retaining a qualified environmental firm to perform sampling and remediation.

Mitigation Measure HAZ-2: Soil, Landfill Materials, and Groundwater Management Plan. In support of the Health and Safety Plan described in Mitigation Measure HAZ-1, the contractor(s) shall develop and implement a Soil, Landfilled Materials, and Groundwater Management Plan that includes a materials disposal plan specifying how the contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The Plan shall identify protocols for soil and landfilled materials testing and disposal, identify the approved disposal site, and include written documentation that the disposal site can accept the waste. Contract specifications shall mandate full compliance with all applicable local, state, and federal regulations related to the identification, transportation, and disposal of hazardous materials, including those encountered in excavated soil, landfilled materials, or dewatering effluent.

As part of the Soil, Landfill Materials, and Groundwater Management Plan, the contractor shall develop a groundwater dewatering control and disposal plan specifying how groundwater (dewatering effluent), if encountered, will be handled and disposed of in a safe, appropriate and lawful manner. The Plan shall identify the locations at which groundwater dewatering is likely to be required, the test methods to analyze groundwater for hazardous materials, the appropriate treatment and/or disposal methods, and approved disposal site(s), including written documentation that the disposal site can accept the waste. The contractor may also discharge the effluent under an approved permit to a publicly owned treatment works, in accordance with any requirements the treatment works may have.

This Plan shall be submitted to the LCWA, and the Orange County Environmental Health Division (the CUPA for the City of Seal Beach area), or the Long Beach/Signal Hill Joint Powers Authority (the CUPA for the Long Beach area), for review and approval prior to commencement of construction.

Significance after Mitigation

Less than Significant with Mitigation

Impact HAZ-4: For a proposed program located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the proposed program would result in a significant impact if the proposed program would result in a safety hazard or excessive noise for people residing or working in the program area.

The are no airports within two miles of the program area. Therefore, relative to proximity to airports, there would be no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HAZ-5: The proposed program would result in a significant impact if the proposed program would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The City of Seal Beach Emergency Operations Plan provides emergency response and evacuation procedures for the city in lieu of firm routes of evacuation. These procedures are based on the number of people to be evacuated, the road capacity, and which roads may be blocked or have their capacity reduced by disaster conditions (City of Seal Beach, 2017). Similarly, the City of Long Beach General Plan Public Safety Element does not establish firm routes of evacuation, rather it provides emergency response and emergency evacuation procedures for the City based on availability of through streets, multiple access routes and bridges depending on the disaster

and the street conditions at the time (City of Long Beach, 1975). The proposed program would not expect to stage or store construction materials or construction equipment on public roadways. The program would not propose any public road closures or rerouting of the existing public roadway network. Although the proposed program may generate traffic trips during construction and operation, the traffic trips would be minimal and would not interfere with an adopted emergency response plan. Therefore, the program would not substantially impair an adopted emergency response plan or emergency evacuation plan, and no impact would occur.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

Impact HAZ-6: The proposed program would result in a significant impact if the proposed program would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

The program area is not located within or near a very high or high fire hazard severity zone. Therefore, relative to wildfires, there would be no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

3.7.6 Cumulative Impacts

This section presents an analysis of the cumulative effects of the proposed program in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively considerable impacts.

As previously discussed, the proposed program would have no impact with respect to proximity to schools or airports, or being located on very high or high fire hazard severity wildland fire zones. Accordingly, the proposed program could not contribute to cumulative impacts related to these topics and are not discussed further.

The geographic area affected by the proposed program and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. The geographic scope of analysis for cumulative hazardous materials impacts encompasses and is limited to the program area and its immediately adjacent area. This is because impacts relative

hazardous materials are generally site-specific. For example, the effect of a hazardous materials spill would tend to be limited to the localized area of the spill and could only be cumulative if two or more adjacent spills spatially overlapped.

The timeframe during which the proposed program could contribute to cumulative hazardous materials impacts includes the construction and operations phases. For the proposed program, the operations phase is permanent. However, similar to the geographic limitations discussed above, it should be noted that impacts relative to hazardous materials are generally time-specific. Hazardous materials impacts could only be cumulative if two or more hazardous materials impacts occurred at the same time, as well as overlapping at the same location.

3.7.6.1 Construction

Significant cumulative impacts related to hazardous materials could occur if the incremental impacts of the proposed program combined with the incremental impacts of one or more of the cumulative projects identified in Table 3-1, *List of Cumulative Projects*, to substantially increase risk to people or the environment would be exposed to hazardous materials. Note that while three cumulative projects are within proximity of the proposed program, only Project 24, Los Cerritos Wetlands Oil Consolidation and Restoration Project, listed on Table 3-1 would geographically overlap the proposed program. Cumulative Project 24 is a marsh restoration project with the same proposed activities as the Los Cerritos Wetlands Restoration Plan: operate existing oil wells until no longer productive, destroy unproductive wells, and restore marshland areas.

More importantly, all of these cumulative projects would be subject to the same regulatory requirements discussed in Section 3.7.3, *Regulatory Framework*, including the implementation of health and safety plans, and soil and groundwater management plans, as needed. Cumulative projects involving the potential releases of hazardous materials also would be required to remediate their respective sites to the same established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in soil from previous spills. Therefore, while it is possible that the proposed program and cumulative projects could result in releases of hazardous materials at the same location and at the same time (e.g., two trucks carrying hazardous materials), the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. The residual less-than-significant effects of the proposed program that would remain after mitigation would not combine with the potential residual effects of cumulative projects to cause a potential significant cumulative impact because residual impacts would be highly site-specific. Accordingly, no significant cumulative impact with respect to the use of hazardous materials would result. Therefore, the proposed program would not cause or contribute to a cumulatively significant impact with respect to the use of hazardous materials during construction activities.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.7.6.2 Operation

Upon completion of construction activities for the proposed program, the proposed program would not use hazardous materials and, therefore, could not cause or contribute to a cumulatively significant impact with respect to the use of hazardous materials during operations.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.7.7 References

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SECTION 3.8
Hydrology and Water Quality

3.8.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts related to hydrology and water quality environmental impacts related to surface water, groundwater, stormwater drainage, and flooding. The following analysis is based on review of available hydrology and water quality reports of the program area and vicinity, relevant statutes and regulations, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section identifies the potential for both program-level and cumulative environmental impacts. Potential impacts to biological resources from water quality impacts are discussed in Section 3.3, *Biological Resources*. Potential water quality impacts associated with hazardous materials are discussed in Section 3.7, *Hazards and Hazardous Materials*. Potential impacts relative to water supply are discussed in Section 3.16, *Utilities and Service Systems*.

Data used in this section include information obtained from the State Water Resources Control Board (SWRCB), the California Department of Water Resources (DWR), the Los Angeles Regional Water Quality Control Board (LARWQCB), the Federal Emergency Management Agency (FEMA), and the City of Long Beach. Related plans and policies are discussed, including the *Water Quality Control Plan, Los Angeles Region* (Basin Plan). All information sources used are included as citations within the text; sources are listed in Section 3.8.7, *References*.

3.8.2 Environmental Setting

3.8.2.1 Regional Hydrology

Regional Watershed and Local Water Bodies

The LCW are located in the 640-square-mile San Gabriel River Watershed, which is bounded by the San Gabriel Mountains to the north, most of San Bernardino/Orange County to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. The watershed drains to the San Gabriel River, which is fed by numerous tributaries and storm drains as it passes through 19 cities from its origin in the San Gabriel Mountains to its outlet at the Pacific Ocean.

The site is located near the San Gabriel River's outlet to the Pacific Ocean. The Los Cerritos Channel runs southwest along the northern side of the Synergy Oil Field site and discharges into a portion of Alamitos Bay referred to as the Marine Stadium. Alamitos Bay is connected to the

Pacific Ocean. A tidal channel referred to as Steamshovel Slough is fed by the Los Cerritos Channel and extends across the Northern Synergy Oil Field Site. The Haynes Cooling Channel, a channelized water inlet used for industrial process water cooling is located just south of the San Gabriel River towards the southern boundary of the site and is connected to the Alamitos Bay by 7 culverts.

Regional Groundwater

The site is located within the Coastal Plain of Los Angeles Groundwater Basin, which is further subdivided into subbasins: Santa Monica, West Coast, Central, and Orange County Coastal Plain subbasins. The site straddles the West Coast and Central subbasins and also includes a portion of the Orange County Coastal Plain. The border between the West Coast and Central basins is formed by the Newport Inglewood Fault Zone, as shown on **Figure 3.5-1**, provided in Section 3.5, *Geology, Soils, and Paleontological Resources*, which intersects the site in a northwest-southeast direction. The Central Basin includes the Northern Synergy Oil Field site, Central Bryant site, the Los Alamitos Pump Station and Retarding Basin site, and portions of the Hellman Retained site. The West Coast Basin includes most of the Southern Synergy Oil Field site, the Long Beach City Property site, Pumpkin Patch site, and the South LCWA site is largely within the Orange County Coastal Plain.

Groundwater enters the basins through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water. Because of overdrafting (pumping exceeds recharge) of both basins, both basins have been adjudicated and groundwater use within the basins is managed by Watermasters, the Water Replenishment District of Southern California (USBR 2014; WRD 2016 and 2017). When multiple parties withdraw water from the same aquifer, the aquifer may become overdrafted resulting in water supply conflicts among the users. Through adjudication, the courts assign specific water rights to specific water users and compel the cooperation of those who might otherwise refuse to limit their pumping of groundwater. Watermasters are appointed by the court to ensure that pumping conforms to the limits defined by the adjudication.

Seawater Intrusion

Because of seawater intrusion along the coast, the County of Los Angeles Department of Public Works (LADPW) operates the Alamitos Barrier Project, located about 2 miles inland from the terminus of the San Gabriel River and 4,000 feet north, northeast, and east of the Synergy Oil Field site (OCWD 2013; LADPW 2014b). This is a system of injection wells that create a freshwater barrier in subsurface aquifers to prevent seawater from intruding further inland and degrading water quality in inland supply wells. Groundwater levels in the program area are tidally influenced. Previous sampling has indicated that shallow groundwater (as well as surface water) in the Steamshovel Slough in the Northern Synergy Oil Field site and existing wetlands area is saline. Salinity deceases in groundwater further away from the Steamshovel Slough and the wetlands, but is still brackish (ESA 2019). However, the program area is located on the ocean side of the Alamitos Barrier Project which indicates that saline to brackish water quality is present in shallow groundwater beneath the entire site.

Land Use History

Until the late 1800s, the LCW spanned approximately 2,400 acres and consisted of a network of meandering streams, vegetated wetlands, and upland areas. Historically, the program area was almost entirely (88.5 percent) tidal vegetated wetland, with a few natural streams and intertidal flat channels in both the north and the south.

Beginning in the late 1800s, the site began to undergo significant alterations due to agriculture (cattle and beet farming), the demands of a growing population, and oil production. Oil was first discovered at the LCW at the Seal Beach Oil Field in 1926. The development of oil production operations, paired with channelization of the San Gabriel River, resulted in substantial dredge and fill of the LCW. The program area contains oil wells, and network of oil-production tanks and pipes. Today, nearly all of the program area has been converted from its historic wetland habitat, though a few remnant and degraded historic habitats remain. Given the history of the LCW land use, sediment contamination at the site is an important consideration for restoration.

Hazardous Waste and Ecological Criteria Terms

California has established hazardous waste material disposal thresholds, known as Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC), that are used to evaluate sediments and soils for hazardous waste criteria that help determine disposal destinations and handling criteria. The TTLC value for each constituent is the upper limit allowed in a solid or powdered waste to possibly be considered non-hazardous; any constituent that exceeds the promulgated TTLC values are considered toxic hazardous waste. Similarly, the STLC value is the maximum concentration of a waste constituent in liquid form to not be considered hazardous. If a solid waste sample falls between the STLC and TTLC value, it is considered non-hazardous if the concentration is less than ten times the STLC value. If the measured concentration exceeds ten times the STLC, it is likely hazardous but the optional "Waste Extraction Test (WET)" can be performed to determine whether the sample is considered hazardous. Hazardous waste material criteria dictate which facility or treatment is required for disposal of hazardous material.

Beneficial reuse criteria for wetland restoration were first developed by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) and presented in the Draft Staff Report entitled, *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines* dated May 2000. The document was prepared to assist in planning beneficial reuse projects in the Bay Area by establishing general screening guidelines and general sediment testing requirements. The guidelines include specific criteria for reuse of sediments in wetland and upland beneficial uses. The guidelines for the wetland foundation use are based on the ER-M concentrations. These guidelines are typically used in combination with bioassay testing to determine suitability of the materials for use in wetland restoration projects (SFBRWQCB, 2000).

Environmental Screening Levels (ESLs), developed and maintained by the SFBRWQCB, are used by regulatory agencies throughout the State of California. The SFBRWQCB develops separate screening levels for residential and commercial/industrial land uses and construction worker exposure. As the board notes, the residential ESLs are the most stringent thresholds, and

soil "with chemical concentrations below these levels generally would not require remediation and would be suitable for unrestricted uses if disposed offsite" (SFBRWQCB 2010). In addition to ESLs, constituent concentrations were compared to Regional Screening Levels (RSLs), which were previously referred to as Preliminary Remediation Goals (PRG), as promulgated by the United States Environmental Protection Agency (USEPA).

Sediment Quality

Based on the sediment and water quality characterization results to date for the LCW, the program area has been adversely affected from past oil and gas land uses and releases of hazardous materials associated with these operations. Sediment sampling has been conducted at the LCW dating back to the late 1980s. The effects include the presence of petroleum hydrocarbons, PCBs, pesticides, VOCs, SVOCS, and bi-products in sediments and groundwater. Recent (2014) studies show that PAHs have decreased significantly in the Zedler Marsh and State Lands Area since the mid-1990s, potentially attributable to vegetation at the marsh that is enhancing degradation of the PAHs, and do not require remediation prior to the restoration of the site (ESA 2019).

Though a few sediment samples taken to date have exceeded state hazardous waste criteria (TTLC and STLC), the primary concern within LCW is constituents that exceed ecological criteria (ER-L and ER-M)[1] and human health criteria (i.e., Environmental Screening Levels (ESLs)). The sediment studies performed at the site indicate that impacted soils may require management and/or remediation depending on the final placement and associated constituent concentrations and regulatory action levels.

Surface Water Quality

The general surface water quality conditions are identified by water body below:

Los Cerritos Channel

Historically, dry weather flows from the Los Cerritos Channel exceed copper water quality objectives from the State Water Quality Control Board and Regional Basin Plan. Data from wet-weather flows indicated exceedances for copper, lead, and zinc. In response to these exceedances, a Total Maximum Daily Load (TMDL) was developed to address impairments in the water column in Los Cerritos Channel for copper, lead, selenium, and zinc (**Table 3.8-1**, *Los Cerritos Channel TMDL*). The TMDL set numeric targets based on the water quality criteria contained in the California Toxics Rule (CTR). In addition to metals, the Los Cerritos Channel is listed under the Clean Water Act Section 303(d) for ammonia, phthalate, chlordane, metals, coliform bacteria, and trash.

[1] Effect range (ER) values are used in dredged material evaluations for ocean disposal. Effect range low (ER-L) and effect range median (ER-M) are the chemical values for paired data demonstrating benthic impairment and are used as the representative ecological criteria in this analysis.

TABLE 3.8-1
LOS CERRITOS CHANNEL TMDL

Pollutant	Anticipated TMDL Adoption Date
Ammonia	1/1/2019[a]
Bis(2ethylhexyl)phthalate (DEHP)	1/1/2019[a]
Chlordane (sediment)	1/1/2019[a]
Coliform bacteria	1/1/2019[a]
Metals (copper, lead, zinc)	USEPA TMDL Adopted on 3/17/2010
Trash	1/1/2019[a]

[a] No updated TMDLs have been adopted according to the California Waterboard's Website as of May 2019.
SOURCE: Everest 2012 as cited in ESA 2019

San Gabriel River

The San Gabriel River and its associated tributaries exceed water quality objectives (which are based on beneficial uses and CTR values) for a number of constituents. Coyote Creek, which converges with the San Gabriel River just upstream of the program area, is listed under Section 303(d) for diazinon, coliform bacteria, pH, toxicity, copper, lead, and zinc (**Table 3.8-2**, *303(d) Impaired Waters and Pollutants for the Lower San Gabriel River Watershed*). The San Gabriel River Estuary is listed for copper. The Lower San Gabriel River Watershed Management Program (WMP), a multi-jurisdictional planning document, has found that the municipal separate storm sewer systems (MS4s) contributes significantly to the metal loading rates found in the San Gabriel River during dry-weather flow events. This is attributed to high metal concentrations in urban runoff.

Haynes Cooling Channel

The Haynes Cooling Channel provides water for the Haynes Generating Station for cooling. The generating station pulls water from the Alamitos Bay, runs it through the generating station, and discharges to the San Gabriel River adjacent to the generating station. The water quality in the Haynes Cooling Channel is expected to be similar to the water quality in Alamitos Bay which is impaired by bacteria. The Haynes Generating Station is undergoing a modernization project that would eliminate the use of ocean water to cool the plant by 2029; once complete, the Haynes Cooling Channel will be decommissioned. A monitoring report found that concentrations of all priority pollutants in the Haynes Generating Station intake (e.g., water coming from the Haynes Cooling Channel) were low enough to be due to background levels or laboratory testing (City of Los Angeles 2011 as cited in ESA 2019).

TABLE 3.8-2
303(D) IMPAIRED WATERS AND POLLUTANTS FOR THE LOWER SAN GABRIEL RIVER WATERSHED

Water Body	Pollutant and TMDL Adoption Date (or Anticipated Date)
Coyote Creek	Ammonia (Timeline N/A) Cyanide (Timeline N/A) Copper (TMDL completed 3/27/2007) Diazinon (1/1/2019)[a] Coliform Bacteria (1/1/2009)[a] Lead (TMDL completed 3/27/2007) pH (1/1/2019)[a] Toxicity (1/1/2009)[a] Zinc (TMDL completed 3/27/2007)
Coyote Creek, North Fork	Indicator Bacteria (1/1/2012)[a] Selenium (1/1/2021)
San Gabriel River Reach 2	Coliform bacteria (1/1/2011)[a] Cyanide (1/1/2021) Lead (TMDL completed 3/27/2007)
San Gabriel River Reach 1	Ammonia (timeline N/A) Coliform bacteria (1/1/2019)[a] pH (1/1/2019)[a] Copper
San Gabriel River Estuary	Copper (TMDL completed 3/27/2007)

[a] No updated TMDLs on California Waterboard's Website as of May 2019.
SOURCE: Everest 2012, SGR 2015 as cited in ESA 2019

Alamitos Bay

Alamitos Bay is 303(d) listed for indicator bacteria, which is an issue that affects the local beaches as well. No TMDLs have been established for the bay.

The Long Beach Estuary Monitoring Plan (2016) is an Integrated Monitoring Program aimed to assess the effects of MS4s on receiving waters. As part of this plan, the City of Long Beach has set up a monitoring site in the Alamitos Bay (LBR2). Beginning in 2015, three wet-weather and two dry-weather events have been monitored at the Alamitos Bay Partners site. At this time, data is not publicly available.

The County Health and Human Services performs weekly water samples at Long Beach beaches, including those in Alamitos Bay. Los Angeles County provides watch conditions based on the monitoring results. Historical monthly monitoring is available through the County's website (**Table 3.8-3**, *Heal the Bay Water Quality Grades at Alamitos Bay*). According to the Long Beach Estuary Monitoring Plan, beaches in Long Beach (including the beaches at Alamitos Bay) have shown an improvement in bacterial compliance.

TABLE 3.8-3
HEAL THE BAY WATER QUALITY GRADES AT ALAMITOS BAY

Year	Summer Dry	Winter Dry	Annual Wet
2017	A	B	F
2016	B	B	F
2015	A+	A	F
2014	A	A	F
2013	B	A+	F
2012	B	A	F
2011	C	F	F
2010	C	F	F

SOURCE: Heal the Bay (2019) as cited in ESA 2019

Urban Runoff

In addition to the water bodies identified above, urban runoff contributes to water quality of the aforementioned water bodies as receiving waters. The areas of the proposed program that are most affected by urban runoff are the Los Alamitos Retarding Basin site, Gum Grove Park (on the southeastern side of the South LCWA site), and the Long Beach City Property site (ESA 2019). Constituents common to urban runoff include metals, bacteriological indicators, and nutrients. While data on the local stormwater is not available, similar characteristics can be expected from runoff entering the three locations (ESA 2019).

Groundwater Quality

Three groundwater sampling investigations have occurred within the program area dating back to 1988 and are summarized as follows:

1988 Phase I Earth Technology Corporation Site Investigation, Texaco Bryant Lease

Earth Technology Corporation performed a soil and groundwater sampling investigation on the eastern bank of the San Gabriel River within the Texaco-Bryant lease property (the Central LCWA, Isthmus LCWA, Zedler Marsh, and Isthmus Bryant locations). Groundwater sampling evaluated TPHC and BTEX concentrations at three monitoring wells. Floating hydrocarbons (a floating layer of viscous crude oil) of approximately 1/8-inch thickness were found during sampling of monitoring well 1, and a sheen on the groundwater surface was noted during sampling at monitoring well 3.

Two groundwater samples exceeded the human health based groundwater ESL for benzene and ethyl benzene. Based on the elevated concentrations of hydrocarbon in both soil and groundwater found during the 1988 sampling, Earth Technology proposed further groundwater sampling to delineate the extent of contamination at the site.

1989 Engineering Enterprises Environmental Assessment

Engineering Enterprises, Inc. (EEI) performed groundwater sampling at ten different wells between March and April 1989 in the Central LCWA, Isthmus LCWA, Isthmus Bryant, and Zedler Marsh areas. The groundwater investigation yielded sixteen groundwater samples, which were evaluated for SVOCs, total fuel hydrocarbons, and BTEX using EPA Methods 8015 (modified) and 418.1. Six groundwater samples showed elevated concentrations of TPHC (ranging from 3,700 to 32,000 micrograms/liter [µg/L]). Three samples had total fuel hydrocarbons greater than 250 µg/L, with the highest sample showing a concentration of 22,021 µg/L. At least one sample also exceeded ESL standards for BTEX.

The groundwater analysis found slightly elevated levels of TPHC in some of the sample wells. There were no samples with detectable levels of SVOCs. EEI concluded that the eastern portion of the site had elevated total petroleum hydrocarbon concentrations, "of limited lateral and vertical extent." The report further determined that some remediation activity would be necessary, though EEI did not determine the remediation activities or associated costs.

2006 Hellman Ranch (South LCWA) Groundwater Sampling

In 2006, as a follow-up to their 2004 LCWA Phase II Soil and Groundwater Sampling, Anchor collected groundwater samples at seven different monitoring wells located on the Hellman ranch (South LCWA) property. The sampling aimed to characterize the former dump site materials, define the lateral extent of the crude oil plume found in the 2004 monitoring, identify the potential and likely sources of crude oil, characterize the groundwater flow, and analyze the contaminants of concern and their ability of migrating to potential receiving waters.

Anchor determined the approximate extent of the crude oil: a 100-by-500-foot area on the southwestern portion of the property and determined that the likely source was a former 6-inch oil and gas line that ran along the border of the contaminated area.

To assess groundwater quality, samples were tested for volatile organic compounds, polycyclic aromatic hydrocarbons, semi volatile organic compounds, dissolved metals, and common cations and anions and compared to the most stringent California Toxics Rule Standards. In general, the samples were below the Toxic Rule Standards, though there were exceedances for benzene, bromodichloromethane, 1,2,-dichlorethane, chrysene, benzo(a)pyrene, copper, and silver. Additionally, the sampling found crude-oil at one of the monitoring wells.

Given the zone of the approximated crude oil contamination and constituent results, Anchor recommended that "future restoration plans should minimize disturbance of groundwater flow gradients in this area."

Flooding

Flooding can occur when stormwater runoff exceeds the conveyance capacity of the drainage system. Flooding can also occur due to tsunamis, high tides/storm surge, dam or levee failure, sea-level rise, or other causes.

FEMA identifies flood hazard areas on flood insurance rate maps including areas that will be inundated by the flood event having a 1 percent chance of being equaled or exceeded in a given year; 1 percent annual chance flood is also referred to as the 100-year flood. Currently, the extent of the 100-year flood zone in the program area is confined to the existing water bodies and excludes all upland areas.

Sea-Level Rise

Estimates of sea-level rise can be used to evaluate potential future flooding conditions. Projections of global sea-level rise are well-documented and investigated, with recent research projecting sea-level rise on the order of 2 to 10 feet by 2100 in California (e.g., Cayan et al. 2008; Griggs et al. 2017). This research has been used to develop a series of policy guidance documents by the State of California that recommend including a specific amount of sea-level rise in project planning and design, the most recent being the California Ocean Protection Council's (OPC) *State of California Sea-Level Rise Guidance* (OPC 2018). The OPC (2018) Guidance includes tables of projected relative sea-level rise at well-established tide gauges located along the coast of California through 2150 for a range of risk aversion scenarios, including low, medium-high, and extreme (e.g., H++). **Table 3.8-4**, *Projected Sea-Level Rise (in feet) for Los Angeles*, shows the projections for Los Angeles (the closest tide gauge to Seal Beach/Long Beach). These projections were developed and summarized with the intention that local planning and design efforts would have a consistent and accepted basis for addressing future sea-level rise.

The California Coastal Commission (CCC) recently updated their *Sea-Level Rise Policy Guidance* in 2018 (CCC 2018). The CCC (2018) Guidance provides a basis for selecting the time horizon and the risk level of the project, which are used to define the appropriate sea-level rise amounts. The CCC (2018) Guidance recommends that project planning and design consider a range of scenarios in order to bracket the possible timing of a given amount of sea-level rise.

The CCC (2018) Guidance identifies three levels of risk to consider when planning for sea-level rise (blue boxes in Table 3.8-4):

- The low risk aversion scenario is appropriate for adaptive, lower consequence decisions (e.g., unpaved coastal trail), but is not adequate to address high impact, low probability events.
- The medium-high risk aversion scenario is appropriate as a precautionary projection that can be used for less adaptive, more vulnerable projects or populations that will experience medium to high consequences as a result of underestimating sea-level rise (e.g., coastal housing development).
- The extreme risk aversion scenario is appropriate for high consequence projects with little to no adaptive capacity and which could have considerable public health, public safety, or environmental impacts (e.g., coastal power plant, wastewater treatment plant, etc.).

TABLE 3.8-4
PROJECTED SEA-LEVEL RISE (IN FEET) FOR LOS ANGELES

		Probabilistic Projections (in feet) (based on Kopp et al. 2014)						
		Median	Likely Range		1-in-20 Chance	1-in-200 Chance		H++ Scenario (Sweet et al. 2017) *Single Scenario
		50% probability sea-level rise meets or exceeds …	66% probability sea-level rise is between …		5% probability sea-level rise meets or exceeds …	0.5% probability sea-level rise meets or exceeds …		
				Low Risk Aversion			Medium-High Risk Aversion	Extreme Risk Aversion
High emissions	2030	0.3	0.2	– 0.5	0.6		0.7	1.0
	2040	0.5	0.4	– 0.7	0.9		1.2	1.7
	2050	0.7	0.5	– 1.0	1.2		1.8	2.6
Low emissions	2060	0.8	0.5	– 1.1	1.4		2.2	
High emissions	2060	1.0	0.7	– 1.3	1.7		2.5	3.7
Low emissions	2070	0.9	0.6	– 1.3	1.8		2.9	
High emissions	2070	1.2	0.8	– 1.7	2.2		3.3	5.0
Low emissions	2080	1.0	0.6	– 1.6	2.1		3.6	
High emissions	2080	1.5	1.0	– 2.2	2.8		4.3	6.4
Low emissions	2090	1.2	0.7	– 1.8	2.5		4.5	
High emissions	2090	1.8	1.2	– 2.7	3.4		5.3	8.0
Low emissions	2100	1.3	0.7	– 2.1	3.0		5.4	
High emissions	2100	2.2	1.3	– 3.2	4.1		6.7	9.9
Low emissions	2110*	1.4	0.9	– 2.2	3.1		6.0	
High emissions	2110*	2.3	1.6	– 3.3	4.3		7.1	11.5
Low emissions	2120	1.5	0.9	– 2.5	3.6		7.1	
High emissions	2120	2.7	1.8	– 3.8	5.0		8.3	13.8
Low emissions	2130	1.7	0.9	– 2.8	4.0		8.1	
High emissions	2130	3.0	2.0	– 4.3	5.7		9.7	16.1
Low emissions	2140	1.8	0.9	– 3.0	4.5		9.2	
High emissions	2140	3.3	2.2	– 4.9	6.5		11.1	18.7
Low emissions	2150	1.9	0.9	– 3.3	5.1		10.6	
High emissions	2150	3.7	2.4	– 5.4	7.3		12.7	21.5

SOURCE: OPC, 2018

For habitat restoration projects, the CCC (2018) Guidance recommends using multiple time horizons and sea-level rise projections (CCC 2018, pg. 102):

> *Determining an anticipated life for restoration activities or other related projects is somewhat more complex than for typical development projects because these activities are typically meant to exist in perpetuity. As such, assessing sealevel rise impacts may necessitate analyzing multiple different time frames, including the present, near future, and very longterm depending on the overall goals of the project.*

According to a mapping tool created by the USGS based on their Coastal Storm Modeling System (CoSMoS), 6.6 feet of sea-level rise would inundate the majority of the program area. Even 1 foot of sea-level rise would inundate most of the Synergy Oil Field sites.

Sediment Dynamics

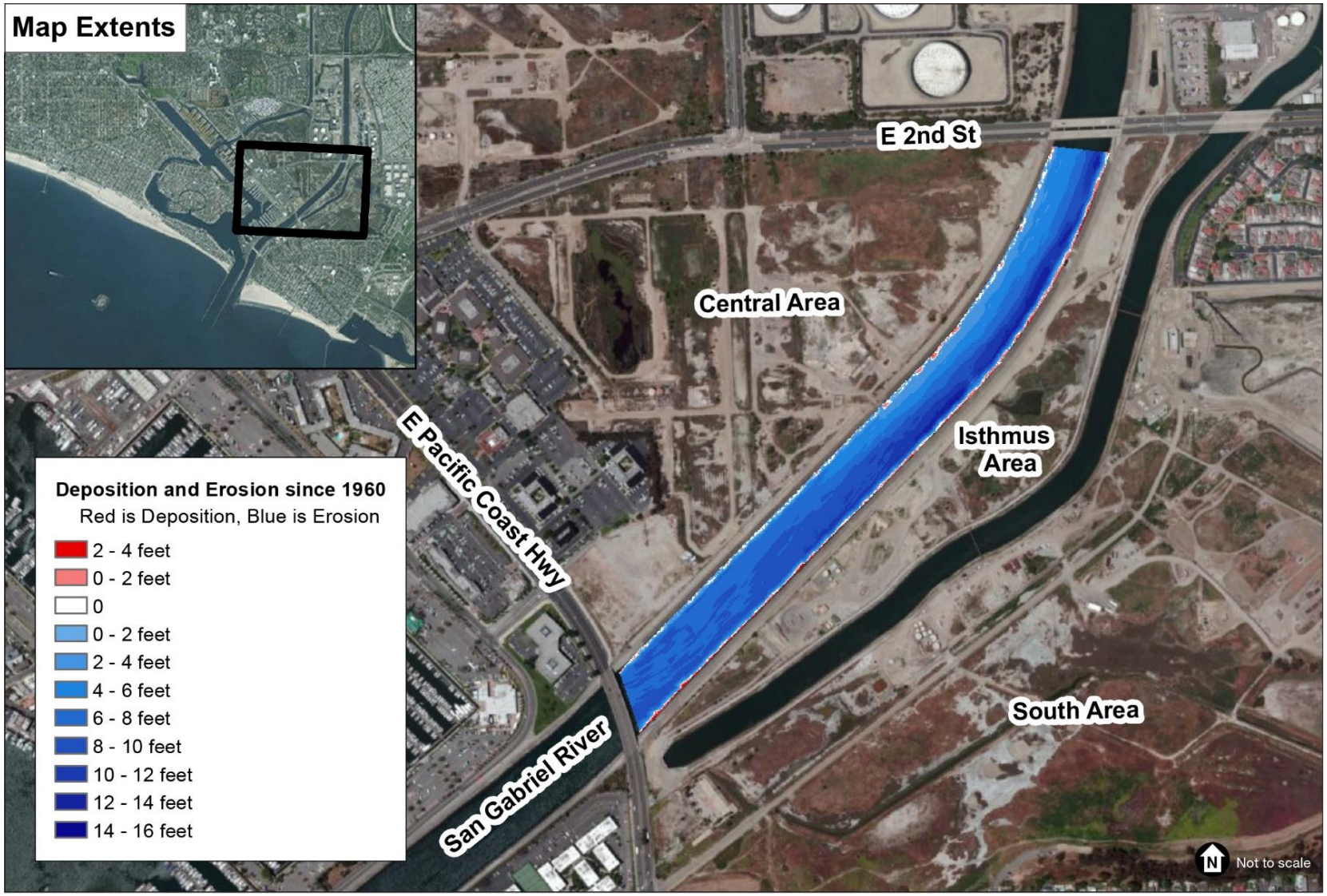
Sediment Dynamics in the San Gabriel River

The San Gabriel River is an intermittently-concrete-lined, flood-control channel in a highly urbanized watershed. These factors limit the supply of sediment to the river, which in turn limits the potential for sedimentation in the channel. The concrete lining also prevents channel erosion, so erosion only occurs in the soft-bottom portion of the channel.

Storm events can mobilize sediment from the watershed or within the San Gabriel River and result in either net deposition or, where the channel has a soft-bottom, net erosion within the channel. Channel profiles from 1960 and 2019 were compared to identify areas of net channel deposition or erosion in feet over time (**Figure 3.8-1**, *San Gabriel River Erosion between 1960 and 2019*). Based on this historic data, the San Gabriel River has generally scoured in the vicinity of the program site, with erosion depths up to 14 feet in some areas. The most significant channel bed scour is on the northeastern side of the channel near 2nd St and along the Isthmus Area. This indicates velocities in the San Gabriel River are higher on the outside of the channel bend, which is typical of natural systems. Additionally, the overall scour indicates that the channel is sediment supply limited rather than transport limited (e.g., there is more erosive power than sediment available to be moved).

Sediment Dynamics along the Coast

In the vicinity of the LCW, the historic longshore transport is generally toward the southeast. The LCW is part of the San Pedro Littoral Cell, which extends from Point Fermin in the northwest to Dana Point at the southeast. The Newport Submarine Canyon is at the southeastern end of the cell and acts as a sediment sink. Historic processes in the littoral cell have been disrupted by the San Pedro-Long Beach port complex, dam construction, channelization of the Los Angeles and San Gabriel Rivers and the construction of a series of coastal structures. Prior to the dam construction, the Santa Ana, San Gabriel, and Los Angeles Rivers often changed course and their watersheds provided abundant sediment to local beaches. Following the extensive construction of dams, pavement, and channelization, the sediment deliveries from the San Gabriel and Los Angeles river basins are now substantially reduced.



SOURCE: ESRI (background imagery)
NOTE: WSE = Water Surface Elevation

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.8-1
San Gabriel River Erosion between 1960 and 2019

The San Gabriel River flowed into Alamitos Bay from 1868 until 1933–1935, when its new flood channel outlet was constructed. The new construction included levees and stone jetties at its mouth. The east and west jetties for the new San Gabriel River mouth were completed in 1932 and 1933, respectively. The west jetty was extended in 1940–1941 to slow the shoaling of the outlet. A new bay entrance was dredged in 1945–1946. This separated the Alamitos Bay from the San Gabriel River ocean outlet, resulting in three stone jetties at the bay entrance and its adjacent river mouth outlet.

The Long Beach Detached Breakwater protects most of the coast from ocean waves, resulting in relatively little longshore transport in the vicinity of the site (USACE 1986). However, northwest longshore transport at Seal Beach has led to accumulation of sand at the San Gabriel River mouth east jetty and erosion at the Anaheim Bay west jetty according to Wiegel (2009). Many of the beaches in the San Pedro Littoral Cell are nourished with sands annually to combat erosion (Orme et al 2011). In the vicinity of the program at Belmont Shore Beach and Seal Beach, nourishment began in 1940s, with much of the material coming from Alamitos Bay. A history of dredge events for Alamitos Bay from 1933–2002 is provided in Appendix I.

The program site is upstream along the San Gabriel River and, therefore, the sediment dynamics along the coast may not directly affect the sediment dynamics near the site. However, sedimentation at the river mouth could affect the hydrodynamics further up the river and at the site.

3.8.3 Regulatory Framework

3.8.3.1 Federal

Clean Water Act

The Clean Water Act (CWA), also known as the Federal Water Pollution Control Act as amended by the Federal Water Pollution Control Act Amendments of 1972, (33 USC 1251–1376) is the major federal legislation governing water quality. The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States and gave the USEPA the authority to implement pollution control programs, such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The United States Army Corps of Engineers (Corps) has jurisdiction over all waters of the United States including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. The CWA states that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments to the CWA established a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In addition, the USEPA published final regulations that establish application requirements for stormwater permits in 1990.

The relevant sections of the CWA are summarized below.

Clean Water Act Section 401

Federal CWA Section 401 requires that any person applying for a federal permit or license that may result in the discharges of dredged or fill material or pollutants (including sediment) into waters of the United States must obtain a state certification that the activity complies with all applicable water quality standards, limitations, and restrictions. In California, this certification is administered in California by the SWRCB via the local RWQCB. No license or permit may be granted by a federal agency until certification required by Section 401 has been granted. Further, no license or permit may be issued if certification has been denied. An entity seeking a Section 401 water quality certification typically must obtain a CWA Section 404 permit from USACE. This certification ensures that the proposed activity does not violate state or federal water quality standards.

Clean Water Act Section 402

CWA Section 402 regulates discharges to surface waters of the United States through the NPDES program. In California, the USEPA authorizes the SWRCB to oversee the NPDES program through the local RWQCB. Stormwater discharges are also regulated under CWA Section 402. Construction activities disturbing 1 acre of land or greater must be covered under the NPDES Construction General Permit, discussed in Section 3.5.3, *Regulatory Framework*, of Section 3.5, *Geology, Soils, and Paleontological Resources*, which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction activities that includes erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment, and maintenance responsibilities.

Clean Water Act Section 303—Water Quality Criteria and Standards

Under federal law, the USEPA has published water quality regulations under 40 CFR. CWA Section 303 requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: identified designated beneficial uses of the water body in question and criteria that protect the designated uses. Where multiple uses of a water body exist, water quality standards must protect the most sensitive use. In California, the USEPA has granted SWRCB and its local RWQCBs the authority to identify beneficial uses and adopt applicable water quality objectives.

Clean Water Act Section 303(d)

CWA Section 303(d) requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e., do not meet one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish TMDLs for the pollutant.

A TMDL is a pollution budget, includes a calculation of the maximum amount of a pollutant that can occur in a waterbody, and allocates the necessary reductions to one or more pollutant sources. A TMDL serves as a planning tool and potential starting point for restoration or protection activities with the ultimate goal of attaining or maintaining water quality standards. Under CWA

Section 303(d), states are required to submit lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet water quality standards. The law requires that the states establish priority rankings for waters on the lists and develop TMDLs for these waters. TMDLs can be narrative actions to reduce loading or numeric goals such as an amount of mercury in fish tissue, concentrations in water, or concentrations in sediment.

As of 2016, the Los Cerritos Channel is listed as a Water Quality Limited Segment for ammonia, bis(2ethylhexyl)phthalate, indicator bacteria (coliform), copper, lead, zinc, trash, and pH (LARWQCB 2016). In addition to narrative actions to reduce the pollutant loading, the LARWQCB has developed and the USEPA has accepted the following numeric TMDLs for the channel (USEPA 2010):

- Copper = 0.0039 mg/L;
- Lead = 0.0151 mg/L; and
- Zinc = 0.386 mg/L.

The San Gabriel River is also listed as an impaired water body for metals and bacteria. Separate numeric targets for metals were developed for dry and wet weather.

- Dry Weather Copper = 3.7 µg/L[2] or 0.0037 mg/L
- Wet Weather Lead = 166 µg/L or 0.166 mg/L

The draft TMDL for bacteria numeric target for the San Gabriel River Estuary and tributaries are provided in **Table 3.8-5**, *Numeric Targets for San Gabriel River Estuary and Tributaries*.

TABLE 3.8-5
NUMERIC TARGETS FOR SAN GABRIEL RIVER ESTUARY AND TRIBUTARIES

Numeric Targets (Beneficial Uses)	Estuary (Marine REC-1)	SGR and Tributaries (Freshwater REC-1)
Single Sample		
E. coli	NA	235/100 ml
Fecal coliform	400/100 ml	NA
Enterococcus	104/100 ml	NA
Total coliform*	**10,000/100 ml**	**NA**
Geometric Mean		
E. coli	NA	126/100 ml
Fecal coliform	200/100 ml	NA
Enterococcus	35/100 ml	NA
Total coliform*	**1,000/100 ml**	**NA**

* Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.
NA = not applicable
SOURCE: LARWQCB, 2015

[2] ug/L = micrograms per liter.

Clean Water Act Section 404

CWA Section 404 requires that any person conducting any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands, obtain a permit. USACE is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States required under CWA Sections 401 and 404. Projects that involve construction in streams or wetlands trigger the need for these permits and related environmental reviews by USACE. Wetlands are generally considered to be areas that are periodically or permanently inundated by surface water or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the USACE, which generally defines wetlands through consideration of three criteria: hydrology, soils and vegetation. Under CWA Section 404, the ACOE is responsible for regulating the discharge of dredged or fill material into waters of the United States. The term "waters of the United States" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations.

National Flood Insurance Program

The National Flood Insurance Program was created to reduce the impact of flooding private and public structures by providing affordable property insurance and encouraging communities to implement floodplain management regulations. FEMA implements NFIP and identifies flood hazard areas on flood insurance rate maps. FEMA requires minimum design standards are implemented in flood hazard areas.

33 U.S.C. Section 408: Modifications and Alterations of Corps of Engineers Projects

Section 14 of the Rivers and Harbors Act of 1899 and codified in 33 U.S.C. Section 408 (commonly referred to as "Section 408") authorizes the Secretary of the Army, on the recommendation of the Chief of Engineers of the Corps, to grant permission for the alteration of a Corps' civil works project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project. Because the San Gabriel River flood control channel is a Corps flood risk management project, a Section 408 permit would be required to remove the levees and reconnect the channel to the floodplain or to install culverts in the levee. The Section 408 permit application would include all project plans and review the proposed hydrologic changes for the Chief of Engineer's consideration on whether these changes would ultimately impair the usefulness of the original project or not.

National Weather Service TsunamiReady Communities

The National Weather Service established guidelines to be followed to ensure an area is prepared in the event of a tsunami. These guidelines are referred to as "TsunamiReady" Guidelines, and include mitigation, preparation, and response guidelines. Examples of mitigation guidelines include designating and mapping tsunami hazard zones and installing signage identifying tsunami hazard zones and instructions to go to higher ground. Preparation guidelines include conducting

public education and outreach efforts regarding tsunamis. Response guidelines include addressing tsunami hazards in emergency plans, having a reliable means for a 24-hour warning point to disseminate warnings to the public, and using weather receivers in critical facilities and public venues (NWS 2016). The County of Los Angeles, including the City of Long Beach, is not considered a TsunamiReady community, however, the City Seal Beach is (NWS 2019). Pacific Coast Highway is identified as a primary disaster route and runs adjacent to the western boundary of the South Synergy Oil Field site (LADPW 2013); this roadway is designated for use in the event of an emergency to transport emergency personnel and supplies.

3.8.3.2 State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code Sections 13000–16104) (Porter-Cologne Act) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the local water boards (in this case, LARWQCB) conducts planning, permitting, and enforcement activities. The Porter-Cologne Act requires the LARWQCB to establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per federal regulations. Therefore, the regional plans form the regulatory standards for meeting state and federal requirements for water quality control. Changes in water quality are only allowed if the change is consistent with the maximum beneficial use designated by the state, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans.

California Coastal Act

The California Coastal Act (CCA) establishes policies with respect to the review of new development projects by both state and local agencies. The CCA policies concerning hydrology and water quality are as follows:

- **Section 30230.** Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.
- **Section 30231.** The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

- **Section 30232.** Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.
- **Section 30236.** Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

In addition to these CCA policies, the Coastal Commission in August 2015 adopted a Sea-Level Rise Policy Guidance document setting forth the means by which new development that may be subject to sea-level rise should be analyzed (CCC 2015).

Senate Bill 610 (Water Code Sections 10910 et seq.)

Senate Bill 610 of 2001 (Water Code Sections 10910 et seq.) was promulgated to assist water suppliers, cities, and counties in integrating water and land use planning. In particular, the statute requires detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects in the form of a Water Supply Assessment. The statute applies to the following specified large development project types as cited in Water Code Section 10912:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects specified in this subdivision; and
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

The proposed program does not include development of any of the above categories, nor does the proposed program generate a water demand equal to or greater than the demand generated by a 500-dwelling unit project (i.e., approximately 125 acre-feet per year). Therefore, a water supply assessment is not required for the proposed program.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014, effective January 1, 2015, gives local agencies the authority to manage groundwater in a sustainable manner and allows for

limited state intervention when necessary to protect groundwater resources. The SGMA establishes a definition of sustainable groundwater management, establishes a framework for local agencies to develop plans and implement strategies to sustainably manage groundwater resources, prioritizes basins with the greatest problems (ranked as high- and medium-priority) and sets a 20-year timeline for implementation. The initial basin prioritization under SGMA uses the prioritization conducted by the California Department of Water Resources (DWR) in 2014 under the California Statewide Groundwater Elevation Monitoring program. As previously noted, the Central Subbasin is ranked as high priority. SGMA requires the creation of a Groundwater Sustainability Agency that would develop and implement a Groundwater Sustainability Plan that would manage and use groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results, defined as follows:

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply;
2. Significant and unreasonable reduction of groundwater storage;
3. Significant and unreasonable seawater intrusion;
4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
5. Significant and unreasonable land subsidence that substantially interferes with surface land uses; or
6. Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

NPDES Construction General Permit

Construction associated with the proposed program would disturb more than 1 acre of land surface affecting the quality of stormwater discharges into waters of the United States. The proposed program would, therefore, be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit, discussed in Section 3.5.3, *Regulatory Framework*, of Section 3.5, *Geology, Soils, and Paleontological Resources*, requires the preparation and implementation of a SSWPPP for construction activities that includes erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment, and maintenance responsibilities.

Municipal Stormwater Permitting (MS4)

The state's Municipal Stormwater Permitting Program regulates stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s). MS4 Permits were issued in two phases. Phase I was initiated in 1990, under which the RWQCBs adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. The regional water quality control boards, including LARWQCB, have adopted an MS4 Permit specific to their region. As part of the Phase II of the MS4 Permit, the SWRCB adopted a General Permit for small MS4s (serving less than 100,000 people) and non-

traditional small MS4s including governmental facilities such as military bases, public campuses, and hospital complexes. The Long Beach MS4 Permit is noted below but discussed in detail in Section 3.5.3, *Regulatory Framework*, of Section 3.5, *Geology, Soils, and Paleontological Resources*.

3.8.3.3 Local

Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The Water Quality Control Plan for the Los Angeles Region (Basin Plan) is designed to preserve and enhance water quality and protect the beneficial uses of waters within the region. The Basin Plan (i) designates beneficial uses for surface and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the region. The Basin Plan incorporates pertinent water quality policies and regulations including applicable State and Regional Board plans and policies. The Basin Plan is a resource for the LARWQCB and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues. The Basin Plan is reviewed and updated as necessary. For the Los Cerritos Channel Watershed, the beneficial uses identified in the Basin Plan are listed below:

- Wetland Habitat (WET);
- Navigation (NAV);
- Commercial and Sport Fishing (COMM);
- Estuarine Habitat (EST);
- Wildlife Habitat (WILD);
- Rare, Threatened, or Endangered Species (RARE);
- Migration of Aquatic Organisms (MIGR);
- Shellfish Harvesting (SHELL);
- Water Contact Recreation (REC-1); and
- Non-contact Water Recreation (REC-2).

For the San Gabriel River, the beneficial uses are as follows:

- Wildlife Habitat (WILD);
- Warm water habitat (WARM);
- Cold water habitat (COLD);
- Rare, Threatened, or Endangered Species (RARE);
- Estuarine Habitat (EST);
- Marine habitat (MAR);

- Migration of Aquatic Organisms (MIGR);
- Spawning, Reproduction, and or Early Development (SPWN);
- Wetland Habitat (WET);
- Municipal water supply (MUN);
- Industrial service supply (IND);
- Agricultural Supply (AGR);
- Groundwater Recharge (GWR); and
- Industrial process supply (PROC).

Wetland Beneficial Use Guidelines

Criteria for assessing sediment for wetland surface and foundation beneficial uses were first developed by the San Francisco Bay Regional Water Quality Control Board in the Draft Staff Report entitled *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines*, dated May 2000. The document was prepared to assist in planning beneficial reuse projects in the San Francisco Bay Area by establishing general screening guidelines and general sediment testing requirements, and included specific criteria for reuse of sediments in wetland and upland beneficial uses. Subsequent additional ambient sediment chemical and toxicity testing was performed along with a statistical analysis of the historical and more recent analytical data to develop a statically derived set of recommended sediment chemistry screening guidelines for beneficial reuse, as documented in *An Evaluation of Existing Sediment Screening Guidelines for Wetland Creation/Beneficial Reuse of Dredged Material in the San Francisco Bay Area along with a Proposed Approach for Alternative Guideline Development* prepared by Germano & Associates in 2004 and funded by the California State Coastal Conservancy. The subsequent recommended guidelines are based on predicting acute amphipod toxicity and, therefore, can be applied to sites outside of the San Francisco Bay area, as they are based on toxicity testing results rather than ambient concentrations in the Bay. The guidelines were applied to a restoration project at the Ballona Wetlands, located in a similar setting just north of Los Angeles International Airport (ESA 2015).

Long Beach MS4 Permit

The City of Long Beach is covered under the Long Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach; Order No. R4-2014-0024 (LARWQCB 2014). The Long Beach MS4 Permit is discussed in detail in Section 3.5, *Geology, Soils, and Paleontological Resources*. The MS4 Permit includes regulations that would apply to maintaining water quality.

Long Beach Storm Water Management Program

The City of Long Beach prepared and implemented a Storm Water Management Program, as required by the above-cited MS4 Permit. The Long Beach Storm Water Management Program is discussed in detail in in Section 3.5, *Geology, Soils, and Paleontological Resources*. The Storm Water Management Program includes regulations that would apply to maintaining water quality.

Long Beach Low-Impact Development Manual

The City of Long Beach adopted low-impact development (LID) regulations for the purpose of encouraging the beneficial use of rainwater and urban runoff; reducing stormwater/urban runoff while improving water quality; reducing off-site runoff and providing increased groundwater recharge; reducing erosion and hydrologic impacts downstream; and enhancing the recreational and aesthetic values in our communities. The LID Manual is discussed in in Section 3.5, *Geology, Soils, and Paleontological Resources*. The above-described Long Beach Storm Water Management Program requires that each project prepare and implement a project-specific LID Plan.

Long Beach Municipal Code

The relevant portions of the Long Beach Municipal Code include Chapter 8.96, Stormwater and Runoff Pollution Control, which reinforces the requirements of the CWA and the Porter-Cologne Act (including Construction General Permit requirements) within the City.

Southeast Area Development and Improvement Plan and Draft Southeast Area Specific Plan

Approved in 1977, the Southeast Area Development and Improvement Plan (SEADIP) was the first Planned Development district in the City of Long Beach. The SEADIP document was intended to guide land use and development in area that was experiencing a period of rapid growth and is identified as the zoning for the program area. The 1977 SEADIP included the following planning goals and objectives relevant to hydrology and water quality:

> **Goal 2. c):** Preservation, revitalization, and, if feasible, enlargement of the Cerritos [sic] Wetlands as a wildlife reserve park.
>
> > **Environmental Objective: 3. b)** Enhance the natural environment, improving features that are renewable and preserving those that are unique.

The 1977 SEADIP also provided the following narrative environmental consideration:

> *"Protection of the Cerritos Wetlands was of primary consideration during the project planning. Area 33, which contains the marsh, is to be improved and enhanced so that it can serve its natural function and still serve the community by providing open space, visual quality, and peripheral trails. New wildlife habitats may also be established as a result of the projected improvement. In addition, protection of an endangered bird, the least tern, can result from these improvements."*

Subsequent revisions to SEADIP are provided in the SEADIP PD-1, which includes updates, revisions, and additions of the ordinance history through 2006. The additions through 2006 include narrative discussion of "The Wetlands" and "The Buffers," which would include the restoration area. Relative to hydrology and water quality, the narrative is largely permit-, process-, phasing-, and financially-oriented.

In July 2016, the City of Long Beach circulated a draft of the Southeast Area Specific Plan (SEASP) 2060, which is intended to replace SEADIP as the applicable planning document for the

program area, including re-designating land uses for the program area. Although the proposed SEASP 2060 was adopted by the City Council on September 19, 2017,the SEASP 2060 has not been certified by the CCC, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program and is discussed here for informational purposes. Portions of SEASP 2060 relevant to the proposed program are provided in Section 3.5.3, *Regulatory Framework*, in Section 3.5, *Geology, Soils, and Paleontological Resources*, of this PEIR, and include development standards for wetland buffers and storm drains that are also relevant to hydrology and water quality. In addition, the following objectives apply to sea-level rise:

- Project the range of sea-level rise for the proposed program.
- Determine how impacts from sea-level rise may constrain the program area.
- Determine how the proposed program may impact coastal resources, considering the influence of future sea-level rise on the landscape.

Seal Beach General Plan – Safety Element

The Safety Element of the General Plan dated December 2003 includes the following policies that would relate to the proposed program:

5D. Plan capacity for the 100-year flood and provide short term reasonable protection for locations that would benefit from 10-, 25- or 50-year storm drainage facilities.

5F. Pursue a regional approach to watershed management, particularly in regards to the San Gabriel River, and coordinate improvement plans with local, state, federal, and community-based organizations and agencies, including all of the jurisdictions located upstream on the San Gabriel River.

3.8.4 Significance Thresholds and Methodology

3.8.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the CEQA Guidelines, the proposed program would have a significant impact on hydrology and water quality if it would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i. result in substantial erosion or siltation on- or off-site;

   ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; or

   iii. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

iv. impede or redirect flood flows?

d. In flood hazard, tsunami, or seiche zones, risk or release of pollutants due to project inundation; or

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.8.4.2 Methodology

Hydrodynamic Modeling

The following analysis to assess potential impacts related to hydrology and water quality is based on the potential for elements of the proposed program to result in adverse impacts, using existing site conditions, as currently understood from investigations conducted to date, as a baseline for comparison. The existing regulatory requirements of proposed elements of the proposed program are also considered and assessed in the realm of applicable regulations to proposed activities. Hydrodynamic modeling is a primary tool to evaluate hydrologic changes that would occur with changes such as removal of berms or culverts and grading changes that provide hydraulic connections that currently do not exist or limit connections that do currently exist. Hydrodynamic modeling can be used to predict through computer simulations how water flows could change existing flooding, erosion, and sediment deposition regimes. This section describes the hydrodynamic model and how it was used to simulate the surface water response to the proposed program during storm events. The results of the hydrodynamic modeling are presented in Hydrodynamic Modeling Technical Report prepared by ESA for the proposed program in January 2020 (Appendix H).

Hydrodynamic models are computer simulations that represent water flow in the environment using mathematical equations. By mathematically representing a simplified version of a surface water system, reasonable scenarios can be predicted, tested, and compared. The applicability or usefulness of a model depends on how closely the mathematical equations approximate the physical system being modeled.

Setting up a standard hydrodynamic model involves establishing the model domain, which is the area within which the model stimulates surface water conditions. In a two-dimensional model, as used in Appendix H, the model domain is defined by a horizontal grid. The grid divides the two-dimensional space into cells that resemble rectangular boxes, typically numbering in the tens of thousands. Each cell can have a different roughness to represent flow resistance under different flow conditions.

Boundary conditions are applied to the model to simulate the water conditions at the upstream and downstream ends of the domain and to provide a starting place for computations. In an unsteady model, as used in Appendix H, the boundary conditions are represented by a time series (e.g., one week of tides, an entire storm event).

Features such as culverts and bridges can be added to the model domain, as well, to represent the system. Model inputs to represent these features include dimensions, roughness, and energy losses caused by the feature.

After the model has been set up for existing conditions as described in Section 3.8.2, *Environmental Setting*, it then is verified against known information. Simulations are run for measured flow rates, and model results are compared to observed/measured water elevations or velocities. The various input parameters then are adjusted to better simulate observed conditions. When measured flow data are not available, model parameters are selected based on available information and professional judgment.

Model results for existing conditions then are used as a baseline for evaluating the potential hydrodynamic impacts of proposed changes, such as expansion of a floodplain, construction of a bridge, or enlargement of culverts. For this analysis, each alternative was modeled and the results were compared to existing conditions model results to identify potential impacts.

Hydrodynamic Model Terminology

Certain terminology is used in hydrodynamic modeling to describe and illustrate the nature, extent, and movement of surface water and the responses to changes. Key terms are presented below.

- *100-Year Flow/Flood/Storm/Event*—a storm/flood/event expected to occur once every 100 years or with an annual probability of occurring of 1 percent. Any X-year event is expected to occur once every X years or with a 100/X percent chance of annual occurrence.
- *Freeboard*—the distance between the water surface and the lowest possible entry point along a levee or berm during flooding or large waves
- *MLLW*—mean lower low water, average height of the lowest tide each day
- *MHHW*—mean higher high water, average height of the highest tide each day
- *NAVD*— North American vertical datum. A plane that elevations are measured from for consistency across North America
- *Unsteady Model*—unsteady models represent a time series
- *Tidal Prism*—the volume of water that is exchanged in a given tidal area between MLLW and MHHW

Limitations of Hydrodynamic Models

Hydrodynamic models use simplified mathematical equations to represent extremely complex natural systems. Therefore, significant uncertainty is inherent in model results, even when parameters have been calibrated to measured data. Nonetheless, hydrodynamic modeling is a standard tool for project planning, design, and impact analysis, and the results provide a basis for comparing the hydraulic performance of different scenarios relative to a baseline.

Hydrodynamic Model Used for Project Analysis

An unsteady state, two-dimensional HEC-RAS hydrodynamic model was the primary analytical tool used to evaluate project impacts on flooding. HEC-RAS is a public domain hydrodynamic modeling program that was developed by the Corps' Hydrologic Engineering Center and is used extensively in flood and sediment transport analysis applications.

Model set-ups were built for baseline conditions (no project), South Area, near-term conditions, and full breach conditions (South Area mid-term restoration, Isthmus mid-term restoration) and Central Area long-term restoration). Both phases of the South Area were modeled to assess potential interim impacts following near-term restoration. The model boundary includes the Central Area, the San Gabriel River, the Isthmus Area, the Haynes Cooling Channel, and the South Area, as well as a small portion of Alamitos Bay Marina, where the Haynes Cooling Channel culverts connect to the bay. The models include the following bridges: 2nd Street over the San Gabriel River, 2nd Street over the Haynes Cooling Channel, the Pacific Coast Highway, and Marina Drive. Appendix H provides the detailed model set-up.

HEC-RAS computes water surface elevations for each cross section working upstream from a known water surface elevation. The downstream boundary condition (water level) is therefore an important input to the model. For this study, the downstream boundaries of the HEC-RAS model were where the San Gabriel River discharges to the Pacific Ocean and where the Haynes Cooling Channel connects to the Alamitos Bay Marina.

To evaluate flood risk, a conservative tidal boundary condition of the annual high tide was chosen. A representative two-week tide cycle from September 5 to 18, 2018, was used for the typical tides scenario. Verification time series of observed water level data provided by Moffatt and Nichol for the Hellman Channel and collected by ESA in the San Gabriel River were used in unsteady flow analyses. HEC-RAS model results were similar to recorded water surface elevations at the location of the tide gauges.

For storm conditions, a 100-year storm flow rate of 55,900 cfs was applied at the upstream boundary of the model.

Sea-Level Rise Scenarios

To assess the potential flood impacts and to inform the habitat design for the LCW, two sea-level rise amounts were selected to bracket the range of potential projections: 1.7 and 3.3 feet. According to OPC 2018, there is a 66 percent chance that sea-level rise will be between 1.7 and 3.3 feet of sea-level rise by 2110. There is a 0.5 percent chance that sea-level rise will reach or exceed 3.3 feet as soon as 2070.

To analyze potential flood impacts along the San Gabriel River, the medium-high risk aversion scenario is recommended per the OPC Guidance, since homes and other development in the area are at risk for flooding. **Table 3.8-6**, *Los Cerritos Wetlands Sea-Level Rise Projections (in feet)*, shows the model scenarios and the corresponding time frames (the first year in the range) under the medium-high risk aversion projection. To analyze habitat elevations, the likely range of sea-level rise (the second column in Table 3.8-6) can be used to understand the likely habitat acreages that will develop over time. Since habitat restoration requires a balance of creating wetland habitat today and providing space for wetland habitat tomorrow, the likely range of sea-level rise can be considered to understand the expected amount of sea-level rise (rather than a worst-case scenario). The model scenarios and the corresponding time frames under the likely range (the second year in the range) are shown in Table 3.8-6.

TABLE 3.8-6
LOS CERRITOS WETLANDS SEA-LEVEL RISE PROJECTIONS (IN FEET)

	~2040–2070	~2070–2110
Amounts of sea-level rise	1.7	3.3

Model Runs

The HEC-RAS model was run with a range of tidal conditions and storm flow combinations. **Table 3.8-7**, *Model Scenarios*, presents the different scenarios.

TABLE 3.8-7
MODEL SCENARIOS

	Run	Scenario/ Geometry	Hydrology	Downstream Boundary Conditions	Sea-Level Rise
Typical Tides	Calibration	Existing	Power plant inflow	Two weeks tides from gage data	—
	1	Existing	Power plant inflow	Two weeks typical tides, w/ annual high tide	—
	2	Existing	No flow	Two weeks typical tides, w/ annual high tide	—
	3	South Area, Near-Term	Power plant inflow	Two weeks typical tides, w/ annual high tide	—
	4	South Area, Near-Term	No flow	Two weeks typical tides, w/ annual high tide	—
	5	Full Breach	No flow	Two weeks typical tides, w/ annual high tide	—
Flood Conditions	6	Existing	100-year event	Two days, w/ annual high tide	—
	7	South Area, Near-Term	100-year event	Two days, w/ annual high tide	—
	8	Full Breach	100-year event	Two days, w/ annual high tide	—
Sea-Level Rise	9	Existing	No flow	Two weeks typical tides, w/ annual high tide	1.7 ft
	10	Full Breach	No flow	Two weeks typical tides, w/ annual high tide	1.7 ft
	11	Existing	No flow	Two weeks typical tides, w/ annual high tide	3.3 ft
	12	Full Breach	No flow	Two weeks typical tides, w/ annual high tide	3.3 ft

Sediment Dynamics Analysis

Sedimentation and erosion in a stream channel can impact the flood conveyance capacity of the channel. Sediment analyses were used to evaluate the potential impact of sedimentation and/or erosion on flooding under the proposed program. This section describes the sediment dynamics analysis, including geomorphic analyses. The results of these analyses are presented in the Sediment Dynamics Analysis prepared for the program by ESA in January 2020 and in

Appendix I. This analysis focuses on the Central Area, which due to its potential future connection to the San Gabriel River, is most at risk for scour and deposition. The culvert connections to Callaway Marsh, Zedler Marsh, and the South Area protect these habitats from any tidal scour by muting the tides, which limits tidal velocities. Similarly, the culverts limit how much sediment can enter the wetlands, so deposition is limited.

Sediment Dynamics Terminology

Certain terminology is used in sediment dynamics analyses to describe and illustrate the nature, extent, and movement of sediment. Key terms are presented below.

- *Shear stress*—the force that causes materials (such as water and sediment) to slide upon each other in opposite directions.

Geomorphic Analyses

A geomorphic analysis was performed to assess how the site would develop and evolve over time in response to the proposed program and physical processes. Flood events, tidal action, and coastal sediment transport processes were examined as part of this analysis.

Flood Events

The HEC RAS 2D modeling described above evaluated the potential for erosion and deposition within the San Gabriel River channel, as well as scour and deposition on the marsh. Maps of hydraulic shear stress during the peak of the 100-year storm event were exported from HEC RAS to analyze potential marshplain erosion. Mathematical equations relating shear stress to erosion were used to develop a map of potential erosion during the 100-year storm event and to estimate erosion volumes. The inputs to the equations, including critical shear stress, were chosen based on the most conservative values (the values resulting in the highest erosion) found in the literature, in order to evaluate the greatest possible impacts of the proposed program. For this reason, the marsh erosion volumes are likely a conservative overestimate.

To analyze deposition in the marsh, it was assumed that most of the sediment that enters the wetland system would be brought in during storm events, and in areas experiencing velocities slower than the settling velocity of the sediment, the sediment is expected to drop out of solution and settle or deposit onto the marsh. Cahoon et al. (1996) estimated that 0.64 percent of sediment yield was deposited on the marsh during storm events for creek mouth tidal wetlands. To roughly approximate the amount of sediment being deposited at different locations in the Central Area, the estimate of 0.64 percent was applied to the total sediment load (from the sediment transport model) to estimate the volume of deposition. The total was then divided among the different slow-flowing marsh areas. This is likely a low estimate of marsh accretion, but was used to conservatively estimate the amount of sediment leaving the system with the Project.

Tidal Action

Tidal channels deposit or scour in response to the size of the tidal prism that the channels convey. Tidal hydraulic geometry relationships can provide an estimate of the equilibrium channel size (cross-section dimensions) in relationship to the tidal prism (the volume of water between MLLW

and MHHW) or marsh area. These relationships were used to predict the equilibrium channel size under existing conditions and with the proposed program.

Coastal Sediment Transport

Analysis of the coastal sediment transport was conducted through literature review. The Long Beach Detached Breakwater protects most of the coast from ocean waves, resulting in relatively little longshore transport in the vicinity of the site (USACE 1986). Due to jetties at the mouth of the San Gabriel River and the program site's inland location, coastal sediment transport is not expected to have a substantial impact on the sediment dynamics at the LCW.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to hydrology and water quality were identified.

3.8.5 Program Impacts and Mitigation Measures

Impact HYD-1: The proposed program would result in a significant impact if the proposed program would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Construction

The proposed program would require ground disturbance, vegetation removal and/or grading to restore and enhance the wetlands, levee modifications, public access facilities, and infrastructure and utility modifications. Exposure and removal of topsoil and the underlying sub-soils during construction could generate sediment that, if mobilized by stormwater runoff or runoff from applied water during construction, could expose sediments to erosion and could potentially mobilize contaminated sediments that adversely affects water quality of receiving waters.

The construction activities for the proposed restoration activities would be required to comply with the Construction General Permit for the state and the County MS4 Permit required as part of the permitting process. The proposed program would be required to comply with the General Construction and MS4 Permits because greater than 1 acre of ground would be disturbed. For work in the channel, the proposed program also would be required to comply with a Section 401Water Quality Certification. Excavation of the channels in the Central and South Areas may extend below the water table and could require temporary dewatering. All excavation dewatering would be conducted in accordance with the General Construction Permit, which ensures discharge water would not be discharged in such a way as to result in direct or indirect degradation of surface water in the San Gabriel River, Los Cerritos Channel, or Alamitos Bay. Compliance with the General Construction Permit, MS4 Permit, and 401 Certification would ensure that the proposed activities would include adequate stormwater protection through BMPs and monitoring, to limit increased turbidity and decreased water quality from sediment and other pollutants leaving the construction site. As a result, impacts during construction would be less than significant.

Contaminated Water and Sediment from Upstream Sources Impacting the Existing Wetlands

No changes are proposed to the source of flows to the Isthmus Area, so no water quality impacts are expected in these habitats due to the proposed program. In the South Area, the proposed program would reconnect the marsh floodplain to the Haynes Cooling Channel, which would improve water quality at the site by increasing tidal flushing and bringing in a cleaner source of water, when compared to the San Gabriel River. Historical and current water quality data indicates that flows from the Los Cerritos Channel and the San Gabriel River exceed water quality objectives. Since the proposed program will reconnect existing habitats in the North and Central Area to the flows in the Los Cerritos Channel and the San Gabriel River respectively, there is a potential for water quality impacts to the existing habitat in these areas.

However, work is being done in the watershed, outside of the proposed program, to improve the water quality in the Los Cerritos Channel and the San Gabriel River. TMDLs have been developed or are anticipated for the different constituents listed for these waterbodies. The LARWQCB has incorporated the TMDL waste load allocations and timelines into the reissued municipal separate storm sewer system (MS4) permit. Both Alamitos Bay and Los Cerritos Channel and the Lower San Gabriel River have Watershed Management Programs (WMP) which have identified watershed control measures (WCMs). The WCMs will help jurisdictions meet the MS4 permit requirements and improve water and sediment quality in the rivers and channels. The concentration and loading of the water quality constituents from the watershed will be reduced through compliance with the reissued MS4 Permit, TMDLs, and the WMPs. The potential for significant adverse impacts to the proposed program would, therefore, be significantly reduced.

In addition, the proposed program design allows for full tidal flows into the North and Central Area wetlands. Full tidal exchange creates favorable water quality conditions by limiting retention times of potentially impacted stormwater and non-storm flows and enhancing flushing of the wetlands with much higher quality ocean water.

Contaminated Water and Sediment from the Site Impacting the Local Water Bodies

The proposed program would further connect the Los Cerritos Channel and Steam Shovel Slough to the North Area, reconnect the San Gabriel River to the Central Area, connect the Haynes Cooling Channel to the South Area, and open up the North, Central, and South Areas to full tidal connections. Reconnection of the creek or channel to the floodplain and removal of the berms in the North Area and levees in the Central Area could cause erosion of the marsh during a large storm event, which could deliver sediment-laden runoff and associated constituents to the Los Cerritos Channel and San Gabriel River, respectively. (Storm erosion is not expected along the Haynes Cooling Channel due to the small watershed and storm flows.) Constituents associated with these sediments could then settle out into the channels at concentrations that may result in impairment for biological resources/beneficial uses. If this occurs, it would be a significant adverse impact.

Under tidal conditions, the program area is not expected to experience substantial erosion. In a stable estuary, mature marshes remain in a dynamic equilibrium between erosional and

depositional processes. The marsh vegetation and its root structures help hold sediments in place. The appropriate sizing of tidal channels, as well as naturally recruited or planted vegetation, is expected to keep the marsh in a dynamic equilibrium, where any erosion during typical tides would be minor.

Under existing conditions, the existing marsh is not fully connected to the River, and sediment export from the marsh to the River during storm events is likely minimal. For storms less than the 10-year event (10 percent or greater chance of occurrence annually), no export from the marsh is expected. The sediment dynamics analysis showed that under full breach conditions, the 100-year event could export up to 10,000 cy of sediment (Appendix I). However, these events would occur infrequently with less than a 1 percent chance of occurrence every year. While the erosion could result in an increase in turbidity during storm events, it would be an infrequent, temporary impact, and one which is typical of natural systems and already occurs at the site. As a result, erosion could result in an infrequent, temporary impact relating to the contribution of constituents to the San Gabriel River; these inputs would not have a substantial impact on the beneficial uses of the system. Additionally, **Mitigation Measure HYD-1** has been developed to ensure monitoring and adaptive management is conducted to recognize and address any erosion, deposition, or sediment quality issues.

Groundwater Quality

The groundwater sampling conducted to date indicates that groundwater at the site has already been impacted by the historic site land uses. It is likely that sediment in certain areas of the site will require remediation before restoration, which would improve conditions and be a benefit to groundwater quality.

The shallow water table is under tidal influence meaning that groundwater elevations fluctuate in response to tidal cycles in the Los Cerritos Channel, the San Gabriel River, and the Haynes Cooling Channel. Generally, freshwater from the inland water table flows toward the coast and mixes with salty groundwater making groundwater that is brackish (a mixture of salty and fresh water); however, the program area is on the ocean side of the previously discussed Alamitos Barrier Project, a seawater intrusion barrier system located north, northeast, and east of the program area. Consequently, shallow groundwater beneath the site will remain saline to brackish. As all of the local groundwater is non-potable, there are no wells in the vicinity of the program area that draw groundwater from the shallow water table for domestic or municipal use. Although the proposed program would increase tidal inundation through the restored marsh and possibly result in some localized increase in salinity within the restoration area, the change to water quality would not be considered to have an adverse impact on water resources because the groundwater in this area is all brackish to saline and is not used for domestic or municipal supply. Furthermore, the groundwater elevations below the site correspond to the tidally influenced river and channel elevations and, therefore, are also likely tidally influenced. It is not likely the site's groundwater will be used for direct potable use due to the tidal connection and salt water intrusion. Impacts would be less than significant.

Ocean Water Quality

The proposed program would excavate sediments in certain areas to reach marshplain elevations. Excavated sediment would be used on site to the extent feasible, but any remaining sediment may be designated for placement in an off-site landfill or in ocean disposal sites at either the Los Angeles (LA-2) or Newport Bay (LA-3) sites. The suitability of on-site excavated sediment for placement at a designated ocean dredged material disposal site would require a Tier III evaluation in accordance with Evaluation of Dredged Material Proposed for Ocean Disposal – Testing Manual (OTM; USEPA/USACE 1991). The testing results to date do not preclude this alternative, but require further biological testing to meet the applicable guidelines. The Tier III evaluation contains sediment quality standards which are set based on water quality criteria and protection of water quality. Sediment would be placed in an ocean disposal site only if it met the standards of the OTM, therefore, there would be no adverse impact as a result of ocean disposal. If the material is determined to be suitable for this placement alternative, specific permitting for ocean disposal or open-water placement would be required for the designated site. Impacts would be less than significant.

Mitigation Measure

> **Mitigation Measure HYD-1**: A Monitoring and Adaptive Management Plan (MAMP) shall be prepared and implemented prior to commencement of construction or restoration activities. The MAMP shall provide a framework for monitoring site conditions in response to the program implementation. The monitoring shall focus on sediment quality in areas subject to the greatest deposition from storm events and that are also not subject to regular tidal flushing, (e.g., the southwestern corner of the Long Beach City Property site). The sediment quality monitoring shall be performed at a frequency that would capture the potential build-up of contaminants in the deposited sediment before concentration are reached that would impact benthic macro-invertebrates and other sensitive species. The findings of the monitoring efforts shall be used to identify any source of impairment, and if discovered, provide measures for remediation of the sediment source area(s).
>
> The MAMP shall be submitted for review and approval to permitting agencies prior to commencement of construction or restoration activities.

Significance after Mitigation

Less than Significant with Mitigation

Impact HYD-2: The proposed program would result in a significant impact if the proposed program would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed program may impede sustainable groundwater management of the basin.

Construction of the proposed program facilities could involve activities that require the use of water, such as concrete mixing and dust control during earthwork activities. The local water supply is served by the City of Seal Beach and the Long Beach Water District (LBWD), which both receive a mix of groundwater, imported water, and recycled water (LBWD only) (see

Section 3.16, *Utilities and Service Systems*, of this PEIR, for more details on program area water supply and program demand). Therefore, construction water demand could include use of groundwater supplies, however, construction water supply needs would be temporary and are unlikely to be substantial. In addition, as discussed in Section 3.16, *Utilities and Service Systems*, of this PEIR, the City of Seal Beach and LBWD water supplies are projected to exceed demand through 2040, even in dry years. Therefore, construction associated with program activities would not adversely affect groundwater supplies or sustainable groundwater management of the basin.

During operation of the proposed program, water supply needs would be necessary for elements including Visitor Centers or other public access amenities, and potentially some maintenance activities. As noted above, both the City of Seal Beach and LBWD water supplies exceed projected demand through 2040 even in future dry years. Therefore, considering the different sources of water supply and the projected demands, the proposed program would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin.

Some elements of the proposed program could also potentially increase impervious surfaces such as public access elements, Visitor Centers, and parking areas. However, as noted above, shallow groundwater beneath the study area is brackish and not a source of public water supply. In addition, the proposed program would largely remain pervious with restoration and provide large areas of groundwater recharge. Therefore, the proposed program would not interfere with groundwater recharge such that it would interfere with sustainable management of the basin.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HYD-3a: The proposed program would result in a significant impact if the proposed program would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site.

Construction

The construction activities for the proposed restoration would be required to comply with the Construction General Permit for the state and the County MS4 Permit required as part of the permitting process. The proposed program would be required to comply with the General Construction and MS4 Permits, because more than 1 acre of ground would be disturbed. For work in the San Gabriel River, the proposed program would be required to comply with a Section 401 Water Quality Certification. Breaching and lowering of the levee may extend below the water table and could require temporary dewatering. All excavation dewatering would be conducted in accordance with the General Construction Permit, which ensures discharge water would not be discharged in such a way as to result in direct or indirect degradation of surface water in the San

Gabriel River or Alamitos Bay. Compliance with the General Construction Permit, MS4 Permit, and 401 Certification would ensure that the proposed activities would include adequate stormwater protection through BMPs and monitoring, to limit increased turbidity and decreased water quality from sediment and other pollutants leaving the construction site.

Operation

Post-construction, the proposed program would reconnect the San Gabriel River to the Central Area and open up the Central Area to full tidal connection with the river. Reconnection of the river to the floodplain and removal of the levees could cause erosion of the marsh during a large storm event, which could deliver sediment-laden runoff further down the river or to the ocean. If this sediment deposited in the San Gabriel River or the entrance of Alamitos Bay, it could impact flood management or navigation.

As discussed above for Impact HYD-1, under tidal conditions, the Central Area is not expected to experience substantial erosion. The appropriate sizing of the channels, as well as naturally recruited or planted vegetation, is expected to keep the marsh in a dynamic equilibrium, where any erosion during typical tides would be minor.

The volume of sediment transported through the system may still increase as a result of the proposed program, but, as discussed for Impact HYD-1 above, the volumes of additional sediment is typical for this type of system. However, the additional sediment could increase flooding if it deposited downstream and reduced drainage capacity. During a storm event, velocities in the river channel increase and would erode any temporarily deposited material. Additionally, the amount of sediment that could potential erode from the marsh (10,000 cy) is an order of magnitude less than the amount of sediment coming from the watershed (Appendix I).

The increased volume of sediment transported through the system also could increase the amount of sedimentation at the entrance to Alamitos Bay. However, the existing jetties at the entrance, are expected to limit sediment transported from the San Gabriel River from settling in the marina entrance.

During large storm events, the increased export from the San Gabriel River could increase the deposition of fine sediments on the beach. However, this would be considered merely a temporary nuisance condition and wave action would wash fines out to the ocean.

The proposed program design may also include armoring which would decrease channel bank erosion. Additionally, Mitigation Measure HYD-1 would ensure monitoring and adaptive management is conducted to recognize and address any erosion or sediment quality issues. The MAMP will include sediment erosion and deposition monitoring post large storm events to evaluate whether erosion from the marsh is depositing in the San Gabriel River and increasing the flood risk. The monitoring will also determine if the marsh habitats are being impacted by erosion and provide measures for addressing the impacts.

Mitigation Measure

Mitigation Measure HYD-1.

Significance after Mitigation

Less than Significant

Impact HYD-3b: The proposed program would result in a significant impact if the proposed program would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

The proposed program would involve altered drainage patterns compared with the existing sites. This would include levees around the Central Area, which would reduce the stormwater retention volume available for surrounding areas. As discussed above for Impact HYD-1, stormwater drainage control requirements would require operational BMPs in accordance with the reissued MS4 Permit, TMDLs, and the WMPs, including bioswales along the edge of the Central Area. Through the retention and infiltration of stormwater runoff, the bioswales would accommodate the stormwater from Shopkeeper Road and 2nd Street and would result in a less-than-significant impact.

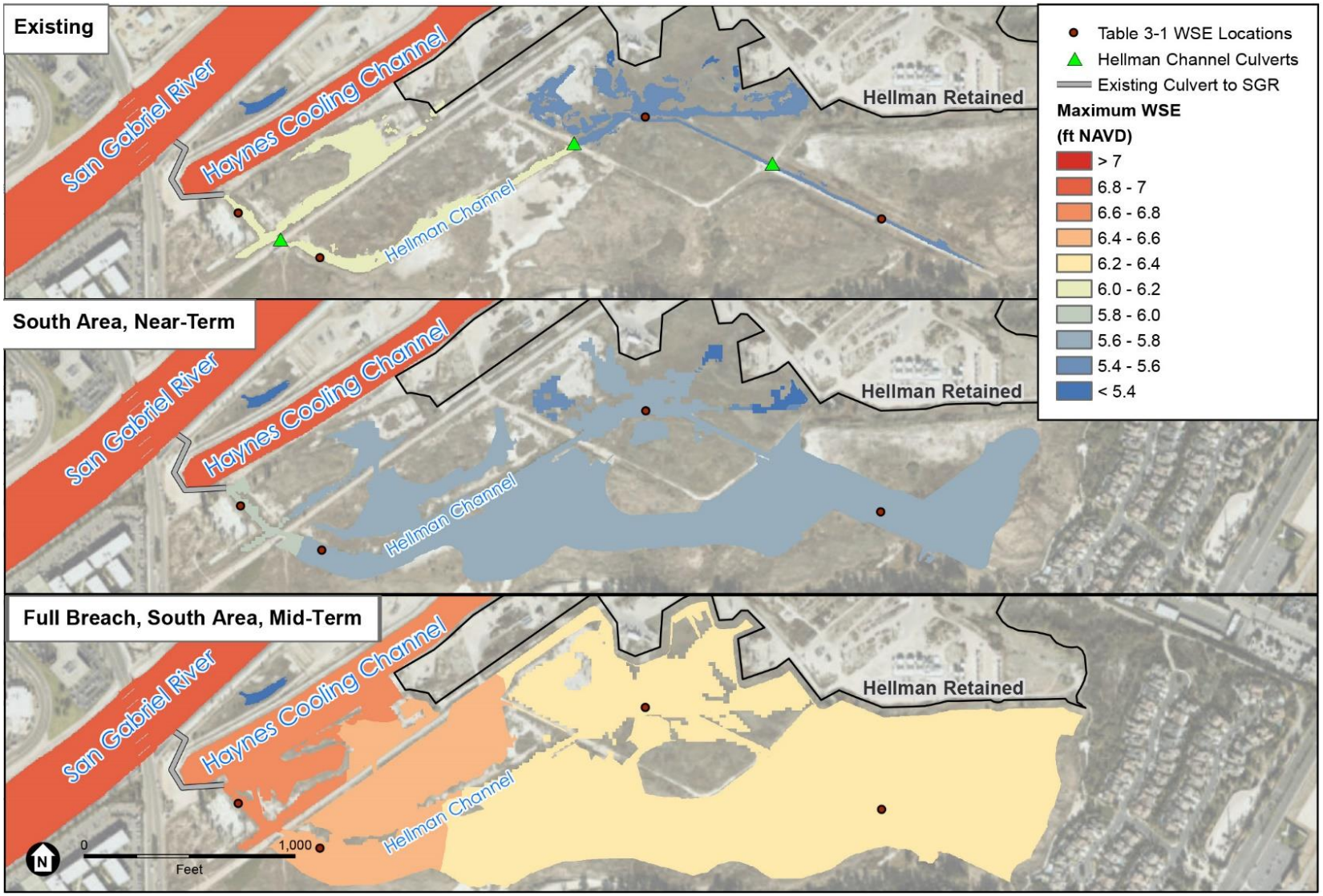
South Area

In the South Area, the proposed program would open or remove the gate on the culvert from the San Gabriel River to the Hellman Channel in the near-term, which could increase flooding at the site. In the mid-term, the South Area would be connected to the Haynes Cooling Channel, which could also increase flooding at the site.

Under the proposed program, the model results showed that water levels would decrease within the South Area by 0 to 0.8 feet during the 100-year riverine flood event in the near-term (**Figure 3.8-2**, *Modeled Water Levels during a 100-Year Event in the South Area*). This is because the grading of the site under the near-term restoration creates a much larger space for water to flow, but the culvert to the San Gabriel River still limits the amount of water that can enter the site. With the removal of the culverts within the middle of the marsh, the available water spreads more evenly across the site and water levels at the back of the site are higher than existing conditions, but the water levels near the mouth of the Hellman Channel are lower.

In the mid-term, the South Area would be connected to the Haynes Cooling Channel. Because of the Haynes Cooling Channel's small watershed, water levels in the channel are not expected to increase substantially during a 100-year rainfall event. The model results show that the water levels at the mouth of Hellman Channel reach an elevation of 6.8 feet NAVD, 0.5 feet lower than under existing conditions, which is due to the volume of water that leaves the marsh from the connection to the Haynes Cooling Channel.

Additionally, the proposed program would construct a berm along the Hellman Property site, resulting in a freeboard of 3.5 feet between the mid-term, 100-year riverine water levels and the top of the berm. Under existing conditions, the model results showed that water levels from the South LCWA site extend onto the Hellman Property site, so since flood protection for the Hellman Property site would increase with the proposed program, this would be a beneficial effect.



SOURCE: ESRI, LCWA

NOTE: WSE = Water Surface Elevation

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Figure 3.8-2
Modeled Water Levels during a 100-Year Riverine Event in the South Area

The model results showed that the South Area is driven more by coastal water levels rather than the San Gabriel River water levels. Under a coastal 100-year event (i.e., 100-year high tide), the model showed the program would increase water levels in the South Area compared to existing conditions, but that the berm would have over a foot of freeboard under program conditions.

Isthmus Area

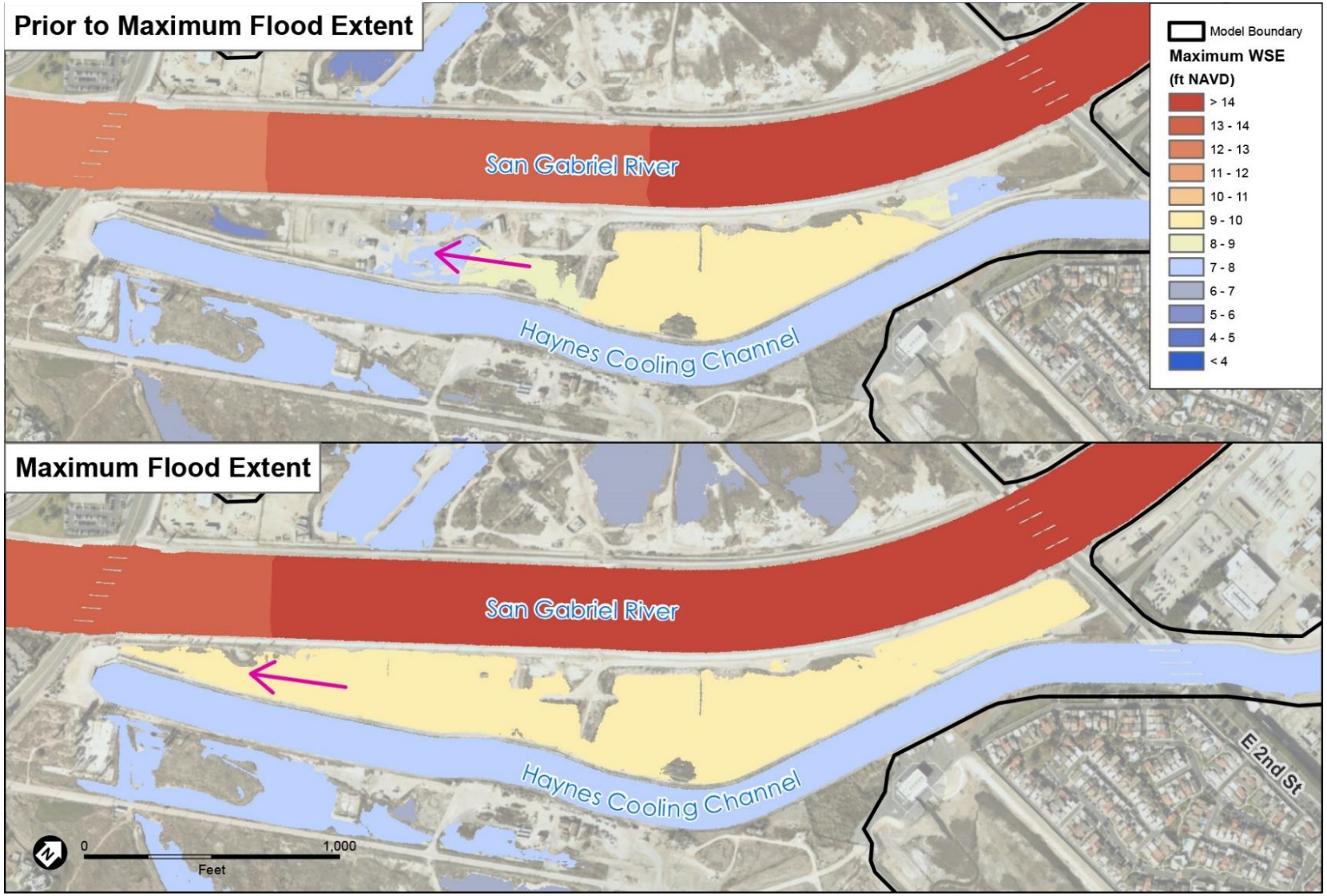
In the Isthmus Area, the proposed program would improve the culvert connection between Zedler Marsh and the Isthmus Bryant site in the near-term, which could increase flooding in the site during a storm event. The results of the hydrodynamic modeling for existing conditions showed that during the 100-year storm, the entire Isthmus Area is inundated to similar elevations. Since the culvert connection improvements under restoration would just improve the connection from Zedler Marsh to the Isthmus Bryant site, and both sites already flood during existing conditions, the proposed program is not expected to increase flooding at Zedler Marsh or the Isthmus Bryant site.

The proposed program would open or remove the gate on the culvert from the San Gabriel River to Callaway Marsh in the mid-term, which could increase flooding at the site. The hydrodynamic modeling results for existing conditions showed that flooding during the 100-year event occurs through the culvert to Zedler Marsh, and waters flow both northeast and southwest to inundate the Isthmus Area (**Figure 3.8-3**, *Modeled Water Levels during a 100-Year Event in the Isthmus Area, Existing Conditions*). Flooding from the Callaway Marsh under existing conditions is minimal, based on the model results. However, when the gate on the culvert is removed as part of the mid-term restoration, the model results shows water from the Callaway Marsh culvert would flow northeast onto the Isthmus LCWA site before waters from the Zedler Marsh culvert reach the far side of the site. This indicates that removing the gate increases flooding of the Isthmus LCWA site.

Central Area and San Gabriel River

The proposed program would reconnect the San Gabriel River to the restored wetland floodplain by grading the Central Area to marshplain elevations and removing the levees along the river. The expansion of the floodplain could increase water levels upstream, downstream, and at the site during storm events, thereby increasing off-site flooding.

As described in Section 3.8.4.2, *Methodology*, above, hydraulic modeling evaluated any changes to flood water elevations that would result due to the proposed program. Modeling was conducted for both existing and program conditions (full breach model scenario). Under existing conditions, model results indicate that the 100-year storm flow is contained within the San Gabriel River channel with 2 to 3 feet of freeboard to the top of the levees. Within the proposed program, the expansion of flow into the Central Area and South Area provides additional flood storage, which reduces water levels upstream as much as 0.3 feet compared to existing conditions (**Figure 3.8-4**, *Modeled Water Levels during a 100-Year Event along the San Gabriel River*). In the vicinity of the Central Area, the model shows that water levels are reduced by 0.3 feet compared to existing conditions. Additionally, the proposed program would construct new levees up to an elevation of 24 feet NAVD in the Central Area, which would result in a levee freeboard of 9.4 feet, an increase of 6 to 7 feet from existing conditions. Below the Central and South Areas, the water levels in the channel are reduced by up to 0.1 feet compared to existing conditions. The model results indicate that the proposed program actually decreases flood water levels in the San Gabriel River, which would be a beneficial effect.

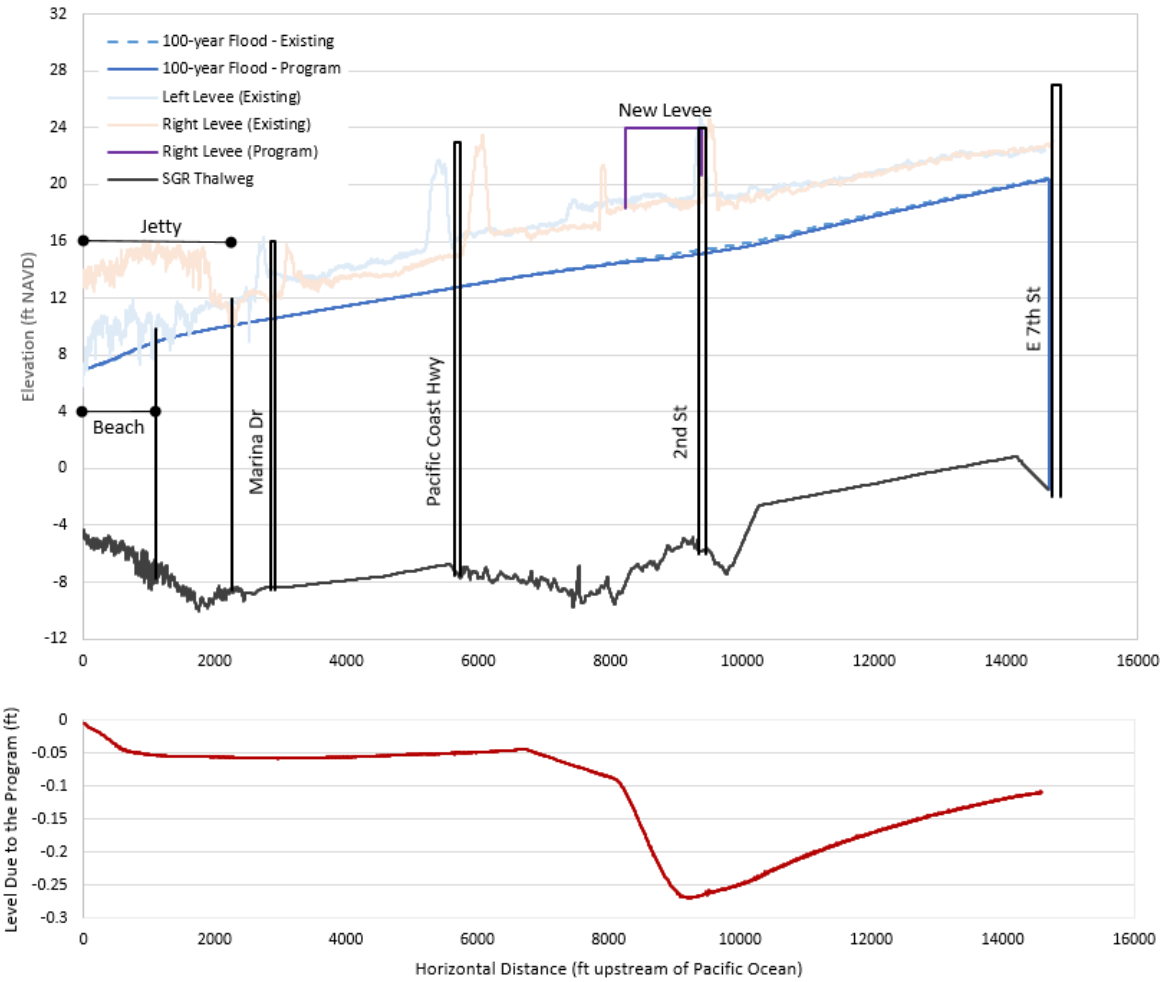


SOURCE: ESRI, LCWA

NOTE: WSE = Water Surface Elevation

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.8-3
Modeled Water Levels during a 100-Year Event in the Isthmus Area, Existing Conditions

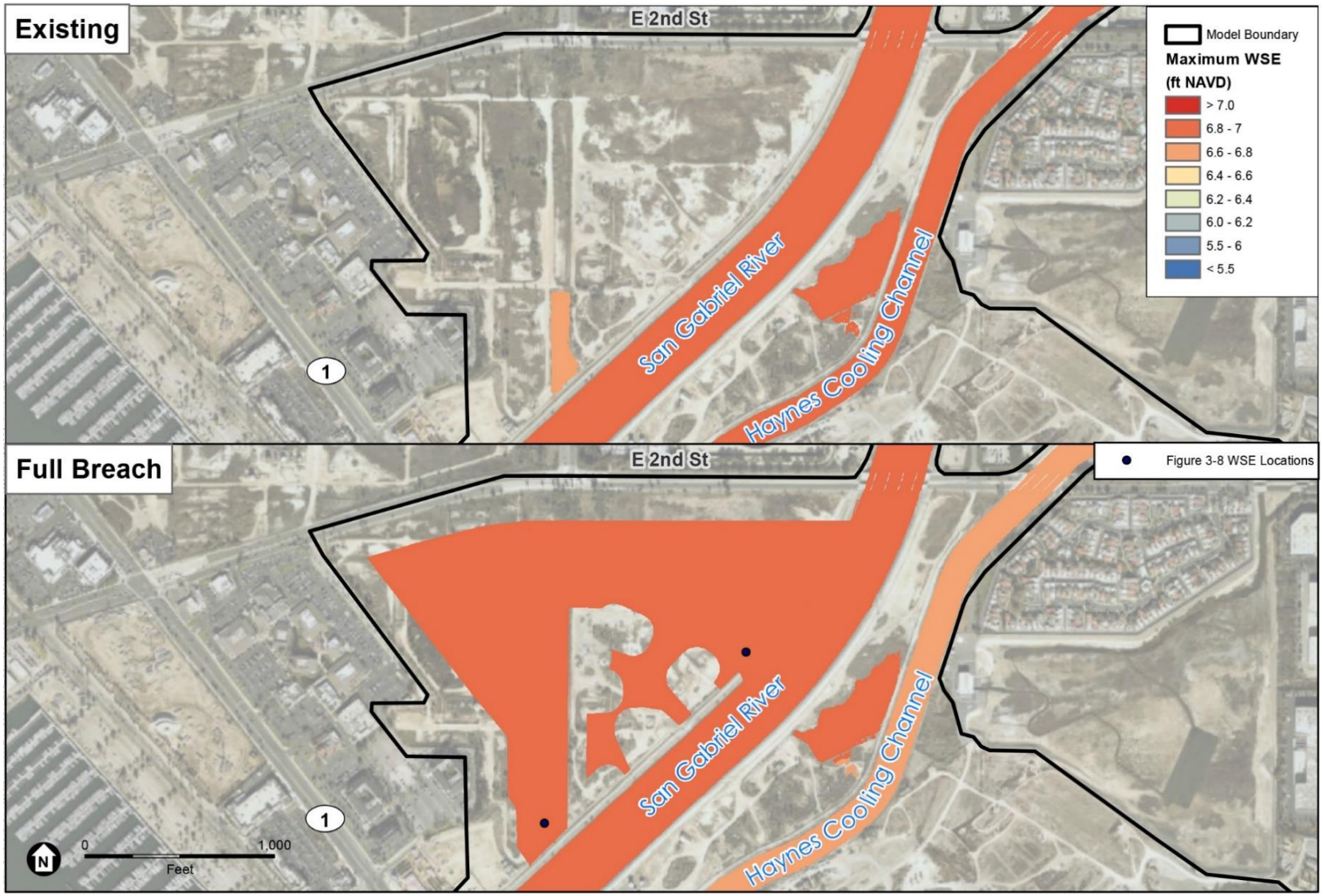


SOURCE: ESA, 2019 Los Cerritos Wetlands Restoration Plan Draft Program EIR
NOTE: SGR = San Gabriel River

Figure 3.8-4
Modeled Water Levels during a 100-Year Storm Event along the San Gabriel River

Under the proposed program, the model results show that water levels would increase within the Central Area by up to 7.1 feet during the 100-year event. Because the proposed program allows flows to expand over the floodplain in the Central Area through a levee breach rather than the existing perched culvert, water levels increase as designed (**Figure 3.8-5**, *Modeled Water Levels during a 100-Year Event in the Central Area*). Additionally, the proposed program would increase levee elevations compared to existing conditions, resulting in a freeboard of 9.4 feet. **Table 3.8-8**, *Levee Freeboard during the 100-Year Storm Event*, shows the freeboards under existing conditions and the proposed program. Since freeboard would increase with the program, this would be a beneficial effect.

Additionally, further modeling is required to receive a 408 permit and that modeling will determine the elevation of the levee that is required to maintain the existing level of flood protection as part of the next phase of design. Since the proposed program would raise the existing levee if that future modeling for the 408 permit determines the proposed program is raising flood levels at the site, there would be no increased flood risk at the site.



SOURCE: ESRI, LCWA

NOTE: WSE = Water Surface Elevation

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.8-5
Modeled Water Levels during a 100-Year Event in the Central Area

TABLE 3.8-8
LEVEE FREEBOARD DURING THE 100-YEAR STORM EVENT

	Levee Freeboard in the Vicinity of the Central Area (feet)
Existing Conditions[a]	2–3
Program[b]	~9

[a] Freeboard to existing levee
[b] Freeboard to proposed Perimeter Levee

Flooding from Sea-Level Rise

The proposed program would reconnect the San Gabriel River to the restored wetland floodplain by grading the Central Area to marshplain elevations and removing the levees along the river. Additionally, the proposed program would connect the South Area to the Haynes Cooling Channel in the mid-term. These program features could result in an increase of flooding under sea-level rise conditions compared to no project conditions.

Under 1.7 feet of sea-level rise, the model results show that tidal water levels in the South Area would be 1.6 to 2.2 feet higher than under no project conditions. However, there would still be 1.8 feet of freeboard along the berm. This would increase flood protection for the Hellman Property site, which would be a beneficial effect.

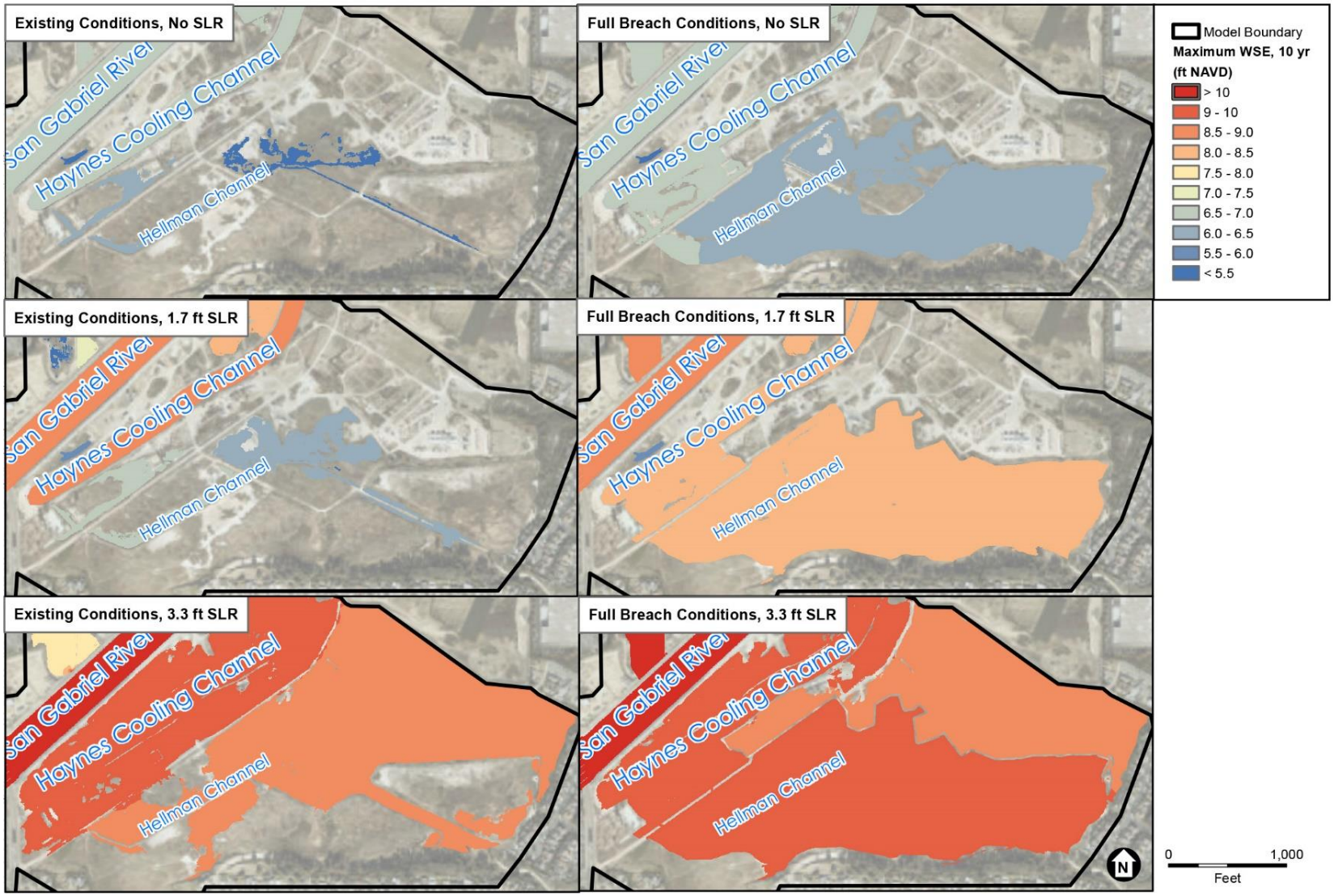
Under 3.3 feet of sea-level rise, the model results show that tidal water levels in the South Area would be 0.1 to 0.8 feet higher than no project conditions. With 3.3 feet of sea-level rise, the annual high tide will overtop the berm along the Haynes Cooling Channel and flood both the South LCWA site and the Hellman Property site, even without the proposed program (**Figure 3.8-6**, *Modeled Extent of Inundation during an Annual High Tide in the South Area, with Sea-Level Rise*). However, there would still be 0.4 feet of freeboard along the berm.

In the Central Area under no project conditions, the model results show that the tidal water levels in the site increase as the water levels in the San Gabriel River rise, because the perched culvert becomes less perched, and water can flow into the site more frequently and for longer portions of the tidal cycle (**Figure 3.8-7**, Modeled Extent of Inundation during an Annual High Tide in the Central Area, with Sea-Level Rise). With 3.3 feet of sea-level rise, the annual high tide water level is less than 2 feet below 2nd Street at the Studebaker Road intersection.

In the Central Area under long-term restoration with 1.7 feet of sea-level rise, the model results show that the tidal water levels in the site are 1.2 feet higher than no project conditions. With 3.3 feet of sea-level rise, the proposed program water levels would be 2.4 feet higher than no project conditions. However, construction of the Perimeter Levee around the site would provide increased flood protection, with up to 14 feet of freeboard.

Mitigation Measure

No mitigation is required.

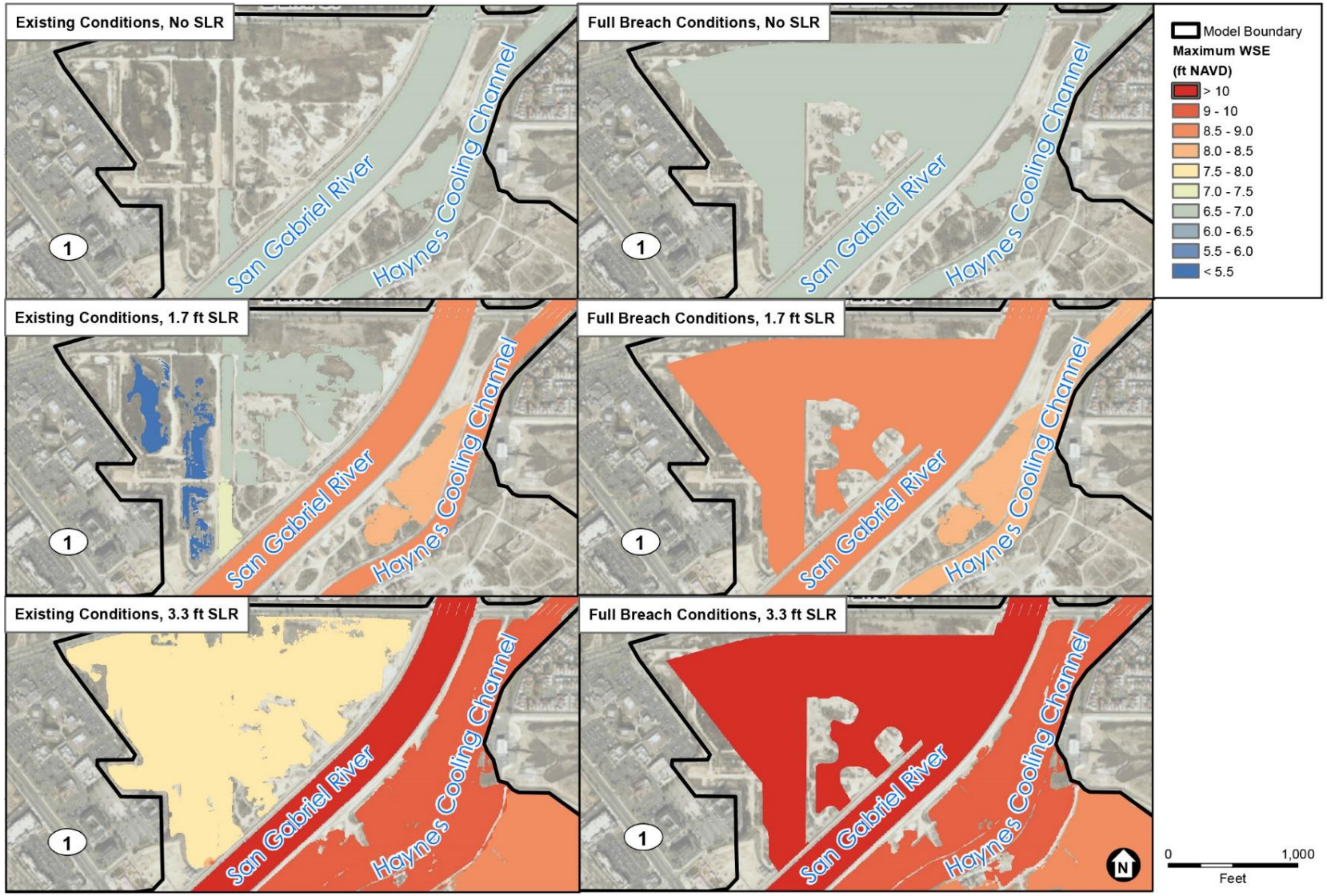


SOURCE: ESRI, LCWA

NOTES: WSE = Water Surface Elevation; SLR = Sea-Level Rise

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.8-6
Modeled Extent of Inundation during an Annual High Tide in the South Area, with Sea-Level Rise



SOURCE: ESRI, LCWA

NOTE: WSE = Water Surface Elevation

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.8-7

Modeled Extent of Inundation during a 10-Year High Tide in the Central Area, with Sea-Level Rise

Significance after Mitigation

Less than Significant

Impact HYD-3c: The proposed program would result in a significant impact if the proposed program would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Replacement stormwater storage volume would be provided by creating low areas (e.g., basins or swales) between the roads and the proposed levee in the Central Area. These infiltration basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas. All drainage features throughout the program area would be designed in accordance with NPDES MS4 permit requirements. The potential impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HYD-3d: The proposed program would result in a significant impact if the proposed program would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

As noted above, by design, the proposed program would alter existing drainage patterns of the site to allow for increased flooding within the targeted restoration areas in pursuit of mimicking pre-development conditions, while also providing flood protection of off-site properties through the construction of levees, berms, or flood walls. The levees, berms, or flood walls would be constructed in accordance with 33 U.S.C. Section 408 permit requirements. Above ground structures including the Visitor Centers and other above ground improvements would be constructed in accordance with flood control requirements and with the expanded floodplain habitat created by the proposed program, they would not impede or redirect flood flows. Therefore, the proposed program would alter drainage patterns and areas that would be susceptible to flooding but would not impede or redirect flood flows to off-site areas. As a result, the potential impact related to altered drainage patterns and flood flows would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HYD-4: The proposed program would result in a significant impact if the proposed program would be in a flood hazard, tsunami, or seiche zone, and risk release of pollutants due to program inundation.

The entire program area is located in a tsunami inundation zone. Over the course of the proposed program, existing industrial facilities would be removed and replaced with largely restored native habitat areas. Improvements associated with the proposed program would include public access features, such as access roads and visitor centers, but with the removal of existing industrial activities and operations as well as the completion of any remediation of existing contamination, the proposed program would reduce the potential for release of pollutants presently on site.

In addition, the County of Los Angeles is working on becoming a Tsunami Ready community that would implement measures to avoid or lessen potential tsunami impacts to structures and persons. The Pacific Coast Highway could be used to bring in emergency personnel and supplies to the program area in the event of a tsunami. Further, the proposed program would restore areas to wetland habitat. Wetlands provide protection from tsunamis and tidal surges and would thus help mitigate potential damage from a tsunami event.

As discussed above, the proposed program would include flood protection measures that would be designed to limit flooding to the intended habitat areas consistent with pre-development conditions and provide sufficient protection to off-site areas. The berms or flood walls would be constructed in accordance with 33 U.S.C. Section 408 permit requirements which would minimize the potential for activities associated with the proposed program to cause flooding off site or release pollutants from inundation. In addition, there would not be any storage of substantive quantities of hazardous materials anywhere within the program area such that there would be risk of release from program inundation.

Otherwise, the program area is not located adjacent to an enclosed or semi-enclosed water body such that there would be no risk of seiche waves that could affect the site.

Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact HYD-5: The proposed program would result in a significant impact if the proposed program would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The Los Cerritos Channel and San Gabriel River are both listed as impaired waterbodies for a number of constituents through the 303(d) and TMDL programs as identified in the Basin Plan. The main constituents of concern for the two primary channels are metals (copper, lead, zinc, mercury, nickel), diazinon, coliform bacteria, pH, toxicity, bis(2ethylhexyl)phthalate, and trash. Water quality concerns within the San Gabriel River and Alamitos Bay/Los Cerritos Channel are being addressed through the watershed management plans (WMPs) and TMDLs. The WMPs contain specific numeric goals and watershed control measures (WCMs) that will improve water quality within the drainage areas. Los Cerritos Channel and Alamitos Bay is also part of the Long Beach Estuary Monitoring Plan which will provide more specific monitoring data and allow for appropriate WCMs.

Implementation of the proposed program would allow for tidal flows into the program area, creating favorable water quality conditions by limiting retention time and enhancing tidal exchange. This flushing would also minimize the impacts of sediment accumulation with high levels of constituents deposited on the restored program area during high storm flow events. As a result, the proposed program would not conflict or obstruct implementation of the water quality control plan but would actually be a benefit to the plan.

The Water Replenishment District of Southern California (WRD), in coordination with other basin stakeholders, has developed a Groundwater Basins Master Plan (GBMP) to manage the West Coast and Central groundwater basins (WRD 2016). The intent of the plan is to provide a single reference document for parties operating within and maintaining the West Coast and Central groundwater basins. This plan is intended to help guide the stakeholders develop and assess initial concepts for additional recharge and pumping from these basins to utilize the basins fully and reduce dependence on imported water. Some proposals to meet the plan goals include increasing groundwater pumping up to the allowed limits, use of additional stormwater and recycled water, expansion of the Edward C. Little Water Reclamation Facility, and various recharge programs. Implementation of the proposed program, would require water supplies for proposed program elements such as visitor centers, but otherwise would have relatively low water supply needs and would not otherwise interfere with the aforementioned goals of the WRD GBMP.

Therefore, the proposed program would have a less than significant impact related to water quality control plans or sustainable groundwater management plans.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.8.6 Cumulative Impacts

The geographical context for evaluating cumulative impacts is the San Gabriel River watershed. Cumulative impacts could occur during and following restoration under the proposed program if the effects of the proposed program were to combine with past, present, or foreseeable future projects within the watershed to become cumulatively considerable. The greatest potential for cumulative impacts with respect to water quality would occur if land disturbing activities either during restoration or post-restoration (long-term) of cumulative projects were to happen concurrently. However, the operation and maintenance phases of potential cumulative projects also are included in the temporal scope of cumulative impacts because minor alterations in topography and the addition/reduction of impervious surfaces could combine with the incremental restoration and post-restoration impacts of the proposed program to produce cumulative impacts related to erosion and sedimentation.

The existing conditions described in the setting above, reflect the effects, including water quality impairments, of past and existing land uses. It is within the context of these conditions that potential cumulative impacts to water resources are considered.

During construction and operation of the cumulative projects, it is anticipated that fuels, antifreeze, paints, oils, greases, and other lubricants, and various other potential water quality pollutants, similar to those discussed for proposed program impacts, would be stored or utilized on each site, in support of construction and operation period activities. Handling of such materials for all cumulative projects would be regulated under applicable federal, state, and local requirements, as discussed for the proposed program above. Adherence to these requirements, including SWPPPs and/or BMP Plans and erosion control practices, would ensure that water quality impacts of accidental releases of hazardous chemicals would be minimized. Minimal residual impacts on water quality could occur; however, they would be expected to be discrete in nature, associated with isolated incidents (e.g., accidental spills), and generally of low occurrence due to the nature of projects anticipated, and therefore, do not represent major hazardous materials users or manufacturers. Therefore, the proposed program's incremental impacts would not combine to cause or contribute to a significant cumulative impact.

As also discussed above, the impaired water bodies within the San Gabriel River watershed are being addressed through adherence to the Clean Water Act and the TMDLs that have been developed for the watershed. While the timing of completion for these TMDLs and WLAs can only be estimated at this time, they are anticipated to be completed at some time in the future. In addition, the proposed program would be associated with a change in land uses and required remediation of contaminated areas such that environmental conditions of water quality would be anticipated to be improved with time. As a result, implementation of the proposed program would not contribute to cumulatively considerable impacts related to hydrology and water quality.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.8.7 References

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SECTION 3.9
Land Use and Planning

3.9.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts related to land use and planning. The analysis is based on review of applicable state, regional, and local land use plans and policies, the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section analyzes the potential for both program-level and cumulative environmental impacts.

Data used in this section includes information obtained from the California Coastal Act of 1976 (CCA), the Southern California Association of Governments (SCAG) *2016–2040 Regional Transportation Plan and Sustainable Communities Strategy* (RTP/SCS), the *City of Seal Beach General Plan*, Seal Beach Municipal Code, *City of Long Beach General Plan*, and the City of Long Beach Zoning Code. All information sources used are included as citations within the text; sources are listed in Section 3.9.7, *References*.

3.9.2 Environmental Setting

3.9.2.1 Surrounding Land Uses

The proposed program is located within the cities of Seal Beach and Long Beach. The City of Seal Beach is within the northwestern portion of Orange County, California. The City of Long Beach is within the southeastern portion of Los Angeles County, California.

The City of Seal Beach is bounded by the City of Long Beach to the west; the City of Los Alamitos and the neighborhood of Rossmoor to the north; and the cities of Huntington Beach, Westminster and Garden Grove to the east. The Pacific Ocean borders the City of Seal Beach to the south. The U.S. Navy Naval Weapons Station Seal Beach is located within Seal Beach city boundaries to the southeast of the program area.

The City of Long Beach is bounded by the cities of Carson and Los Angeles, the neighborhood of Wilmington, and the Port of Los Angeles to the west; the cities of Compton, Paramount, and Lakewood to the north; and the cities of Hawaiian Gardens, Cypress, Los Alamitos, and Seal Beach to the east. The Pacific Ocean borders the City of Long Beach to the south.

The portions of the proposed program located within the City of Seal Beach are subject to the Hellman Ranch Specific Plan.

The portions of the proposed program located within the City of Long Beach are subject to the South East Area Development and Improvement Plan (SEADIP). The City of Long Beach is in the process of replacing the SEADIP with the Southeast Area Specific Plan (SEASP) 2060, which would change the zoning of the site and introduce new development standards (setbacks, densities, heights, buffers, etc.) and design guidelines. Note that at the time of writing this PEIR, the California Coastal Commission (CCC) has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program. The adopted SEADIP and proposed SEASP 2060 area is in the southeast corner of the City of Long Beach. It borders the County of Orange to the east and south and the Pacific Ocean to the southwest. The area encompasses 1,472 acres and consists of land south of 7th Street, east of Bellflower Boulevard, east of the Long Beach Marine Stadium and Alamitos Bay docks, south of Colorado Street, and north and west of the City of Long Beach's southern boundary.

The proposed program is located entirely within the California Coastal Zone,[1] which means it is subject to the California Coastal Act and portions of the proposed program are subject to the City of Long Beach Local Coastal Program (LCP), adopted in 1980. As such, the proposed program is subject to the CCC's permitting authority and the City of Long Beach's permitting authority (for those areas in the proposed program within the City of Long Beach subject to the City of Long Beach's LCP).

3.9.2.2 Program Area Land Uses

The following provides a summary of the existing land uses on the South Area, Isthmus Area, Central Area, and North Area that make up the program area. These individual areas are discussed in further detail in Chapter 2, *Project Description*, of this Program Environmental Impact Report (PEIR).

South Area

The South Area includes the following individual sites: Haynes Cooling Channel, State Lands Parcel, South LCWA, Hellman Retained, Los Alamitos Pump Station, and Los Alamitos Retarding Basin. The Haynes Cooling Channel is a waterway used by the Haynes Generating Station located north of the program area to bring in water from the Pacific Ocean via 7 culverts in the Alamitos Bay Marina to cool the power plant through a method called once-through cooling. The State Lands Parcel site contains the remnant building foundation of what was once a music venue called the Airport Club and Marina Palace. The South LCWA site contains multiple former sumps, landfills, and contaminated areas from prior oil operations, and is currently owned and maintained by the LCWA. The Hellman Channel runs through the South LCWA site. The Hellman Retained site is an active oil field with substantial oil operation infrastructure (pipelines,

[1] "Coastal zone" means that land and water area of the State of California extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas, it extends inland to the first major ridgeline paralleling the sea or 5 miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission nor any area contiguous thereto, including any river, tributary, creek, or flood control or drainage channel flowing into such area (PRC Section 30103).

pumps, tanks, and roadways). There are 43 active oil wells and 11 idle oil wells on the Hellman Retained site. The Los Alamitos Retarding Basin site is a 30-acre depressed basin surrounded by an earthen berm and access road that receives stormwater runoff and other drainage from a 3,600-acre area in Seal Beach. The Los Alamitos Pump Station moves the stormwater runoff from the Los Alamitos Retarding Basin, under the San Gabriel River Levee and Hayes Cooling Channel, and into the San Gabriel River.

Isthmus Area

The Isthmus Area includes the following individual sites: Callaway Marsh, DWP, Zedler Marsh, Isthmus LCWA, and Isthmus Bryant. The Callaway Marsh site is a vacant site with a heavily degraded perched salt marsh, tidally connected to the San Gabriel River by a three-foot-wide culvert, which mutes the water levels reaching the site. The DWP site is a vacant site that contains upland wetland habitat types. The Zedler Marsh site is a 12-acre restoration site operated and managed by the LCWA, and is currently being enhanced and restored as part of the LCWA Stewardship Program. The Isthmus LCWA site is an active oil field with disturbed habitat and oil operation infrastructure, including four active oil wells, one well for water injection, and one idle oil well.

Central Area

The Central Area includes the following individual sites: Pumpkin Patch, Long Beach City Property, Central LCWA, Central Bryant, and the San Gabriel River. The Pumpkin Patch site is an active oil field with an oil well and associated pipeline. There is one active oil well and one plugged oil well on-site. The Long Beach City Property site is an active oil field with oil storage tanks and associated oil production infrastructure, such as pipelines and tanks. There are 11 active oil wells and 2 idle oil wells on-site. Aboveground pipelines and dirt access roads traverse the site. The Central LCWA site is an active oil field with oil operation infrastructure (roadways, wells, power lines, pipelines, and pumps), which severely fragment the site ecologically and hydrologically. The oil wells are accessed via raised dirt roads that vary from 10-30 feet in width. There are 7 active oil wells on-site. The Central Bryant site is a vacant site not currently in use by oil operators.

North Area

The North Area includes the following individual sites: Northern Synergy Oil Field, Southern Synergy Oil Field, and Alamitos Bay Partners. The Northern Synergy Oil Field site is an undeveloped, vacant site with no active oil operations. The Northern Synergy Oil Field site contains Steamshovel Slough, an area of tidally influenced salt marsh, tidal channels, and mudflats, located in the central portion of the site. The Southern Synergy Oil Field site is an active oil field with oil production and wells, tank farms, and a network of roads, pipelines, and other oil field-related amenities including the Bixby Ranch Field Office. There are 22 active oil wells and 17 idle oil wells on-site. The Alamitos Bay Partners site is an active oil field with oil wells and associated oil production infrastructure, such as pipelines and tanks. There are three active oil wells and one idle oil well on-site. Dirt access roads traverse the site.

3.9.2.3 Land Use and Zoning Designations

The Seal Beach General Plan designates the portion of the program area within Seal Beach city boundaries as Community Facilities, Industrial – Oil Extraction, Open Space, and Commercial Service. According to the Seal Beach zoning map, the properties within Seal Beach are zoned as Specific Plan Regulation, Open Space Natural, and Oil Extraction.

The properties within the City of Seal Beach subject to the Hellman Ranch Specific Plan are included in Conservation Planning Area Nos. 1 (land use designation Saltwater Wetlands), 2 (land use designation Freshwater Wetlands), 4 (land use designation Hellman Ranch Reserve Gold Course), and 5 (land use designation Los Alamitos Retarding Basin), and within Development Planning Areas No. 6 (land use designation Recreation Serving Commercial) and 9 (land use designation Mineral/Production Future Development).

The City of Long Beach recently adopted the General Plan Land Use Element on December 2019. The land use designations for the program area are Open Space (OS) PlaceType with a Specific Plan Overlay, with the exception of the Pumpkin Patch site and a portion of the Long Beach City Property site, which have a Regional-Serving Facility (RSF) PlaceType with a Specific Plan Overlay.

The individual sites within the City of Long Beach subject to the adopted SEADIP are zoned as Planned Development District 1 (PD-1). Under the proposed SEASP 2060, properties would be zoned as Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right of Way (not built).

Refer to Figure 2-9, *General Plan Land Use Designations*, and Figure 2-10, *Zoning Districts*, within Chapter 2, *Project Description*, of this PEIR, for further information regarding the land uses and zoning designations of the program area.

3.9.3 Regulatory Framework

3.9.3.1 Federal

Federal Coastal Zone Management Act of 1972

The Coastal Zone Management Act of 1972 (CZMA), administered by National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation. The CZMA is intended to encourage coastal states, Great Lake States, and United States territories and commonwealths to develop comprehensive programs to manage and balance competing uses of and impacts to coastal resources. The CZMA emphasizes the primacy of state decision-making regarding the coastal zone. CZMA Section 307 (16 USC Section 1456), called the federal consistency provision, is a major incentive for states to join the national coastal management program and is a tool that states use to manage coastal uses and resources and to facilitate cooperation and coordination with federal agencies. The CCA, discussed below, constitutes California's coastal zone management program for the purposes of the CZMA.

3.9.3.2 State

California Coastal Act of 1976

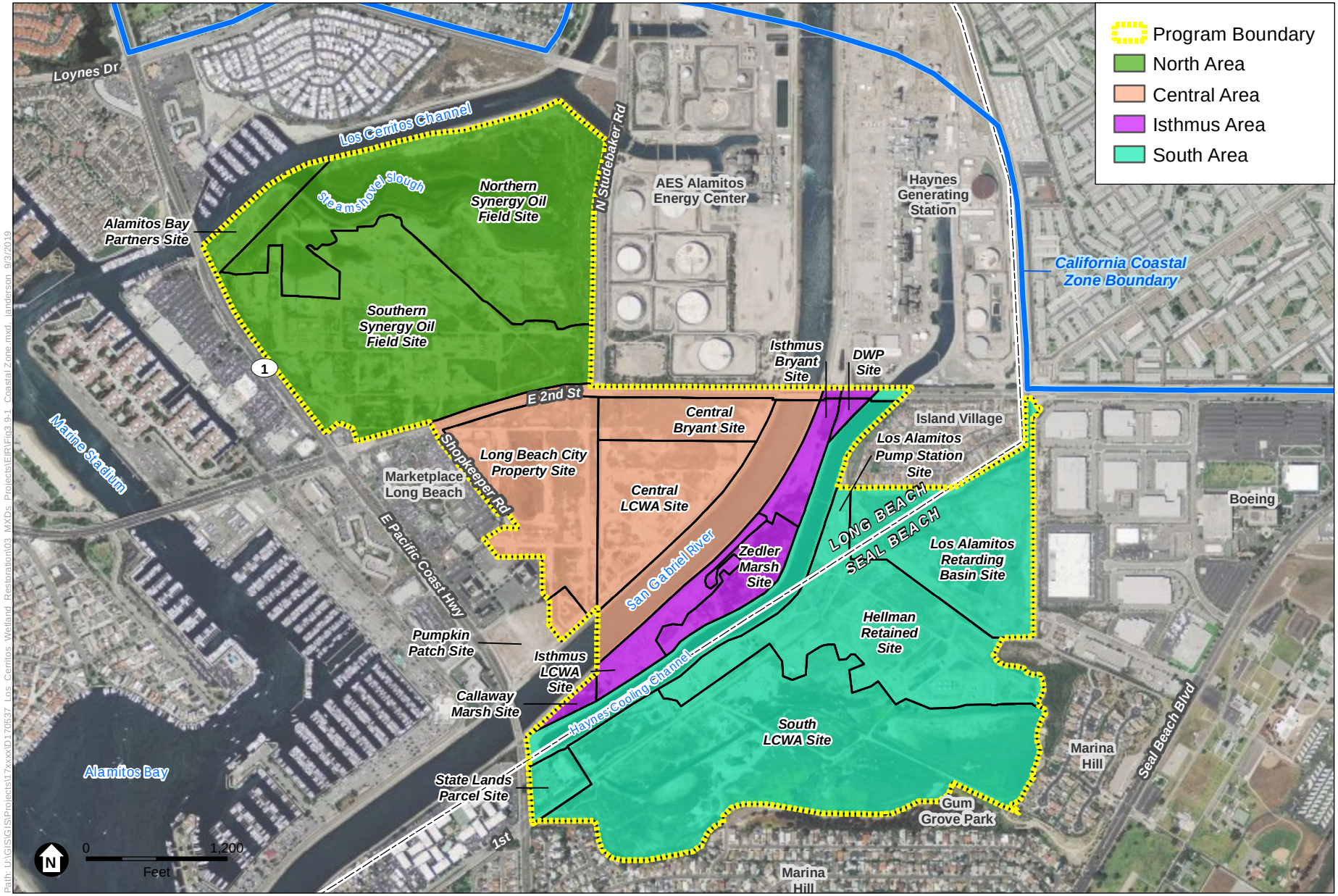
The CCA was enacted in 1976 in response to public concern that private development was restricting public access to the shore. The CCA permanently established the CCC as the governing body to oversee land use and planning decisions within the coastal zone. The CCA provides for the long-term management of lands within California's coastal zone boundary, as established by the Legislature and defined in the CCA (Section 30103). The width of the coastal zone varies across the state, extending inland a couple hundred feet in some locations to 5 miles in others, and offshore out to 3 miles. A map of the coastal zone in the program vicinity is shown in **Figure 3.9-1**, *California Coast Zone Boundary*.

The CCA created a unique partnership between the state (acting through the CCC) and local government entities (15 coastal counties and 61 coastal cities) to manage the conservation and development of coastal resources through a comprehensive planning and regulatory program. This is accomplished primarily through the preparation of sets of policies and regulations adopted by coastal local governments to carry out CCA policies at the local level, known as Local Coastal Programs (LCPs). Upon CCC certification of an LCP, authority for issuance of Coastal Development Permits is transferred from the state (via the CCC) to the certified local government. Until such time, responsibility for issuance of Coastal Development Permits remains with the CCC. The agency also retains jurisdiction over certain coastal areas, such as tidelands and public trust lands. (Note that the City of Seal Beach has not adopted an LCP as of the writing of this PEIR. The City of Long Beach LCP policies applicable to the proposed program are discussed below.)

The CCA includes specific policies for management of natural resources and public access within the coastal zone (see Public Resources Code [PRC] Division 20). Of primary relevance to land use and recreation are CCA policies concerning coastal public access and recreational opportunities, and locating new development near existing development. A preliminary assessment of consistency with these priorities is provided later in this section. Final determinations regarding consistency are reserved for the CCC.

The City of Long Beach's LCP includes a land use plan defining land use classifications, types and densities of allowable development, and goals and policies concerning development within the coastal zone. The LCPs are the implementation tool for the broader CCA policies, which seek to:

- Protect and expand public shoreline access and recreational opportunities;
- Protect and restore sensitive habitats, including nearshore waters, wetlands, riparian habitat, and habitat for rare and endangered species;
- Protect farmlands, natural landforms, commercial fisheries, special communities, and archaeological resources;
- Protect scenic landscapes and views of the sea; and
- Establish stable urban-rural boundaries and guide new development into areas with adequate services.



SOURCE: Mapbox, LCWA, California Coastal Commission

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.9-1
California Coastal Zone Boundary

ESA

The proposed program is located within the coastal zone, but only a portion of the proposed program is covered under the City of Long Beach's LCP. In particular, only the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, are located within the City of Long Beach's LCP. For the individual sites not located within the City of Long Beach's LCP, the jurisdiction under the CCA rests with the CCC. In addition, as the City of Seal Beach does not have an adopted LCP, the individual sites that make up the South Area that are located within the City of Seal Beach would also be under the jurisdiction of the CCC.

3.9.3.3 Regional

Southern California Association of Governments: 2016–2040 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS)

SCAG is the designated metropolitan planning organization (MPO) for six Southern California counties, including the County of Los Angeles. As such, SCAG develops long-range Regional Transportation Plans (RTPs), including Sustainable Communities Strategy (SCS) and growth forecast components, regional transportation improvement programs, regional housing needs allocations, and a portion of South Coast Air Quality Management District (SCAQMP) plans.

The RTP is a long-range transportation plan that is developed and updated by SCAG every 4 years. The RTP provides a vision for transportation investments throughout the region, and uses growth forecasts and economic trends that project out over a 20-year period to identify regional transportation strategies to address mobility needs. The SCS is a required element of the RTP and integrates land use and transportation strategies that will achieve emissions reductions targets.

The 2016–2040 RTP/SCS was adopted on April 7, 2016 by the SCAG Regional Council with the primary goal of reducing emissions from transportation sources to comply with Senate Bill (SB) 375, improve public health and meet the National Ambient Air Quality Standards (NAAQS) as set forth by the federal Clean Air Act. The 2016–2040 RTP/SCS contains a regional commitment for the broad deployment of zero- and near-zero emission transportation technologies and establishes clear steps to achieve this objective. The 2016–2040 RTP/SCS builds off of the 2012–2035 RTP/SCS and continues the vision for creating more livable communities within Southern California. The 2016–2040 RTP/SCS establishes goals, objectives and policies with regard to High Quality Transit Areas, Livable Corridors, and Neighborhood Mobility Areas. These key features would create communities in which people benefit from increased mobility, more active lifestyles, increased economic opportunities and overall higher quality of life (SCAG 2016).

The proposed program is considered a project of region-wide significance pursuant to the criteria outlined in *CEQA Guidelines* Section 15206(4)(C), which is applicable to projects located within the California Coastal Zone. Given this designation, this section addresses the proposed program's consistency with the applicable SCAG regional planning guidelines and policies.

3.9.3.4 Local

City of Seal Beach General Plan

The General Plan is a comprehensive planning document which serves as the officially adopted statement of local policy regarding each individual community's development, pursuant to California Government Code Section 65300, for all cities and counties within the state of California. The General Plan serves as a blueprint for development and land use activities within the City of Seal Beach and establishes goals, policies, and land use designations that are intended to facilitate orderly and planned growth and other development related issues with the City of Seal Beach. The City of Seal Beach's General Plan was first adopted in 1973, with the latest General Plan adopted in 2003. It contains the goals, policies, and directions that guide the City of Seal Beach in managing its future. The General Plans consists of eight elements: Land Use, Circulation, Open/Space/Recreation/Conservation, Safety, Housing, Noise, Cultural Resources, and Growth Management.

The Seal Beach General Plan designates the portion of the program area within Seal Beach city boundaries as Community Facilities, Industrial – Oil Extraction, Open Space, and Commercial Service.

Seal Beach Municipal Code

The City of Seal Beach Municipal Code regulates development in the City of Seal Beach through zoning designations and development standards. As discussed above and as illustrated in Figure 2-10, *Zoning Districts*, within Chapter 2, *Project Description*, of this PEIR, the properties within Seal Beach are zoned as Specific Plan Regulation (SPR), Open Space Natural [OS-N (SPR)], and Oil Extraction [OE (SPR)]. In particular, the State Lands Parcel site within the South Area is zoned SPR. As stated in the Seal Beach Municipal Code, all property in the SPR Zone shall only be used for the purposes permitted by the general plan and specific plan adopted for such property. In this case, the State Lands Parcel site would be governed by the Hellman Ranch Specific Plan. The Hellman Ranch Specific Plan designates this parcel as Development Planning Area No. 6 (land use designation Recreation Serving Commercial). The South LCWA site and the Los Alamitos Retarding Basin site are both designated OS-N (SPR) and the Seal Beach Municipal Code limits permitted uses to those that maintain the property in its natural state. The intent of this zoning designation is to preserve publicly owned parklands, environmentally sensitive lands and habitats in their natural state. Finally, the Hellman Retained site is zoned OE (SPR), which allows for the oil extraction and related production storage and processing, maintenance facilities, and related operational and maintenance facilities, as described further in the Seal Beach Municipal Code. As the SPR zone is also provided on the individual sites zoned OS-N and OE, according to the Seal Beach Municipal Code, the more restrictive provisions shall control, unless otherwise specified.

Hellman Ranch Specific Plan

The Hellman Ranch Specific Plan is one of the five specific plans that govern various portions of the City of Seal Beach. The Hellman Ranch Specific Plan was first adopted by the City of Seal Beach City Council on June 19, 1981, with the latest updated specific plan adopted in 1996. The

Hellman Ranch Specific Plan complies with the California Government Code 65500-65507 and Articles 17 and 29.5 of the Seal Beach Municipal Code and the regulations are pursuant to Article 8, Authority and Scope of Specific Plans for the Planning and Zoning Law of the Government Code. The Hellman Ranch Specific Plan covers a 231-acre area located in the City of Seal Beach and divides the specific plan area by five conservation planning areas and 5 development planning areas. One of the mail goals of the Hellman Ranch Specific Plan is to preserve open space and achieve wetlands restoration and flood control.

Proposed Seal Beach Local Coastal Program

As discussed above in Section 3.9.3.2, *State*, to manage the conservation and development of coastal resources, LCPs are adopted at a local level and include a set of policies and regulations to carry out CCA policies. The City of Seal Beach prepared an LCP in 2003, and again in 2008. The 2008 LCP as was prepared by the City of Seal Beach staff and submitted to the CCC for review. However, City of Seal Beach staff were unable to attain certification due to limited staff time and resources. The City of Seal Beach has reinitiated preparation of an LCP and finished the last of three community workshops on August, 21, 2019. At this time, the City of Seal Beach is currently conducting a Sea Level Rise Vulnerability Assessment, in accordance with the 2015 California Coastal Commission Sea Level Rise Policy. It is unknown at this time when the City of Seal Beach LCP will be certified.

City of Long Beach General Plan

The General Plan is a comprehensive planning document which serves as the officially adopted statement of local policy regarding each individual community's development, pursuant to California Government Code Section 65300, for all cities and counties within the state of California. The General Plan serves as a blueprint for development and land use activities within the City of Long Beach and establishes goals, policies, and land use designations that are intended to facilitate orderly and planned growth and other development related issues with the City. Adopted in 1973, the City of Long Beach General Plan contains the goals, policies, and directions that guide the City in managing its future. The General Plans consists of 12 elements: Air Quality, Conservation, Historic Preservation, Housing, Land Use, Mobility, Noise, Open Space and Recreation, Public Safety, Seismic Safety, Scenic Routes, Seismic Safety, and LCP (described in more detail below).

The City of Long Beach recently adopted the General Plan Land Use Element on December 2019. The land use designations for the program area to are Open Space (OS) PlaceType with a Specific Plan Overlay, with the exception of the Pumpkin Patch site and a portion of the Long Beach City Property site, which have a Regional-Serving Facility (RSF) PlaceType with a Specific Plan Overlay.

City of Long Beach Municipal Code

The City of Long Beach Municipal Code regulates development in the City of Long Beach through zoning designations and development standards. As discussed above and as illustrated in Figure 2-10, *Zoning Districts*, within Chapter 2, *Project Description*, of this PEIR, the properties within the City of Long Beach are zoned as PD-1. The proposed SEASP 2060 would change the

zoning designation of the properties within the City of Long Beach to Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right of Way (not built). Further discussion of both the adopted SEADIP and proposed SEASP 2060 is provided below.

Adopted Southeast Area Development and Improvement Plan and Proposed Southeast Area Specific Plan

Adopted Southeast Area Development and Improvement Plan

Development Districts in the City of Long Beach are special districts that have more comprehensive land use regulations than conventional zoning and are intended to achieve a specific outcome in a geographic area, similar to a Specific Plan. Approved in 1977, the SEADIP was the first PD-1 district in the City of Long Beach and also provided zoning for the covered properties. The SEADIP document is intended to guide land use and development in an area that was experiencing a period of rapid growth at the time of adoption.

The SEADIP includes 1,381 acres and seeks to guide new development in a community of residential, business, and light industrial uses integrated by an extensive system of parks, open space, and trails. The guiding principles of the plan are based on a 15- to 20-year vision and include restoration and maintenance of wetlands, bike and pedestrian connectivity, linear park and landscaped setbacks, creating a village atmosphere with varied heights, green building practices, traffic mitigation, and gateway signage. The SEADIP provides development and use standards (e.g., density, setbacks, and height limitations), establishes a mechanism for infrastructure improvements, and protects views, open space, and wetlands. The SEADIP also establishes the requirements and responsibility for the construction and maintenance of wetland and buffers. As discussed above, the properties within the city of Long Beach are subject to the SEADIP and are zoned as PD-1. Subareas within PD-1 define the allowable uses that are permitted to be development on each site, and include the following:

- **Subarea 11A (Southern Synergy Oil Field Site)**—Residential, maximum density of approximately 15.3 units per acre, 764 units;
- **Subarea 11B (Alamitos Bay Partners Site)**—Residential, maximum density of 8.4 units per acre;
- **Subarea 25 (Long Beach City Property Site and Pumpkin Patch Site)**—Business Park (Office Commercial and Light Industrial); restaurants, and hotel;
- **Subarea 26A and 26B (Central LCWA Site and Central Bryant Site)**—Business Park (Office Commercial and Light Industrial);
- **Subarea 27 (Callaway Marsh Site, Zelder Marsh Site, Isthmus Bryant Site, DPW Site, Haynes Cooling Channel, and Los Alamitos Pump Station Site)**—wetlands restoration;
- **Subarea 28 (Los Alamitos Retarding Basin Site)**—retention basin utilized by Orange County; and
- **Subarea 33 (portions of the Northern and Southern Synergy Oil Field sites)**—Wetland (96.1 acres have been designated entirely for wetland purposes. An additional 2 acres shall be devoted as least tern nesting site).

Proposed South East Area Specific Plan 2060

The City is in the process of replacing the existing PD-1 with the proposed SEASP 2060, a new specific plan. The proposed SEASP 2060 area consists of 1,472 acres and includes 1,381 acres currently zoned PD-1 (SEADIP), 94 acres of the San Gabriel River and Los Cerritos Channel, and 6 acres along the southeast edge of the current PD-1 (SEADIP) boundary.

The proposed SEASP 2060 guiding principles and development standards include the following:

- Implement projects within the SEASP that give equal consideration to planning, environmental and economic feasibility;
- Balance responsible growth with resource perseveration through a flexible land use plant that provides a greater mix of uses and through an implementation strategy that is tailored to the local economy;
- Provide clear standards and guidelines to encourage future development that respects the wetlands, protects views, and creates a sense of place through thoughtful building placement, form, and architectural design;
- Expand multi-modal transportation options through enhanced pedestrian and bicycle connectivity without compromising vehicular traffic flow;
- Provide options to increase public connectivity to open space, including the marina, other waterways, the wetlands, and parks; and
- Identify and plan for enhanced gateway and landmark locations that define the entrance to the City of Long Beach and contribute to a sense of place for the area.

Under the proposed SEASP 2060, a majority of the individual sites would have a land use designation of Coastal Habitat, Wetlands, and Recreation (CHWR). In addition, the Los Alamitos Pump Station site and the portion of the Los Alamitos Retarding Basin site within the City of Long Beach would have a land use designation of Public. Furthermore, a portion of the Long Beach Property site is designated as Dedicated Right of Way (not built). The CHWR land use designation provides for coastal restoration, access, visitor-serving recreation (boating, public launching, kayaking, paddle boarding, etc.), and biological reserves. Public access to coastal water is encouraged and uses such as interpretive centers and public parking associated with coastal resources are permitted. The Public land use designation provides more public and institutional uses such as elementary schools, museums, and interpretive centers, parking, water tanks and retention basis. Uses in this designation shall comply with provisions of Long Beach Municipal Code Chapter 21.34, Institutional Districts. The Dedicated Right of Way (not built) designation is intended for the extension of Shopkeeper Road which currently dead-ends into the Pumpkin Patch site in the Central Area. The proposed SEASP 2060 indicates that the ultimate alignment of Shopkeeper Road shall be designed to avoid impacting a delineated wetland.

To ensure that new development within the proposed SEASP 2060 supports the guiding principles, a set of development standards has been established in the proposed SEASP 2060. For development within the CHWR land use designation, the following development standards apply:[2]

[2] No specific development standards are established for the Public designation and Dedicated Right of Way (not built) designation.

Coastal Habitat, Wetlands, and Recreation (CHWR)

a. Building Setbacks

- Building setbacks shall be measured from ultimate right-of-way (back of ultimate sidewalk).
- Buildings shall build up to the required ultimate sidewalk shown on the street sections in Chapter 6, Mobility.
- Additional setbacks for entry plazas, courtyards or outdoor dining patios may be permitted subject to the discretion of the Site Plan Review Committee.
- Developer shall be responsible for adjacent impacts to right-of-way and constructing street segments to match cross-sections as provided in the SEASP.

b. Height

- The intent of providing for two-story buildings is to allow for buildings that support coastal recreation uses or uses that are ancillary to the wetlands (interpretive center). For instance, two-story uses would allow for ground floor coastal recreation related uses (kayak rental, etc.) and the upper floor may be a small ancillary office or storage use to support the ground floor use. Office uses must be related to the primary use or use on ground floor; standalone office uses are not permitted in this category.

Given that the SEASP 2060 has not been adopted, the consistency analysis below focuses on the proposed program's consistency with the adopted SEADIP. Note that at the time of writing this PEIR, the California Coastal Commission has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program. As such, a consistency analysis is also provided for the proposed SEASP 2060, for informational purposes.

City of Long Beach Local Coastal Program

LCPs are basic planning tools used by local governments to guide development in the coastal zone, in partnership with the CCC. LCPs contain the ground rules for future development and protection of coastal resources in coastal cities and counties, and specify the appropriate location, type, and scale of new or changed uses of land and water. Each LCP includes a land use plan and measures to implement the plan (such as zoning ordinances) (CCC 2017). As described further below, the proposed program falls into the Los Cerritos Wetlands portion of the City of Long Beach's LCP; however, a majority of the individual sites under the proposed program were not included in the adopted LCP, and are considered areas of deferred certification and permitting, with the exception of the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, which do fall under the jurisdiction of the City of Long Beach's LCP.

The City of Long Beach's LCP provides policies regarding public access, recreation, marine environment, land resources, development, and industrial development. It specifies the appropriate location, type, and scale of new or changed uses of land and water and includes a land use plan and measures to implement the plan.

The City of Long Beach adopted its LCP on February 12, 1980, and it was certified by the CCC on July 22, 1980. For each of its five subareas, the City of Long Beach's LCP provides a description, policy plan, and implementation plan. Because the program area is included as part of the SEADIP subarea and the SEADIP was adopted in April 1977, prior to the commencement of work on the City of Long Beach's LCP, the adopted SEADIP was approved as a whole by the LCP Advisory Committee for inclusion in the LCP. The adopted SEADIP and development ordinance were adopted by reference in the LCP and function as the current zoning for the program area.

Prior to adoption, the unincorporated areas within the adopted SEADIP—Subareas 11A, 11B, 25, 26a, 26b, 27, 28, 30, and 33—were deleted from the LCP. These areas represent wetland areas, existing oil operations, and the Los Alamitos Retaining Basin southeast of the San Gabriel River. As such, all individual sites within the City of Long Beach, with the exception of the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, have been deleted from the LCP and are not subject to its goals and policies.

Airport Environs Land Use Plan for the Joint Forces Training Base at Los Alamitos

The Orange County Airport Land Use Commission (OCALUC) is responsible for reviewing projects near airports or related to air facilities to make sure they are consistent with approved compatibility plans. To provide guidance for land use recommendations, an airport land use compatibility plan was developed to promote compatibility between air facilities and the land uses that surround them. The plan includes policies by which the OCALUC operates and conducts compatibility reviews of proposed development actions, describes the overall context of airport land use compatibility planning in general and for airports in Orange County in particular, and defines the procedures that the OCALUC would follow in making compatibility determinations. The nearest public use airport is the Long Beach Airport, located approximately 4.45 miles northwest of the program area, at 4100 Douglas Drive in Long Beach; however, the proposed program is located within the Airport Environs Land Use Plan (AELUP) area for the Joint Forces Base Los Alamitos, which is a federally owned and operated airport facility (OCALUC 2002).

The AELUP for the Joint Forces Base Los Alamitos intends to safeguard the general welfare of the inhabitants within the vicinity of the airport and to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace. Proposed development projects over 200 feet (above ground level) would be required to undergo Federal Aviation Administration (FAA) and ALUC review.

3.9.4 Significance Thresholds and Methodology

3.9.4.1 Significance Thresholds

For the purposes of this PEIR and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on land use and planning if it would:

a) Physically divide an established community; or

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

As detailed in the NOP/IS (refer to Appendix A of this PEIR), the proposed program would result in less than significant impacts to threshold "a." Although not required, evaluation of the proposed program's impact to threshold "a" is conducted in this section.

3.9.4.2 Methodology

The land use and planning analysis describes existing General Plan land use designations as well as regional and local land use plans and policies, and is intended to fulfill the requirements of *CEQA Guidelines* Section 15125(d). The emphasis of the analysis is on potential plan inconsistencies and/or conflicts between a project and existing land use plans and policies. A project is considered consistent with the provisions of the identified regional and local plans if it meets the general intent of the applicable land use plans. A given project need not be in perfect conformity with each and every policy nor does state law require precise conformity of a project with every policy or land use designation for a site. It follows that it is nearly, if not absolutely, impossible for a project to be in perfect conformity with every policy set forth in the applicable plan. If a project is determined to be inconsistent with specific individual objectives or policies of an applicable plan, but is largely consistent with the land use or the other goals and policies of that overall plan and would not preclude the attainment of the primary intent of the land use plan, a project would not be considered inconsistent with the plan. Furthermore, any such inconsistency would also have to result in a physical change in the environment, not analyzed in the other resource sections of this PEIR, to result in a significant environmental impact. The analyses below provide a brief overview of the most relevant policies and development standards from the various planning documents; however, the consistency conclusions are based upon the planning documents as a whole.

As stated in Chapter 1, *Introduction*, of this PEIR, on March 8, 2019, the Los Cerritos Wetlands Authority sent the Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations and individuals potentially interested in the program to identify the relevant environmental issues that should be addressed in the PEIR. The CCC requested that the PEIR include all relevant CCA and LCP policies, an analysis of the proposed program's conformity with the identified policies, and any identification of mitigation measures necessary to bring the proposed program into conformity with the CCA and LCP; include a thorough discussion of the regulatory jurisdictions of the various program sites and components and include a list of permits required by federal, state, and local agencies to implement the proposed program; and clarify how

the evaluation and possible approval of the proposed program fits in with the City of Long Beach's ongoing efforts to update and certify SEAPSP 2060.

3.9.5 Program Impacts and Mitigation Measures

Impact LU-1: The proposed program would result in a significant impact if the proposed program would physically divide an established community.

The program area contains large expanses of open space, oil operations and associated facilities and infrastructure, a large stormwater basin and pump station, roads and overhead utilities, and waterways. The program is located in a largely urbanized and generally built out area with a fully developed roadway system, surrounded by the Los Cerritos Channel, the AES Alamitos Energy Center and Haynes Generation Station to the north, Pacific Coast Highway and commercial-retail strip mall to the west, residential development to the south, and residential and industrial development to the east, including a Boeing office complex. The San Gabriel River bisects the program area. The proposed program would restore wetlands within the program area and construct new public access opportunities that would increase access through/along the program area.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact LU-2: The proposed program would result in a significant impact if the proposed program would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

As described in Section 3.9.3, *Regulatory Framework*, applicable local plans that direct or regulate development on the program site include the City of Seal Beach General Plan and associated elements and the Hellman Ranch Specific Plan for those portions of the program area that are located in the jurisdiction of the City of Seal Beach. In addition, applicable local plans that direct or regulate development on the program area within the City of Long Beach include the City of Long Beach General Plan and associated elements, the adopted SEADIP, the proposed SEASP 2060 (included for informational purposes), and City of Long Beach LCP. Applicable regional and state plans that direct or regulate development include SCAG's 2016–2040 RTP/SCS and the CCA. The following analysis provides a brief overview of the proposed program's consistency with these planning documents, and **Table 3.9-1**, *Consistency Analysis with Local Land Use Plans*, below, includes a discussion of consistency with specific applicable goals and policies that apply to the proposed program. For goals and policies from the City of Long Beach Air Quality Element, refer to Section 3.2, *Air Quality*. For goals and policies from the City of Seal Beach Safety Element and the City of Long Beach Seismic Safety Element, refer to Section 3.5, *Geology, Soils, and Paleontological Resources*. For a discussion on the City of

Seal Beach Noise Element and the City of Long Beach Noise Element and LCP measures related to noise, refer to Section 3.11, *Noise*.

Consistency with the Seal Beach General Plan

A majority of the South Area is the only area on the program area that falls under the jurisdiction of the City of Seal Beach. As previously discussed, the Seal Beach General Plan designates the portion of the program area within Seal Beach city boundaries as Community Facilities, Industrial – Oil Extraction, Open Space, and Commercial Service. A discussion of consistency with the City of Seal Beach General Plan and its elements is included in Table 3.9-1, below. Based on the analysis provided therein, the proposed program within the jurisdiction of the City of Seal Beach would not conflict with the City of Seal Beach's General Plan. Impacts would be less than significant.

Consistency with the Seal Beach Municipal Code

According to the Seal Beach zoning map, the properties within Seal Beach are zoned as Specific Plan Regulation (SPR), Open Space Natural [OS-N (SPR)], and Oil Extraction [OE (SPR)]. As discussed above, all property in the SPR Zone shall only be used for the purposes permitted by the general plan and specific plan adopted for such property. The Hellman Ranch Specific Plan designates this parcel as Development Planning Areas No. 6 (land use designation Recreation Serving Commercial). In addition, the intent of the OS-N zoning designation is to preserve publicly owned parklands, environmentally sensitive lands and habitats in their natural state. Finally, the OE zone allows for the oil extraction and related production storage and processing, maintenance facilities, and related operational and maintenance facilities. As the SPR zone is also provided on the individual sites zoned OS-N and OE, according to the Seal Beach Municipal Code, the more restrictive provisions shall control, unless otherwise specified. A more detailed discussion regarding consistency with the Hellman Ranch Specific Plan is provided below.

As described in Chapter 2, *Project Description*, of this PEIR, the South Area would include ecosystem restoration that would occur in three phases based on land and oil lease ownership. The near- and mid-term phases of the proposed program in the South Area would be mostly focused on the South LCWA and State Lands Parcel sites and would provide the conditions necessary for the expansion of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions, on the South LCWA site, and the development of a visitor center, on the State Lands Parcel site. Long-term phases of the proposed program would be focused on the Hellman Retained site which includes activities for habitat restoration, including phasing out or consolidation of oil operations, grading, and a new tidal excavation. The operations on the Los Alamitos Retarding Basin would be modified in the mid-term and no changes are proposed for the Los Alamitos Pump Station site, which was formerly restored as part of mitigation for a different project. Based on these activities proposed for the South Area, they would be allowed by the Seal Beach Municipal Code and thus consistent. Impacts would be less than significant.

Consistency with the Hellman Ranch Specific Plan

The properties within the City of Seal Beach subject to the Hellman Ranch Specific Plan are included in Conservation Planning Area Nos. 1 (land use designation Saltwater Wetlands), 2

(land use designation Freshwater Wetlands), 4 (land use designation Hellman Ranch Reserve Gold Course), and 5 (land use designation Los Alamitos Retarding Basin), and within Development Planning Areas No. 6 (land use designation Recreation Serving Commercial) and No. 9 (land use designation Mineral/Production Future Development). One of the mail goals of the Hellman Ranch Specific Plan is to preserve open space and achieve wetlands restoration and flood control.

The Hellman Ranch Specific Plan provides development regulations and site development standards that the proposed program would have to comply with. The purpose of the Conservation Planning Area No. 1, which would apply to portions of the State Lands Parcel site and South LCWA site, is intended for restoration/creation of a fully functioning salt marsh wetlands environment. As previously discussed, the South LCWA and State Lands Parcel sites would provide the conditions necessary for the expansion of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions, which would be consistent with the purpose of the Conservation Planning Area No. 1 under the Hellman Ranch Specific Plan.

Conservation Planning Area No. 2 is intended for restoration/creation of a freshwater wetlands environment, while Conservation Planning Area No. 4 is designated for the Hellman Ranch Reserve Golf Course. These areas are found on portions of the South LCWA site and Hellman Retained site. The South LCWA site and Hellman Retained site would include restoration, as described further in Chapter 2, *Project Description*, of this PEIR, and would be consistent with the purpose of Conservation Planning Area No. 2. However, while the proposed activities on these individual sites would not include development of a golf course, the proposed activities would still be consistent with the permitted uses in this area.

Conservation Planning Area No. 5 is intended for the regional drainage control of the watershed and applies to the Los Alamitos Retarding Basin. As part of the proposed program, the operations in the Los Alamitos Retarding Basin would be modified to enhance the habitat value in the basin (e.g., change pumping operations to maintain ponding for shorter or longer time). These activities would be consistent with the purpose identified in the Hellman Ranch Specific Plan.

Conservation Planning Area No. 6 is intended for public benefit and visitor serving commercial uses and applies to the State Lands Parcel site. As part of the proposed program, the State Lands Parcel site would include the construction of a Seal Beach Visitor Center and associated parking facilities. This would serve to fulfill the purpose of the Conservation Planning Area No. 6 under the Hellman Ranch Specific Plan. The proposed building would be consistent with the development regulations and site development standards outlined in the Hellman Ranch Specific Plan, which includes details for maximum buildings heights and setbacks.

Conservation Planning Area No. 9, which applies to the Hellman Retained site, includes the provision of mineral production as an interim use. As part of the proposed program, the Hellman Retained site would either phase out the existing oil operations or consolidate the operations in order to allow for restoration of the site. This would be a long-term activity and would be consistent with the provisions of the Conservation Planning Area No. 9 as part of the Hellman Ranch Specific Plan.

Based on the analysis provided above, the proposed program within the jurisdiction of the City of Seal Beach would not conflict with the Hellman Ranch Specific Plan. Impacts would be less than significant.

Consistency with the Long Beach General Plan

A portion of the of the South Area, including the Haynes Cooling Channel, the Los Alamitos Pump Station site and a portion of the Los Alamitos Retarding Basin site, the Isthmus Area, Central Area, and North Area fall under the jurisdiction of the City of Long Beach.

The City of Long Beach recently adopted the General Plan Land Use Element on December 2019. The land use designations for the program area are Open Space (OS) PlaceType with a Specific Plan Overlay, with the exception of the Pumpkin Patch site and a portion of the Long Beach City Property site, which have a Regional-Serving Facility (RSF) PlaceType with a Specific Plan Overlay.

The Open Space (OS) PlaceType, as defined in the Land Use Element of the City of Long Beach General Plan, encompasses uses including parks, beaches, golf courses, marinas, flood control channels and basins, rivers, utility rights-of-way, oil islands, inland bodies of water, nature preserves, marine habitats, estuaries, wetlands, lagoons, and limited commercial recreation uses that supplement recreation services and complement existing programming and facilities. A majority of the program area is designated under the Open Space (OS) PlaceType. Activities included under the proposed program within this general plan land use designation include grading to support habitat restoration, invasive vegetation removal and native vegetation restoration in the wetlands and transition zone along the edges of the site and modifications to the existing water-control structure (e.g., removing the existing tide gate), and remediation of soils and relocation of oil infrastructure as well as grading. These activities would serve to enhance the existing wetlands on the program area, which are allowed uses under the Open Space (OS) PlaceType designation. The uses on the program area are not proposed to be altered under this proposed program.

As noted above, the Pumpkin Patch site and a portion of the Long Beach City Property site have a Regional-Serving Facility (RSF) PlaceType. The Regional-Serving Facility (RSF) PlaceType, as defined by the Land Use Element of the City of Long Beach General Plan, allows for uses including medical centers, higher education campus, Port of Long Beach, Long Beach Airport and surrounding areas, public utility facilities (e.g., water, energy), and destination retail centers and similar uses. As part of the proposed program, in the long-term, the Long Beach City Property site would include grading of the site to support habitat restoration, construction of earthen levee to protect 2nd street and Shopkeeper Road, excavation of a tidal channel, and construction of public trails and viewpoints. In addition, long-term activities on the Pumpkin Patch site would also include the construction of earthen levee to protect the western portion of the Pumpkin Patch site. The Regional-Serving Facility (RSF) PlaceType designation does not preclude ecosystem restoration. In addition, the restoration of wetland uses would not have a detrimental effect on the environment of the area, and would instead enhance the environment.

An analysis of the consistency with the adopted SEADIP that currently governs the program area and of the proposed SEASP, which is anticipated to be completed and issued in its final form within the lifetime of the proposed program, is provided below.

Based on the above, wetland restoration on these sites would not conflict with the City of Long Beach General Plan. Impacts would be less than significant.

Consistency with the Long Beach Municipal Code

As previously discussed, the individual sites within the City of Long Beach subject to the adopted SEADIP are zoned as Planned Development District 1 (PD-1). Under proposed SEASP 2060, which would replace the adopted PD-1 (SEADIP), zones the properties would be zoned as Coastal Habitat/Wetlands/Recreation (CHWR), Public, and Dedicated Right of Way (not built). Based on the analysis below, the proposed program would be consistent with the policies within the adopted SEADIP, and the proposed SEASP 2060, which is included for informational purposes. Impacts would be less than significant.

Consistency with the adopted SEADIP

As previously discussed, the properties within the City of Long Beach are zoned as PD-1 (SEADIP). In particular, portions of the proposed program fall in several subareas, including, Subarea 11A (Southern Synergy Oil Field site); Subarea 11B (Alamitos Bay Partners site); Subarea 25 (Long Beach City Property site and Pumpkin Patch site); Subarea 26A and 26B (Central LCWA site and Central Bryant site); Subarea 27 (Callaway Marsh site, Zelder Marsh site, Isthmus Bryant site, DPW site, Haynes Cooling Channel, and Los Alamitos Pump Station site); Subarea 28 (Los Alamitos Retarding Basin site); and Subarea 33 (portions of the Northern and Southern Synergy Oil Field sites). Table 3.9-1 provides a consistency analyses of the proposed program with the applicable polies of the adopted SEADIP. In addition, a discussion of each subarea within the adopted SEADIP that falls within the proposed program boundaries is provided below.

Subarea 11A allows residential uses. In addition, Subarea 33 allows for wetland uses, including 2 acres dedicated to least tern nesting. The Northern and Southern Synergy Oil Field sites fall under these two subareas of the adopted SEADIP and were analyzed as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). As part of the proposed program, while no activities are proposed on the Northern Synergy Oil Field site, the Southern Synergy Oil Field site would include grading to support habitat restoration, construction of earthen levee or flood wall, and excavation of a tidal channel. These activities would also be consistent with the amendments proposed in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) and would not conflict with the existing PD-1 designation.

Subarea 11B also allows residential uses. The Alamitos Bay Partners site, which falls under this subarea, would include phasing out oil production in the long-term. Wells would be plugged and abandoned to allow for ecosystem restoration of the site. As the oil extraction operations on the

site predate the adoption of the SEADIP's PD-1 designation, the current operation of oil extraction facilities is allowed to continue under this zoning.

Both the Long Beach City Property and Pumpkin Patch site fall under Subarea 25, which allows, business parks, restaurants, and hotels. As part of the proposed program, the activities on the Long Beach City Property include grading to support habitat restoration, construction of earthen levee, excavation of a tidal channel, and construction of public trails and viewpoints. Activities on the Pumpkin Patch site also include construction of earthen levee. These activities would not conflict with the existing PD-1 designation.

Subarea 26A and 26B also allows business park uses (including office, commercial, and light industrial) and the Central LCWA site and Central Bryant site fall under this subarea. Both sites include remediation of soils relocation or modifying oil infrastructure as well as grading to support habitat restoration. These two sites would also support construction of levees, trails, and viewpoints. As the oil extraction operations on the site predate the adoption of the SEADIP's PD-1 designation, the current operation of oil extraction facilities is allowed to continue under this zoning.

The Callaway Marsh site, Zelder Marsh site, Isthmus Bryant site, DPW site, Haynes Cooling Channel, and Los Alamitos Pump Station site all fall under Subarea 27, which allows for wetlands. The Zedler Marsh site was previously restored as part of the Stewardship Vision Plan and is consistent with the subarea. In addition, as part of the proposed program, the other sites would include grading, removal of invasive species, and removal of access roads to support wetland restoration, consistent with the allowed uses under this subarea. As such, these portions of the proposed program would not conflict with the existing PD-1 designation.

Subarea 28 allows for the Los Alamitos Retarding Basin. The proposed program does not include any significant changes to the uses on this site aside from operation modification to enhance habitat surrounding the retarding basin. As such, these portions of the proposed program would not conflict with the existing PD-1 designation.

Based on the above consistency analysis with the adopted SEADIP, the proposed program would not conflict with any of the applicable policies of the adopted SEADIP. Impacts would be less than significant.

Consistency with proposed SEASP 2060

The proposed SEASP 2060 will replace the PD-1 (SEADIP) zoning in its entirety. The following analysis of the proposed SEASP 2060 is provided for informational purposes. Overall, the proposed SEASP 2060 would support the goals of the City of Long Beach's LCP by directing development away from the wetlands, parks, and open space areas in the coastal zone and towards the urban core where development is currently present. The proposed SEASP 2060 also encourages public access to the coastal zone by creating view corridors, pedestrian walkways to the wetlands and the marina, and bicycle access opportunities. As a part of the proposed program, public access and visitor amenities would be provided through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas

with overlooks, new and improved parking facilities, and visitor center. Table 3.9-1 provides a consistency analyses of the proposed program with the applicable polies of the proposed SEASP 2060. As analyzed therein, the proposed program would be consistent with the policies within the proposed SEASP 2060. Impacts would be less than significant.

As previously discussed, under the proposed SEASP 2060, a majority of the individual sites have a land use designation of CHWR. In addition, the portion of the Los Alamitos Pump Station and Los Alamitos Retarding Station (that is within the City of Long Beach) sites have a Public designation. Furthermore, a portion of the Long Beach Property site is designated as Dedicated Right of Way (not built). A discussion of each area within the proposed SEASP 2060 that falls within the proposed program boundaries is provided below.

South Area

The Los Alamitos Pump Station site and the portion of the Los Alamitos Retarding Basin site that is located in the City of Long Beach fall under the Public designation within the proposed SEASP 2060. As described in the proposed SEASP 2060, the Public designation provides for public and institutional uses, such as elementary schools, museums and interpretive centers, parking, water tanks, and retention basins. Under the proposed program, to changes to the uses on these sites would occur, with the exception of some of the operations on the Los Alamitos Retarding Basin site that would be modified to enhance habitat within the site. Therefore, the portions of the South Area within the City of Long Beach would be consistent with the proposed SEASP 2060 designations. Impacts would be less than significant.

Isthmus Area

All individual sites within the Isthmus Area (including the Zedler Marsh site, Isthmus Bryant site, DWP site, Callaway Marsh site, and Isthmus LCWA), are designated CHWR within the proposed SEASP 2060. The CHWR designation provides for coastal restoration, access, visitor-serving recreation and biological reserves. As discussed in Chapter 2, *Project Description*, of this PEIR, the proposed program includes activities that would support habitat restoration such as removal of invasive species, grading, and removal of access roads to reduce habitat fragmentation. As the uses on the Isthmus Area involve habitat restoration, the proposed program would be consistent with the provisions of the proposed SEASP 2060 CHWR designation. Impacts would be less than significant.

Central Area

Most individual sites within the Central Area (including the Central LCWA site, Central Bryant site, Pumpkin Patch site, and a portion of the Long Beach City Property site) are within the CHWR designation of the proposed SEASP 2060. The western portion of the Long Beach City Property site is also designated as Dedicated Right of Way (not built). Uses on these individual sites within the CHWR designation include grading and remediation activities to support habitat restoration, construction of public trails and viewpoints, construction of levees, and breaching the existing San Gabriel Levee and reconnecting the river to the restored marsh. As discussed above, permitted uses under the CHWR designation include coastal restoration, access, visitor-serving recreation and biological reserves. Thus, the habitat restoration activities and construction of

public trials and view point proposed under the proposed program would be in line with the provisions under this land use designation.

With regard to the portion of the Long Beach City Property site designated as Dedicated Right of Way (not built), it is noted in the proposed SEASP 2060 that the ultimate alignment of Shopkeeper Road shall be designed so that it will not impact a delineated wetland. While the proposed program does not propose alignment of Shopkeeper Road, the proposed activities on the Long Beach City Property site would not preclude the eventual alignment of Shopkeeper Road, as envisioned by the proposed SEASP 2060.

North Area

All individual sites within the North Area (including the Northern and Southern Synergy Oil Field sites and the Alamitos Bay Partners site), are designated CHWR within the proposed SEASP 2060. The CHWR designation provides for coastal restoration, access, visitor-serving recreation and biological reserves. As discussed in Chapter 2, *Project Description*, of this PEIR, the proposed program includes activities that would support habitat restoration such as grading to support habitat restoration, construction of earthen levee or flood wall, and excavation of a tidal channel. As the uses on the North Area involve habitat restoration, the proposed program would be consistent with the provisions of the proposed SEASP 2060 CHWR designation. Impacts would be less than significant.

Consistency with the AELUP

As described above, the proposed program is located within the AELUP area for the Joint Forces Base Los Alamitos, which is a federally owned and operated airport facility (OCALUC 2002). The AELUP for the Joint Forces Base Los Alamitos intends to safeguard the general welfare of the inhabitants within the vicinity of the airport and to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace. Adverse effects of aircraft noise are discussed in Section 3.11, *Noise*, and a discussion of safety hazards is discussed in Section 3.7, *Hazards and Hazardous Materials*, of this PEIR. The program area is approximately 2.7 miles southeast of the Los Alamitos Joint Forces Base. According to the AELUP, notice to the FAA is required for any proposed structure more than 200 feet above ground level of its site within any jurisdiction. Given that proposed buildings under the proposed program would be constructed to a maximum height of 35 feet on the State Lands Parcel site, it would not adversely affect navigable airspace or require review by the FAA or OCALUC. Therefore, the proposed program would be consistent with the AELUP. Impacts would be less than significant.

Consistency with SCAG Policies

As described above, SCAG's 2016–2040 RTP/SCS builds off of the 2012–2035 RTP/SCS and continues the vision for creating more livable communities within Southern California. The 2016–2040 RTP/SCS establishes goals, objectives and policies with regard to High Quality Transit Areas, Livable Corridors, and Neighborhood Mobility Areas. Table 3.9-1 includes a discussion of the proposed program's consistency with the applicable goals of the SCAG 2016–

2040 RTP/SCS. As discussed in the table, the proposed program would be consistent with SCAG's goals to maximize mobility and accessibility and to protect the environment and health of residents by improving air quality and encouraging active transportation. Therefore, the proposed program would be consistent with the SCAG 2016–2040 RTP/SCS. Impacts would be less than significant.

Consistency with California Coastal Plan and Long Beach Local Coastal Program

As previously described, the unincorporated areas within the adopted SEADIP—Subareas 11A, 11B, 25, 26a, 26b, 27, 28, 30, and 33—were deleted from the LCP. These areas represent wetland areas, existing oil operations, and the Los Alamitos Retaining Basin southeast of the San Gabriel River. As such, all individual sites within the City of Long Beach, with the exception of the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, have been deleted from the City of Long Beach's LCP and are not subject to its goals and policies. As most individual sites within the program area are not covered by the City of Long Beach LCP, proposed development would be reviewed for consistency with the Chapter 3 policies of the CCA, PRC Sections 30210–30265.5. As analyzed in further detail in Table 3.9-1, the uses and activities proposed within the individual sites within the South Area, Isthmus Area, Central Area, and North Area of the proposed program would be consistent with the overall goals and policies for the CCA to provide public access and recreational opportunities within the coastal zone.

A consistency analysis with the Long Beach LCP and the activities on the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, is provided in Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). As discussed therein, development on the Pumpkin Patch site, Long Beach City Property site, and Northern and Southern Synergy Oil Field sites, would be consistent with the City of Long Beach's LCP.

Based on the above, impacts would be less than significant.

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
CITY OF SEAL BEACH GENERAL PLAN		
Land Use Element		
Hellman Ranch Specific Plan: Maintain significant acreage for restoration/creation of wetlands and plan for long-term retention of viable wildlife habitat.	Consistent	The majority of the South Area would fall under the jurisdiction of the City of Seal Beach. As part of the proposed program in the South Area, wetland acreage would increase from 49.7 acres in the existing condition to 146.3 acres with implementation of the proposed program. This would be consistent with this goal of the Land Use Element to maintain significant acreage for restoration and creation of wetlands as well as the long term retention of viable wildlife habitat.
Create/restore a wetlands and environmental ecosystem that provides a meaningful contribution to the regional	Consistent	As discussed above, as part of the proposed program in the South Area, wetland acreage would increase from 49.7 acres in the existing condition to 146.3 acres with implementation of the proposed program. Components

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
system of coastal wetlands and open space along the Pacific Flyway.		of habitat restoration on the South Area include restoration of a 10-acre grassland, raptor foraging habitat and connecting the Haynes Cooling Channel to the South Area to increase tide range and tidal flows. These restoration activities would provide for a meaningful long term contribution to the coastal wetlands system and open space along the Pacific Flyway, consistent with this goal of the Land Use Element.
Protect and improve water quality of the wetlands by redirecting existing urban runoff.	Consistent	As described in Chapter 2, *Project Description*, of this PEIR, new stormwater basin or bioswales would be constructed to function as a water quality treatment measure for the stormwater runoff from the new Seal Beach Visitor Center and associated parking, consistent with this goal of the Land Use Element to protect and improve water quality of the wetlands.
Develop a plan utilizing the potential of re-directing water stored in the Los Alamitos Retention Basin through the restored wetland area as a filtration system to provide additional water quality improvements.	Consistent	The proposed program would not include any changes to the Los Alamitos Retarding Basin site that would fulfill this policy in the Hellman Ranch Specific Plan. As such, the proposed program does not preclude the City of Seal Beach from developing a plan to potentially re-direct water stored in the Los Alamitos Retention Basin.
Respect the property's physical constraints.	Consistent	Consistent with this goal to respect the property's physical constraints, the proposed program in the South Area would include activities that would be within the boundaries of the Hellman Ranch Specific Plan. The proposed program in the South Area includes excavating tidal channels to connect the Haynes Cooling Channel to the South LCWA and Hellman Retained sites. These efforts would serve to restore the wetlands within the South Area while respecting the property's physical constraints. In addition, the proposed program within the South Area would also be designed to be consistent with easements held by the City of Seal Beach.
Preserve and enhance the open space and create public access opportunities. Provide visitor-serving recreational opportunities within the coastal zone that will contribute to the economic base of the City of Seal Beach. Create an effective system of open space, trails, and parks.	Consistent	The development in the South Area includes the development of a new Seal Beach Visitor Center and associated parking and would include trail connections to the Callaway and Zedler Marshes to the north, and to Gum Grove Park and the Hellman Ranch Trail to the east. In addition, a new restricted trail would be constructed through the raptor habitat on the South LCWA site in the near-term. The trail would connect Gum Grove Park to the existing San Gabriel River Trail, fishing area, and trails on the Isthmus Area. A viewpoint would be constructed in the raptor habitat area.
Allow for the continued operation of oil extraction facilities on the property until such production ceases and the terms of the existing deed restriction are implemented.	Consistent	As part of the activities envisioned under the proposed program, oil operations in the Hellman Retained site for the long-term (greater than 20 years) would either be phased out or consolidated to provide for restoration once land and oil lease ownerships allow for this activity, consistent with the goal of the Land Use Element to allow for the continued operation of oil extraction until such production ceases and the terms of the existing deed restriction are implemented.
Circulation Element		
Goal: Provide a citywide system of safe, efficient, and attractive bicycle and	Consistent	As part of the proposed program in the South Area, the Seal Beach Visitor Center would serve as the main access point to the Isthmus and South Areas, with trail

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
pedestrian routes for commuter, school, and recreational use.		connections to Callaway and Zedler Marshes to the north, and to Gum Grove Park and the Hellman Ranch Trail to the east. A new restricted trail would also be constructed through the raptor habitat on the South LCWA site in the near-term. The trail would connect Gum Grove Park to the existing San Gabriel River Trail, fishing area, and trails on the Isthmus Area. This trail would not be open to the public; it would be restricted to docent-led tours. This would serve to further the City of Seal Beach's goal to provide attractive pedestrian routes for recreational use.
Open Space Element		
Water Quality. The goal is to protect and enhance the quality of water in local rivers and wetlands from "non-point" source pollutants in order to maintain and enhance the quality of life valued by residents and visitors to the City.	Consistent	As described in Chapter 2, *Project Description*, of this PEIR, new stormwater basin or bioswales would be constructed to function as a water quality treatment measure for the stormwater runoff from the new Seal Beach Visitor Center and associated parking. These water quality treatment measures would serve to protect and enhance the quality of water in wetlands consistent with this goal of the Open Space Element.
Minerals. If oil extraction activities are proposed under the City's jurisdiction, existing ordinances would regulate the operations to ensure compatibility with other types of surrounding land uses.	Consistent	Oil production facilities currently operate on the Hellman Retained site and are located away from residential uses. Surrounding uses are compatible with the oil operations on the Hellman Retained site. During operation of the proposed program, oil operations would either be phased out or consolidated to allow for restoration. No new oil extraction activates are proposed. As such, the surrounding uses would continue to be compatible with the surrounding land uses under the proposed program, consistent with this goal of the Open Space Element.
Wetlands. It is the intent and goal of the City to address future uses for these areas and cooperate with the property owner, state, local, and private agencies, as well as the community, to provide the means to accomplish this goal.	Consistent	Under the proposed program, wetland acreage in the South Area would be restored and would increase from 49.7-acres in the existing condition to 146.3-acres. The restored areas would be planted or seeded after earthmoving finishes. Vegetation maintenance, irrigation, and weeding would be required for all habitats after restoration. Removal of invasive species would occur on site in perpetuity through the combination of a volunteer program and long-term management of the site using methods similar to those used during implementation. This would be accomplished through cooperation with property owners, state, local, and private agencies, consistent with this goal of the Open Space Element.
CITY OF LONG BEACH GENERAL PLAN		
1973 Conservation Element		
Overall Goals of the City – Goal 3: To revitalize and enhance areas where inadequate conservation measure occurred in the past.	Consistent	As part of the proposed program, subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub would be restored or enhanced within the program area, which under the existing conditions includes several active oil fields. As such, implementation of the proposed program would revitalize and enhance oil fields consistent with this goal of the Conservation Element.
Water Resource Management Goals - Goal 7: To preserve and enhance the open space opportunities offered by inland	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
waterways of the City through improved access and beautification.		sage scrub, and riparian scrub and would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. As such, ecosystem restoration and the provision of improved public access and visitor amenities would be consistent with this goal of the Conservation Element.
Wildlife Management Goals – Goal 1: To promote measure and plans which protect and preserve distinctive types of wildlife including mammals, birds, marine organisms, and especially endangered species.	Consistent	As previously discussed, the proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub. Restoration of these habitats would serve to support important life history phases for species of special concern (e.g., federal and state listed species), essential fish habitat, and migratory birds, as appropriate. As such, ecosystem restoration would be consistent with this goal of the Conservation Element.
2013 Mobility Element		
MOP Policy 1-3: Improve auto-oriented streets (such as Pacific Coast Highway and Lakewood Boulevard) so pedestrians using the stores or services can walk comfortably and feel safer navigating the busy thoroughfare, regardless of their point of origin—from the surrounding neighborhoods or via transit.	Consistent	As a part of the proposed program, sidewalk improvements could be implemented in the Central Area and would be consistent with the City of Long Beach standards along the south side of 2nd Street, improving public access around the perimeter below the levee or flood wall. In addition, the North Area could include sidewalk enhancements within the Southern Synergy Oil Field site. With implementation of these improvements, public access and safety would be enhanced. As such, the proposed program would be consistent with this policy of the Mobility Element.
MOP Policy 2-13: Continue to use innovative designs to expand and enhance the bikeway network and increase public safety.	Consistent	As a part of the proposed program, sidewalk improvements could be implemented in the Central Area and would be consistent with the City of Long Beach standards along the south side of 2nd Street, improving public access around the perimeter below the levee or flood wall. In addition, the North Area could include sidewalk enhancements within the Southern Synergy Oil Field site. Implementation of these improvements would improve public safety. As such, the proposed program would be consistent with this policy of the Mobility Element.
2002 Open Space and Recreation Element		
Issue 1.1: Preservation and rehabilitation of the Los Cerritos Wetlands	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities within the Los Cerritos Wetlands Complex. Specifically, within the Isthmus Area, wetland acreage would increase from 10.5-acres to 13.5-acres. In addition, as part of the proposed program within in the Central Area, wetlands would increase from 68.6-acres to 76.5 acres and managed habitats would also increase from zero to 4.9 acres. Furthermore, within the North Area, wetlands would be increased by 40.2-acres to 67.1-acres and managed habitats would increase from zero to 11.1-acres. As part of the long term efforts of ecosystem restoration within the Los Cerritos Wetlands, oil operations on the Isthmus LCWA site

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		within the Isthmus Area would be phased out or consolidated off-site to allow for restoration under the proposed program. Given the reduction in oil production facilities and the rehabilitation of historic wetlands, the proposed program would be consistent with this issue of the Open Space and Recreation Element.
Goals/Objectives 1.1: Develop well-managed, viable ecosystems that support the preservation and enhancement of natural and wildlife habitats.	Consistent	As previously discussed, the proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub. Restoration of these habitats would serve to support important life history phases for species of special concern (e.g., federal and state listed species), essential fish habitat, and migratory birds, as appropriate. As such, ecosystem restoration would be consistent with this goal/objective of the Open Space and Recreation Element.
Goals/Objectives 1.3: Improve appropriate access to natural environments.	Consistent	The proposed program would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. As such, the provision of improved public access and visitor amenities would be consistent with this goal/objective of the Open Space and Recreation Element.
Goals/Objectives 1.5: Remediate contaminated sites.	Consistent	As part of the efforts for ecosystem restoration, the proposed program would include remediation of contaminated soil and groundwater on oil field sites. As such, these proposed remediation activities would be consistent with this goal/objective of the Open Space and Recreation Element.
Policy 1.1: Promote the creation of new and reestablished natural habitats and ecological preserves including wetlands, woodlands, native plant communities, and artificial reefs.	Consistent	As previously discussed, the proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub. As such, ecosystem restoration would be consistent with this policy of the Open Space and Recreation Element.
Policy 1.2: Protect and improve the community's natural resources, amenities and scenic values including nature centers, beaches, bluffs, wetlands and water bodies.	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub, and would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. As such, ecosystem restoration and the provision of improved public access and visitor amenities would be consistent with this policy of the Open Space and Recreation Element.
Policy 1.4: Promote and assist with the remediation of contaminated sites.	Consistent	As described above, the proposed program would include remediation of contaminated soil and groundwater on oil field sites. As such, these proposed remediation activities would be consistent with this policy of the Open Space and Recreation Element.
Program 1.3: Work to acquire and restore the Los Cerritos Wetlands.	Consistent	As described above, the proposed program would restore or enhance subtidal channels, intertidal salt

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities within the Los Cerritos Wetlands Complex. The proposed program provides for the phasing out of several oil operations to allow for the restoration of the wetlands ecosystem. As such, the proposed program would be consistent with this program of the Open Space and Recreation Element.
Program 1.4: Work to acquire and restore lands along the San Gabriel and Los Angeles Rivers, and wetland habitats and greenways.	Consistent	As described above, the proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities within the Los Cerritos Wetlands Complex. As part of the long term efforts of ecosystem restoration within the Los Cerritos Wetlands, oil operations on the Isthmus LCWA site within the Isthmus Area would be phased out or consolidated off-site to allow for restoration under the proposed program. These sites are both adjacent to the San Gabriel River. Given this location and restoration activities, the proposed program would be consistent with this program of the Open Space and Recreation Element.
Program 1.7: Clean up contaminated sites and brownfields.	Consistent	As described above, the proposed program would include remediation of contaminated soil and groundwater on oil field sites. As such, these proposed remediation activities would be consistent with this program of the Open Space and Recreation Element.
Issue 4.9: Recreation open spaces are not will linked; i.e., recreation trails are weak.	Consistent	As described further in Chapter 2, *Project Description*, of this PEIR, the Isthmus Area includes improvements for public access. In particular, public access could be improved in the near-term by opening the gate along the San Gabriel Trail, and scheduling docent-led tours or walks at Zedler Marsh. Once the Seal Beach Visitor Center and parking lot are constructed as part of restoration of the South Area, the existing road that connects Zedler Marsh to Callaway Marsh and the Pacific Coast Highway (PCH) would provide a trail connection between the Seal Beach Visitor Center and Zedler Marsh. As such, the improvement and connectivity of the trails in the Isthmus Area would be consistent with this issue of the Open Space and Recreation Element.
1975 Scenic Vistas Element		
Goal: Preserve and enhance natural and man-made aesthetic resources within and visible from scenic corridors.	Consistent	An evaluation of visual quality impacts is contained in Section 3.1, *Aesthetics*, of this PEIR. As described therein, development of the proposed program would change views from public viewpoints; however, a majority of the viewpoints would be enhanced by the proposed program, and scenic quality would increase with the phasing out of oil production facilities and non-native, invasive palm trees and the restoration of native vegetation and wetland habitat. All other viewpoints would not substantially obstruct, alter, or degrade the quality of any scenic vistas. Therefore, the proposed program would be consistent with this goal of the Scenic Vistas Element.

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
SOUTH AREA DEVELOPMENT AND IMPROVEMENT PLAN		
Provisions Applying to All Areas		
Provision 1. Homes and offices shall be oriented toward open space, green belts and water wherever possible. Vehicular access shall generally be provided from the side opposite these natural amenities.	Consistent	Vehicular access would be provided from major arterials opposite open space areas. The main parking for the Central Area would be existing on-street parking along Shopkeeper Road. The parking areas would be appropriately sited and include attractive landscaping. Additionally, to minimize disturbance of habitat areas, new development would be oriented towards major arterials and buffered from habitat areas. As such, the proposed program would be consistent with this provision of the adopted SEADIP.
Provision 3. Prior to issuance of a building permit, all infrastructure, including street improvements, fire hydrants, water lines, storm drains, and sanitary sewers shall be constructed on a block basis in accordance with the approved plans. Such improvements, including engineering plans, shall be financed by subdivider(s) or by an assessment district or both.	N/A	The proposed program does not propose any infrastructure improvements within the City of Long Beach. As the proposed program does not propose any infrastructure improvements, this provision would not be applicable and is not addressed.
Provision 4. A minimum of 30 percent of the site shall be developed and maintained as usable open space (building footprint, streets, parking areas, and sidewalks adjacent to streets shall not be considered usable open space. Bicycle and pedestrian trails not included within the public right-of-way may be considered usable open space). All buildings shall be set back a minimum of 20 feet from all public streets and a wider setback may be required by individual subarea. Within this minimum twenty-foot setback area, a strip having a minimum width of 10 feet and abutting the street shall be attractively landscaped. Zoning Code Section 21.15.3160 defines "usable open space" as "*any space on a lot not enclosed within a building which is designed for specific recreational purposes, including active and passive recreational activities. Usable open space includes yards (except the required front yard setback), courtyards, balconies, decks, porches, roof decks, and patios. Usable open space does not include driveways, aisles, parking spaces or side or rear yards less than 8 feet in width or front yards unless permitted by the provisions of Section 21.31.242.*"	Consistent	Consistent with this provision, a minimum of 65 acres across portions of the Isthmus Area, Central Area, and North Area would be provided as natural open space which would be made available to the public. In particular, the Isthmus Area would include opening the gate alone the San Gabriel Trail and scheduling docent-led tours or walked at Zedler Marsh. Within the Central Area, trails and overlooks would be provided in and around the proposed levees. All development would be set back a minimum of 20 feet from all existing public streets, and landscaping within the setback would be provided by the proposed program. As such, the proposed program would be consistent with this provision of the adopted SEADIP.
Provision 5. The maximum height of buildings shall be 30 feet for residential and 35 feet for non-residential uses, unless otherwise provided herein.	Consistent	The Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) amended the SEADIP to exclude oil production and oil storage facilities from the overall height restrictions. As part of the proposed program, no buildings are proposed within the City of Long Beach. As such, the proposed program would be consistent with this provision of the adopted SEADIP.

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CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
Provision 6. Minimum parking for each residential unit shall be the same as required Citywide by the zoning regulations; except that, in that part of SEADIP within the coastal zone, coastal zone standards shall apply. Minimum parking for commercial and industrial uses shall be provided in accordance with parking standards as specified in the zoning regulations.	Consistent	Main parking for the Central Area would be existing on-street parking along Shopkeeper Road. The proposed parking area would be compliant with City standards. As such, the proposed program would be consistent with this provision of the adopted SEADIP.
Provision 7. Navigable waterways shall not be extended unless it can be demonstrated that such extension will not have an adverse impact on water quality and boat traffic.	Consistent	The proposed program includes the creation of tidal channels increasing tidal flow as part of the wetlands restoration within the Isthmus Area, Central Area, and North Area. No adverse impacts to water quality or recreational opportunities would be anticipated. This discussion is included in both Section 3.3, *Biological Resources*, and Section 3.8, *Hydrology and Water Quality*, of this PEIR. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 8. All developments shall be open and inviting to the public; the public shall not be excluded from use of private streets and bicycle and pedestrian trails, although the public may be excluded from private yard areas, from private recreation areas designed for the use of residents of the development, and from private drives serving parking lots and garage structures reserved for residents and their guests.	Consistent	The proposed program includes public access improvement and providing visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. The remainder of the individual sites that make up the proposed program would not be open to the public for safety reasons. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 9. All development shall be designed and constructed to be in harmony with the character and quality of surrounding development so as to create community unity within the entire area.	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. This would be consistent with the goals of the City of Long Beach to promote restoration of the Los Cerritos Wetlands Complex. New structures proposed within the program area would be consistent with the city of Long Beach's existing height and setback requirements and would be compatible with the existing commercial and retail areas within the vicinity of the program area. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 10. Developers shall construct public open space, trails, pathways and bicycle trails for each development in such a manner that they will be generally accessible to the public and that they will interconnect with similar facilities in adjacent developments so as to form an integrated system of open space and trails connecting major points of destination.	Consistent	The proposed program includes public access improvement and providing visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 11. Public access shall be provided to and along the boundaries of all public waterways as provided for in the wetlands restoration plan.	Consistent	The existing San Gabriel River Bike Trail and existing restricted access trails which are adjacent to San Gabriel River would be maintained. In addition, a new restricted access trail (guided) would be provided along the San

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CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		Gabriel River as well. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 12. Public views to water areas and public open spaces shall be maintained and enhanced to the maximum extent possible, consistent with the wetlands restoration plan.	Consistent	There are no current public views or open space on the program area. However, activities under the proposed program would create public views to both open space and water areas by constructing a new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, and viewing areas with overlooks within and along restored wetlands habitats and the San Gabriel River. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 13. Adequate landscaping and required irrigation shall be provided to create a park-like setting for the entire area. A landscaped parkway area shall be provided along all developments fronting on Pacific Coast Highway, Westminster Avenue, Studebaker Road, Seventh Street and Loynes Drive	Consistent	The proposed program would include new landscaping along all setbacks of new development within the Alamitos Bay Partners site, Southern Synergy Oil Field site, Long Beach City Property site, Central Bryant site, Pumpkin Patch site, Isthmus Bryant site, and DWP site, fronting Studebaker Road, Westminster Avenue, and PCH, as necessary. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 14. No additional curb cuts shall be permitted on Pacific Coast Highway, Westminster Avenue, Studebaker Road, or Seventh Street, unless it can be shown that inadequate access exists from local streets or unless specifically permitted by Subarea regulations provided herein. This restriction shall not preclude the provision of emergency access from these streets as may be required by the City.	N/A	No curb cuts are necessary under the development of the proposed program. As the proposed program does not propose any curb cuts, this provision would not be applicable and is not addressed.
Provision 15. All utility lines shall be placed underground and utility easements shall be provided as required unless waived by the Commission on the advice of the Director of Public Works.	Consistent	The proposed program would not include the construction of new utility poles, and where geotechnically feasible, required utility lines would be placed underground. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 16. Developers shall construct, in accordance with plans approved by the Director of Public Works, all necessary sanitary sewers to connect with existing public sewers, and shall provide easements to permit continued maintenance of these sewers by the City where the City accepts responsibility for such maintenance.	N/A	No sanitary sewers are necessary under the development of the proposed program. As the proposed program does not propose any sanitary sewers, this provision would not be applicable and is not addressed.
Provision 17. Developers shall construct, in accordance with plans approved by the Director of Public Works, all new streets and ways within the area. All streets and ways will include: a. Roadway pavement, curbs and sidewalks approved by the Director of Public Works. The sidewalk requirement may be waived or the sidewalk may be combined with an enlarged bicycle trail in such cases where the Commission and the Director of Public Works determine that an independent sidewalk is not required for pedestrian convenience and safety.	Consistent	The proposed program includes public access improvement and providing visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. Utilities, such as street lights, would be installed per approval by the City of Long Beach. The proposed program would be consistent with this provision of the adopted SEADIP.

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Goals and Policies	Consistency Determination	Consistency Analysis
b. Water lines approved by the General Manager of the Water Department. c. Fire hydrants approved by the Fire Chief and the General Manager of the Water Department. d. Street lighting using low energy luminaries as approved by the Director of Public Works. e. Storm drainage approved by the Director of Public Works. f. Street trees approved by the Manager of the Park Bureau. g. Street signs and pavement traffic markings approved by the Director of Public Works. h. All traffic control devices required by the Director of Public Works.		
Provision 18. Developers shall improve and dedicate to the City certain streets, recreation areas and other public facilities necessary to support the proposed private development, as specified by area in subsequent paragraphs. If any such required improvements are found by the Commission to be infeasible or undesirable for engineering, legal or other reasons, the Commission may accept alternative improvements proposed by the developer so long as they meet the intent of the original requirements and are consistent with the overall goals and objectives of the adopted Specific Plan. Developers shall make such improvements or furnish security in connection with such improvements prior to commencement of construction of adjacent areas, which the improvements are designed to support; improvements may be phased with the phased construction of such adjacent areas. In those cases where the developer is to dedicate land area for subsequent improvement by the City, the developer shall not be required to convey such area until the City has budgeted funds for the improvements.	Consistent	The proposed program includes public access improvement and providing visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. The proposed program would be consistent with this provision of the adopted SEADIP.
Provision 19. Developers shall make provision for the continued private maintenance of all common areas that are not to be dedicated and accepted by the City, and of all ways not to be dedicated and accepted by the City, including maintenance of street lighting, walks, curbs, storm drainage, water lines, fire hydrants, and street trees. Such provisions shall be perpetuated by their inclusion in the covenants, conditions, and restrictions of the property owners.	N/A	No common areas are proposed under the proposed program. As the proposed program does not propose any common areas, this provision would not be applicable and is not addressed.

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
Responsibility for Construction and Maintenance of Wetlands and Buffers		
The Wetlands		
Policy 1. The wetlands and associated habitats, and all fresh, brackish and tidal water supply and control systems, shall be constructed at the expense of the developers of Areas 11a, 25 and 26, unless otherwise provided for by agreements between land owners and the managing agency. The developer(s) of Areas 11a and 25 shall be responsible for wetlands development of Areas 23 and 33. The developer(s) of Area 26 shall be responsible for wetlands development of Area 27.	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. Development on Subareas 11A (Southern Synergy Oil Field site) and Subarea 26A and 26B (Central LCWA and Central Bryant site) would not include any urban development. Subarea 25 (Long Beach City Property site) would continue to be operated for oil production. Subarea 25 (Pumpkin Patch site) would also be protected. The proposed program includes restoration of the wetlands in portions of Subarea 27 (Callaway Marsh site, Zedler Marsh site, Isthmus Bryant site, and DPW site) and Subarea 33 (portions of the Northern and Southern Synergy Oil Field site). The Haynes Cooling Channel (within Subarea 27) would be decommissioned and the Los Alamitos Pump Station site (within Subarea 27) was previously restored and would not include any activities under this proposed program. Overall, the proposed program would include limited development and substantial restoration activities funded by the Applicant. The proposed program would be consistent with this policy of the adopted SEADIP.
Policy 2. Owing to the need to make connections with the existing tidal marsh, the major wetlands restoration project between Los Cerritos Channel and Westminster Boulevard shall be accomplished at one time. Restoration of wetlands north of the Los Cerritos Channel and south of the San Gabriel River need not be accomplished concurrently with the major restoration project, or with each other. Prior to the issuance of permits for residential, commercial or industrial development, each applicant shall develop a detailed phasing plan that assures that restoration of wetlands will be completed prior to or concurrently with the completion of urban development on related parcels as specified above. Said detailed phasing plans shall be submitted for approval to the agency responsible for granting the coastal permit.	Consistent	The proposed program would restore or enhance subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub and would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, and new and improved parking facilities. A phasing plan for the restoration activities would be included as part of this proposed program. The proposed program would be consistent with this policy of the adopted SEADIP.
Policy 3. The standard of wetlands restoration is that it shall be completed prior to or concurrently with upland development on related areas. This standard may be satisfied by using one of the following options: a. Percentage Option. Whenever part of the development acreage is built upon,	N/A	No development on existing wetlands is proposed under the proposed program. As the proposed program does not propose any development on the existing wetlands, this policy would not be applicable and is not addressed.

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Goals and Policies	Consistency Determination	Consistency Analysis
an equal percentage of the future wetland acreage will be developed as wetlands; and b. Acre-for-Acre Option. For every acre of wetland identified for fill and/or consolidation under the Local Coastal Plan that will be covered by the development, the developer shall improve 1 acre of wetland.		
Policy 6. Overall custodial and interpretive management and financial responsibility for maintenance of Los Cerritos Wetlands shall be vested in an appropriate governmental agency or private non-profit corporation upon the initiation of the first wetlands restoration project. Prior to issuance of any permits for any projects related to wetlands construction, nomination of the managing agency shall be made by the City of Long Beach with the concurrence of the State Department of Fish and Game.	Consistent	The restored wetlands would be managed and owned by the LCWA, which would also have the right to obtain title to some of the individual sites within the proposed program. The proposed program would be consistent with this policy of the adopted SEADIP.
The Buffers		
Policy 1. The wetlands are to be separated from urban developments by "buffers". In the context of this LCP, the buffers are treated as a part of the adjacent urban developments, as they will form a part of the amenities. Construction and maintenance of the buffers, therefore, falls entirely on the developers and their successors in interest. The reader should note that buffers are constructed only north of Westminster Boulevard. The restored wetlands south of Westminster Boulevard will have no buffers, owing to the fact that they will be separated from other uses by natural barriers.	Consistent	As part of the proposed program, native upland vegetation buffers between habitat areas and human development would be incorporated to mitigate urban impacts. The proposed program would be consistent with this policy of the adopted SEADIP.
Policy 2. Buffers between Subareas 11a and 33 shall be created by developer(s) of Subarea 11a prior to or concurrently with development of upland areas. The berm between wetlands and development shall be created as a part of the grading operation of the wetland. If build out is phased over a period longer than two years, then the landscaping and irrigation system for the buffer can be phased with each phase of landscaping for the development with this exception; that at the beginning of each phase, prior to finish grading for that phase, a row of shrubs shall be planted at the top of the berm to offer protection during construction. Provisions must be made to deny public access to all portions of areas not included in the current building program. Design of the buffers must conform to the standards set forth in the certified Local Coastal Plan for the Los Cerritos Wetlands.	N/A	No development would occur on Subarea 11a under the proposed program. As the proposed program does not propose any development on Subarea 11a, this policy would not be applicable and is not addressed.

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Goals and Policies	Consistency Determination	Consistency Analysis
Policy 3. If urban developments remain the property of landowners and/or developers, they shall be responsible for continuous maintenance of the buffers. This responsibility shall run with the land. If urban developments become condominiums, the buffers shall become a part of the area held in common, and continuous maintenance shall be the responsibility of the property owner's association(s). The agency in charge of the management of the restored wetlands may provide comments and recommendations to those responsible for maintenance of the buffers if lack of proper maintenance is causing the buffers to fail in their primary mission to prevent visual and physical access to the wetlands habitats. Breeches in the buffer which seriously threaten habitat values in the wetlands, and which have been reported by the wetlands management agency and have not been repaired in a timely fashion by the individual or agency responsible for maintenance, may be repaired by the wetlands management agency. Costs for such repairs shall be collected from the property owner's association.	N/A	The proposed program does not propose any urban development. As the proposed program does not propose any urban development, this policy would not be applicable and is not addressed.
Policy 5. The primary mission of the buffer is to prevent physical access into the wetlands and to prevent visual disturbances of wetland wildlife. The buffer, as shown in the Local Coastal Plan, consists of a berm of mounded soil, a fence, and plant material. Plant material will be chosen to be (in descending order of priority): a. of a growth form that supports the primary mission (i.e., of assistance in preventing access and/or screening development from the wetlands); b. compatible with soil, water and climate conditions of the immediate site; c. fast growing; d. compatible with adjacent development; e. low maintenance; and f. of wildlife food and/or cover value.	Consistent	Wetland restoration throughout the proposed program would include various features that would serve to prevent physical access into the wetlands and to prevent visual disturbances of the wetland wildlife. As discussed in Chapter 2, *Project Description*, of this PEIR, gently sloped transition zone and low-lying upland habitats adjacent to today's salt marsh, which would be included as part of the proposed program, could support intertidal communities in the longer term. Potential disturbances to sensitive habitats and species during operation of the proposed program would be minimized through effective design of public access areas to keep people on trails and out of habitat areas. Furthermore, the proposed program would include earthen levees and berms, and walls, which would also serve to physically protect wetlands. The proposed program would be consistent with this policy of the adopted SEADIP.
Specific Development Standards: Subarea 11A (Southern Synergy Oil Field Site)		
Policies 11 (a) a–j.	N/A	These policies assumed residential development on Subarea 11A. No residential uses are proposed under the proposed program. As the proposed program does not propose any residential development on this site, the polices would not be applicable and are not addressed.
Specific Development Standards: Subarea 11B (Alamitos Bay Partners Site)		
Policies 11 (b) a–e.	N/A	These policies assumed residential development on Subarea 11B. As the proposed program does not propose any residential development on this site, the polices would not be applicable and are not addressed.

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Goals and Policies	Consistency Determination	Consistency Analysis
Specific Development Standards: Subarea 25 (Long Beach City Property Site and Pumpkin Patch Site) and Subareas 26A and 26B (Central LCWA Site and Central Bryant Site)		
Policy 25/26.a. Use: (Area 25) Business Park (Office Commercial and light Industrial); restaurants and hotel. Commercial / Self-storage (defined by 21.15.570) is a prohibited land use.	N/A	Subarea 25 includes the Long Beach City Property site and the Pumpkin Patch site. Under the proposed program, the Long Beach City Property site in the long-term would include grading to support habitat restoration, the construction of an earthen levee to protect 2nd Street and Shopkeeper Road, the excavation of a tidal channel, construction of public trails on levees, accessible ramps, and stairs, and the construction of viewpoints. On the Pumpkin Patch site, an earthen levee would be constructed to protect the western portion of the Pumpkin Patch site. The proposed program does not propose any business park development on these sites; as such, most of the policies would not be applicable to the Long Beach City Property site and Pumpkin Patch site and are not addressed. Subarea 26 includes the Central LCWA site and Central Bryant site, which include remediation of soils and relocation or modification of oil infrastructure, construction of an earthen levee, raising existing wells, breaching the San Gabriel River Levee and reconnecting the river to the restored marsh, construction of trails on levees and viewpoints. The proposed program does not propose any business park development on these sites; as such, most of the policies would not be applicable to the Central LCWA site and Central Bryant site and are not addressed. As the Central LCWA site and Central Bryant site do not front Studebaker Road, Policy 25/26.r would not be applicable to the proposed program. As part of the proposed program, the Long Beach City Property site would include transitional habitat along the base of the levee that would run from Westminster Avenue to the San Gabriel River along Shopkeeper Drive. The transitional habitat would be consistent with Policy 25/26.s.
Policy 25/26.b. Use of Area 26		
Policy 25/26.c: Noise/Odors. The City Planning Commission shall approve development of specific office commercial and light industrial uses which will not emit noise, odor, or air pollutants beyond the boundaries of their parcels.		
Policy 25/26.d: Performance Standards. The Commission may adopt specific performance standards or a specific list of permitted uses to guide developers and the Commission.		
Policy 25/26.e: Outdoor Storage. No outdoor storage of materials and equipment shall be permitted. Loading and service areas shall not be permitted within required yard setback areas and all such loading and service areas shall be enclosed or screened so as not to be visible from the street.		
Policy 25/26.f: Floor Area. No more than 40,000 square feet of floor area for medical/dental offices, and no more than 16,000–20,000 square feet of floor area shall be restaurant use.		
Policy 25/26.g: Density. The business park shall be predominantly office commercial uses, and no less than 75 percent of the area shall be devoted to office commercial use. No light industrial uses shall front on Pacific Coast Highway or Westminster Avenue.		
Policy 25/26.h: Lot Coverage. Not more than 35 percent of the area of each office commercial lot shall be occupied by a building or buildings and not more than 50 percent of the area of each light industrial use shall be occupied by a building or buildings.		
Policy 25/26.i: Landscaping. All improved building sites shall have a minimum landscaped coverage of 15 percent of the area of each lot and shall be provided with an irrigation system. Boundary landscaping shall be provided on all internal property lines. Parking areas shall be landscaped with a minimum of one tree per each five parking stalls. The proposed retention basin in Area 25 shall be developed in a park like manner.		

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Goals and Policies	Consistency Determination	Consistency Analysis
Policy 25/26.j: Setbacks. Required yard areas: 30 feet front; 10 feet side (except 30 feet side when a side yard abuts a street and except that the internal side yard may be 0 feet provided the main building on the same lot line on the abutting lot is set back 0 feet and both lots are developed at the same time).		
Policy 25/26.k: San Gabriel River Setback. A 30-foot-wide landscaped setback shall also be required along the San Gabriel River Channel property line to create a park-like setting for the bicycle trail along the river bank. (This substitutes for the park in the former Area 30).		
Policy 25/26.l: PCH Curb Cuts. One access from Westminster Avenue shall be allowed to Area 26; no additional curb cuts shall be permitted on Westminster Avenue or Pacific Coast Highway. All other vehicular access shall be from Studebaker Road or Shopkeeper Drive.		
Policy 25/26.m. The developer of Area 25 shall construct a widening of Pacific Coast Highway in accordance with a plan approved by the Director of Public Works, an extension of Studebaker Road, and dedicate the same to the City.		
Policy 25/26.n. The developer of Area 25 shall construct, in accordance with plans approved by the Director of Public Works, a bicycle trail along the south side of Westminster Avenue and along the north side of Pacific Coast Highway, south of Studebaker Road. The developer shall dedicate the same to the City.		
Policy 25/26.o. The developers of Areas 25 and 26 shall provide for the construction of any improvements necessary to cross the San Gabriel River Regional Bikeway from the east levee to the west levee of the river at Westminster Avenue. These should be limited to on-street pavement markings.		
Policy 25/26.p. The developers shall participate in the cost of constructing the Studebaker Road extension between Westminster Avenue and Pacific Coast Highway, the amount of that participation to be calculated to be the length in feet of property fronting on each side of said roadway multiplied by the average cost per linear foot of constructing one lane of said roadway.		
Policy 25/26.q: San Gabriel River Improvements. The developers shall improve that portion of the San Gabriel River bank adjacent to their property with a pedestrian walk, bicycle trail and related landscaping, such development to		

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Goals and Policies	Consistency Determination	Consistency Analysis
continue one-half of the distance under the Pacific Coast Highway bridge to join with similar facilities in Area 29.		
Policy 25/26.r: The developer of Area 26 shall construction a bicycle trail along the east side of Studebaker Road for the entire frontage on said road.		
Policy 25/26.s: A non-wetland habitat corridor shall be provided in Area 25 from Westminster Avenue to the San Gabriel River. Such corridor shall not be less than 400 feet in width (when measures from the existing buildings in Area 18, the Marketplace) and shall include Shopkeeper Drive. No building shall be allowed in this corridor except that no less than 70 feet from Shopkeeper Drive, single story (not to exceed 20 feet in height) commercial office or light industrial use building shall be allowed. The long axis of any buildings in the non-wetland habitat corridor shall be parallel to the long axis of the corridor.		
Specific Development Standards: Subarea 27 (Zedler Marsh Site, Isthmus Bryant Site, DPW Site, Haynes Cooling Channel, and Los Alamitos Pump Station Site)		
This area is to be utilized entirely in the wetlands restoration program.	Consistent	The Zedler Marsh site, Isthmus Bryant site, DPW site, Haynes Cooling Channel, and Los Alamitos Pump Station site all fall with Subarea 27. Consistent with the adopted SEADIP, the Zedler Marsh site and Los Alamitos Pump Station site were both previously restored. Under the proposed program, the Isthmus Bryant site would include grading to support habitat restoration and tidal connection. The DPW site would also be consistent with the provisions in the adopted SEADIP through the removal of invasive species, planting of native vegetation, and removal of the access road to reduce habitat fragmentation. In addition, the existing fishing area at the Haynes Cooling Channel would be retained under the proposed program.
Specific Development Standards: Subarea 28 (Los Alamitos Retarding Basin Site)		
This site is owned by Orange County and is utilized by the Orange County as a retention basin.	N/A	Under the proposed program, the Los Alamitos Retarding Basin site would continue its operation as a retention basin and would be owned and operated by Orange County.
Specific Development Standards: Subarea 33 (portions of the Northern and Southern Synergy Oil Field sites)		
a. This area has been expanded in area to 96.1 acres and shall be devoted entirely to wetland purposes. An additional 2.0 acres shall be devoted to Least Tern nesting site. See *Marine Environment* of the Local Coastal Plan for description. The developer shall dedicate this area to the Management Agency and restore the wetlands in accordance with plans approved by the State Coastal Commission for continued public use and maintenance.	Consistent	As part of the proposed program, no development or activities are proposed on the Northern Synergy Oil Field site. The Southern Synergy Oil Field site includes grading to support habitat restoration, construction of earthen levee or flood wall to protect 2nd Street and PCH, and the excavation of a tidal channel from the Northern Synergy Oil Field site to the Southern Synergy Oil Field site. All of these activities would support wetland habitat restoration, consistent with the adopted SEADIP. Pursuant to Section 3.3, *Biological Resources*, of this PEIR, although the least tern has been observed foraging within Steamshovel Slough and there is a potential for the least tern to forage in the Central Area

TABLE 3.9-1
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Goals and Policies	Consistency Determination	Consistency Analysis
b. The recently established least tern site shall be designated as habitat area and preserved as such unless or until the Department of Fish and Game may determine that it is appropriate to experiment with enhancing least tern habitat and allow up to 2 acres within Parcel 33.		(San Gabriel River) and in the South Area (Haynes Cooling Channel), there are no other suitable breeding areas on any other sites within Subarea 33. The sites would be revegetated as oil facilities are removed.
SOUTHEAST AREA SPECIFIC PLAN 2060 (PROPOSED)		
Priorities		
2. Wetland Enhancement. Improve accessibility and pursue opportunities to restore wetland viability.	Consistent	The proposed program goals and objectives include restoration of tidal wetlands, maximizing contiguous habitat areas and maximizing the buffer between habitat and sources of human disturbance, and striving for long-term restoration success. These goals and objectives are reflected in the activities proposed on the individual sites located within the City of Long Beach and subject to the proposed SEASP 2060. Generally, activities include grading, removal of invasive species, construction of earthen levee or flood walls, and construction of public trails and viewpoints. These activities serve to restore the wetlands on the program area as well as improve public accessibility, consistent with this priority of the proposed SEASP 2060.
3. View Preservation. Preserve Views of the hills and mountains and maintain the scenic environment through control of building placement and/or height. **8. Consolidate or Relocate Oil Operations.** Consolidate or relocate oil operations where possible to facilitate wetlands restoration and minimize visual impacts.	Consistent	Generally, the proposed program includes phasing out or consolidation of oil operations on a majority of the individual sites within the proposed SEASP 2060 area (including the Isthmus LCWA site, Central LCWA site, Central Bryant site, and the Alamitos Bay Partners site). Phasing out or consolidation of oil operations would support habitat restoration and would remove views of oil operations that would otherwise block views of the hills and mountains.
4. Bike and Pedestrian Transportation Options. Improve Pedestrian and bicycle connectivity by creating an active streetscape that promotes safe walking and cycling. **6. Public Access to Open Space.** Improve public access to the marina, waterways, wetlands, and parks.	Consistent	Several pedestrian trails are proposed under this proposed program. Within the Isthmus Area, the existing road that connects Zedler Marsh to Callaway Marsh and the PCH would provide a trail connection between the Seal Beach Visitor Center (within the South Area) and Zedler Marsh. As part of the Central Area, potential sidewalk improvements would be implemented in accordance with the City of Long Beach standards along the south side of 2nd Street. A crosswalk would be added at the intersection of Shopkeeper Road and 2nd Street to improve public access between the North Area, Long Beach Visitor Center, and Central Area. These proposed activities would support this priority of the proposed SEASP 2060 to improve pedestrian connectivity and public access to the wetlands.
Development Standards		
5.4 Coastal Habitat, Wetlands, and Recreation (CHWR) **a. Building Setbacks** • Building setbacks shall be measures from ultimate right-of-way (back of ultimate sidewalk). • Building shall be built up to the required ultimate sidewalk shown on Street Sections in Chapter 6, Mobility	N/A	No buildings are proposed under the proposed program. As the proposed program does not propose the development of any buildings, the polices would not be applicable and are not addressed.

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
• Additional setbacks for entry plazas, courtyards, or outdoor dining patios, may be permitted subject to the discretion of the Site Plan Review Committee. • Developer shall be responsible for project impacts on adjacent rights-of-way and construction street segments to match cross sections as provided in the SEASP.		
b. Height The intent of providing 2-story buildings is to allow for buildings that support coastal recreation uses or uses that are ancillary to the wetlands (interpretive center). For instance, 2-story uses would allow for ground floor coastal recreation-related uses (kayak, rental, etc.) and the upper floor may be a small ancillary office or storage use to support the ground floor use. Office use must be related to the primary use or use on ground floor; stand-alone office uses are not permitted in this category.	Consistent	No buildings are proposed under the proposed program. As the proposed program does not propose the development of any buildings, the polices would not be applicable and are not addressed.
5.7 General Development Standards **d. Views** The scenic and visual qualities of coastal areas shall be considered and protected as resources of public important as specific in the California Coastal Act Section 30251. The policies below reflect this mutual objective of the Specific Plan and Coastal Act. • Public views to water areas and public open spaces shall be maintained and enhanced to the maximum extent possible. • Permitted development shall be sited and designed to protect views to (and along) the ocean and scenic coastal areas, to minimize the alteration of natural landforms to be visual compatible with the character of surrounding areas, and, where feasible to restore and enhance visual quality in visually degraded areas.		An evaluation of visual quality impacts is provided in Section 3.1, *Aesthetics*, of this PEIR. As described therein, development of the proposed program would change views from public viewpoints; however, a majority of the viewpoints would be enhanced by the proposed program, and scenic quality would increase with the phasing out of oil production facilities and non-native, invasive species, and the restoration of native vegetation and wetland habitat. The proposed program would not substantially obstruct, alter, or degrade the quality of any scenic vistas. Therefore, the proposed program would be consistent with the general development standard of the proposed SEASP 2060 related to views.
i. Public Access Public Access shall be provided to and along the boundaries of all public waterways and wetland areas.		As previously discussed, pedestrian trails are proposed under this proposed program. Within the Isthmus Area, the existing road that connects Zedler Marsh to Callaway Marsh and the PCH would provide a trail connection between the Seal Beach Visitor Center (within the South Area) and Zedler Marsh. As part of the Central Area, potential sidewalk improvements would be implemented in accordance with the City of Long Beach standards along the south side of 2nd Street. A crosswalk would be added at the intersection of Shopkeeper Road and 2nd Street to improve public access between the North Area, Long Beach Visitor Center, and Central Area. These proposed activities would support this development standard to provide public access along the boundaries of the wetland areas.
5.8 Wetland Delineations	Consistent	Portions of the program area have formal jurisdictional delineation; however, consistent with this policy,

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
New projects within the Coastal Habitat, Wetlands, and Recreation designation require the preparation of a biological study to determine the location and extent of any wetlands resources on site, if any. When a wetland delineation is required by the City for a new development application or permit, one of two options may be provided by the applicant: 1. A preliminary jurisdictional delineation approved by the U.S. Army Corps of Engineers showing the location and extent of wetlands or sensitive resources, or 2. A letter signed by a qualified biologist declaring that no wetlands or sensitive resources will be impacted by the proposed development.		Mitigation Measure BIO-10, requires a jurisdictional delineation and issuance of jurisdictional resources permits prior to construction. Refer to Section 3.3, *Biological Resources*, of this PEIR, for further discussion.
SCAG 2016–2040 RTP/SCS		
RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region.	Consistent	The proposed program would include public access improvements through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, and viewing areas with overlooks. Implementation of these improvements would expand and enhance the existing pedestrian network and improve public safety. Therefore, the proposed program would be consistent with this policy of the 2016-2040 RTP/SCS.
RTP/SCS G6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).	Consistent	The proposed program would include public access improvement through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, and viewing areas with overlooks. Implementation of these improvements would expand and enhance the existing pedestrian network and improve public safety. In addition, as part of the proposed program, several oil operations would be phased out or consolidated to allow for ecosystem restoration in the long-term, which would serve to reduce air emissions in the program area. Therefore, the proposed program would be consistent with this policy of the 2016-2040 RTP/SCS.
	CALIFORNIA COASTAL ACT	
Public Resources Code 30000		
Section 30210: Access, recreational opportunities, posting	Consistent	The proposed program would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center and would include the appropriate posting, consistent with public safety needs. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30212: New Development Projects	Consistent	This section of the CCA requires that new development projects provide public access from the nearest public roadways, except where it is inconsistent with public safety, adequate access exists nearby, or agricultural would be adversely affected. As previously discussed, the proposed program would include public access

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. These would be provided from roads in the vicinity of the program area (i.e., 2nd Street and PCH) The remainder of the individual sites that make up the proposed program do not provide access to a shoreline or coast for safety reasons. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30212.5: Public Facilities; distribution	Consistent	As previously discussed, the proposed program would include public access through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. These uses would be distributed throughout the South, Isthmus, Central, and North Areas. As such, there would be no overcrowding or overuse by the public given its proximity to other public facilities and land uses in the area. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30213: Lower Cost visitor and recreational facilities	Consistent	The proposed pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center would be free or low cost to access by the public. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30214: Public Access	Consistent	The proposed program would provide public access through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and visitor center. All other existing pedestrian and bike routes in the program area would be maintained. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30221: Oceanfront land; protection for recreational use and development	Consistent	The proposed program would be developed with recreational uses including the visitors center, overlook terrace, and various pedestrian within the State Lands Parcel site, South LCWA site, Central LCWA site, Central Bryant site, Long Beach City Property site, and Southern Synergy Oil Field site. The remainder of the individual sites that make up the proposed program do not provide access to a shoreline or coast for safety reasons; however, given the variety of recreational opportunities provided on various areas of the proposed program, the proposed program would be consistent with this policy of the CCA.
Section 30222: Private lands; priority of development purposes	Consistent	The proposed program would develop private lands with both recreational opportunities and coastal dependent industry—oil production uses. Both the State Lands Parcel site and the Southern Synergy Oil Field site would be developed with recreational uses including a visitor center. Trails and overlooks would also be provided on the Southern Synergy Oil Field site as well as the South LCWA site, Zedler Marsh site, Central LCWA site, Central Bryant site, and Long Beach City Property site. The Hellman Retained site,

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		Isthmus LCWA site, Central LCWA site, Central Bryant site, and Long Beach City Property site would be developed with oil production facilities, which is considered a coastal dependent industry. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30223: Upland Areas	Consistent	As discussed in Chapter 2, *Project Description*, of this PEIR, the proposed program would restore wetland, transition, and upland habitats throughout the program area. This would involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor center, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. In addition, the proposed program would provide coastal recreation uses including the visitors center, overlook terrace, and pedestrians trails within upland areas. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30230: Marine Resources	Consistent	As part of the proposed program, subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub would be restored or enhanced within the program area, which can be considered marine resources. As discussed in Section 3.3, *Biological Resources*, of this PEIR, with implementation of mitigation, the proposed program would not adversely impact any special-status species or habitat within the wetland areas. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30231: Biological Productivity	Consistent	As part of the proposed program, subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub would be restored or enhanced within the program area, which could contribute to biological productivity. As discussed in Section 3.3, *Biological Resources*, of this PEIR, with implementation of mitigation, the proposed program would not adversely impact any special status species or habitat within the wetland areas. Furthermore, the proposed program would restore historic wetland areas, and address sea levels rise, which would improve the biological productivity and the quality of the area and could potentially contribute to the regeneration of marine organism populations in the program vicinity. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30232: Oil and Hazardous Substance Spills	Consistent	During construction and operation, the proposed program would include the ongoing operation of oil production facilities and drilling of new oil production facilities within various sites of the program area. Given these uses, the proposed program would be required to comply with Title 12, Oil and Gas Production, of the Long Beach Municipal Code and Section 30262, Oil and Gas Development, of the CCA. In addition, as described in Section 3.7, *Hazards and Hazardous Materials*, of this PEIR, the construction, operation, and plugging and abandonment of oil production and

TABLE 3.9-1
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Goals and Policies	Consistency Determination	Consistency Analysis
		injection wells are regulated by the California Geologic Energy Management Division (CalGEM). For the installation of wells, regulations include measures to prevent the release of oil through blow-outs, leakage from well casing and piping, and spillage from oil well sumps. For the plugging and abandonment of wells, regulations include measures to prevent the release of oil as the wells are plugged and abandoned, the removal of associated production infrastructure, and the periodic inspection of plugged and abandoned wells. Furthermore, by proposed program build-out, or within 40 years of the New Occupancy Date, several oil wells located on the proposed program would be removed. This would remove a hazard of legacy oil production facilities consisting of less-safe drilling equipment, tanks, etc., in a sensitive environment. Additionally, the utility corridor located on the Long Beach City Property site would be contained within an up to 18-inch earthen berm and would include fiber optic safety equipment that would detect leaks and shut down to prevent pressure surges. Therefore, impacts related to hazardous materials through routine use or accidental release during construction and operation are not anticipated. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30233: Diking, filling or dredging; continued movement of sediment and nutrients	Consistent	As part of the proposed program, subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub would be restored or enhanced within the program area. The proposed program also includes individual sites where new coastal dependent industrial facilities (oil production/mineral extraction) are proposed, which is an allowed use in wetlands pursuant to this section. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30236: Water supply and flood control	Consistent	As it relates to water supply, in the South Area, the existing road (1st Street) through the marsh would be raised on a berm to move it out of the restored marsh floodplain in the near-term. The City of Seal Beach is planning to reline the existing water line within the road, which could be done at any time. Any future waterline projects, including this proposed reline, would be accommodated by the proposed program and would not affect water supply. In addition, as discussed in Section 3.16, *Utilities and Service Systems*, of this PEIR, given the proposed program's minimal water usage, the proposed program is expected to have sufficient water supply available during operation. The proposed program would also implement Mitigation Measure UTL-1, which would require obtaining a will serve letter prior to operation of the visitor center to verify that surrounding water mains surrounding the program boundary have capacity to provide service to the visitor center. The proposed program would include the creation of channels and revegetation of native plants to support a diversity of marsh, transitional, and upland habitats. As described in Chapter 2, *Project Description*, of this PEIR, activities in the South Area would excavate new tidal channels off of the Hellman Channel on the South LCWA site to create a sinuous and branching network of tidal channels through the wetlands. The existing channel would connect to the existing culvert to the San Gabriel

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		River and would continue to be subtidal. The smaller channels throughout the rest of the marsh would be intertidal and would drain at low tide. The larger channels would branch into smaller distributary channels. The South Area also includes excavating a channel connecting the Hellman Channel directly to the Haynes Cooling Channel, which would be decommissioned, and lowering the berm along the Haynes Cooling Channel. This would serve to increase a tidal range in the South LCWA site. As part of ecosystem restoration within the Central Area, the proposed program would restore connectivity of the San Gabriel River with a broader wetland floodplain across the Central LCWA, Central Bryant, and Long Beach City Property sites by removing segments of the existing levees on the north bank of the river and creating a tidal channel network. Sub-tidal and intertidal channels would extend from San Gabriel River into the vegetated tidal wetlands, providing habitat diversity and tidal circulation. Furthermore, within the South Area, tidal channels would be excavated between the northern and southern area in order to increase tidal exchange in the latter. The tidal channels would expand tidal influence and convert areas from non-tidal to tidal wetlands. Therefore, program activities, including creation and extension of channels for purposes of ecosystem restoration, would be consistent with this policy of the CCA.
Section 30240: Environmentally Sensitive Habitat	Consistent	As part of the proposed program, subtidal channels, intertidal salt marsh, salt marsh-upland transition zone, brackish marsh, native grassland, coastal sage scrub, and riparian scrub would be restored or enhanced within the program area, which would serve to restore and protect environmentally sensitive habitat areas. As discussed in Section 3.3, *Biological Resources*, with implementation of mitigation, the proposed program would not adversely impact any special status habitat within the wetland areas. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30244: Archaeological or Paleontological Resources	Consistent	The proposed program would include ground disturbing activities during construction, which would have the potential to disturb archaeological and paleontological resources. As described in Section 3.4, *Cultural Resources*, in order to reduce impacts to archaeological and paleontological resources, Mitigation Measures CUL-1, CUL-4, CUL- 5, CUL-6, CUL-7, CUL-8, CUL-9, CUL-10, CUL-11, CUL-12, CUL-13, CUL-14, and CUL-15 for archaeological resources and Mitigation Measures GEO-1 through GEO-7 for paleontological resources would be implemented, and would reduce impacts to less-than-significant levels. Also, consistent with state law, the City conducted tribal consultation with Native American tribal representatives. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30250: Location within Existing Developed Area	Consistent	With regard to the South Area, oil operations on the Hellman Retained site would either be phased out or consolidated to allow for restoration. The consolidated oil operations would be within the same Hellman Retained site that had existing oil operations. In addition, the South Area also includes construction of the Seal Beach Visitor Center and associated parking facilities. These uses would be developed on an existing raised building pad on

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
		the State Lands Parcel site. With the Isthmus Area, oil operations on the Isthmus LCWA site would be phased out or consolidated off-site to allow for restoration. The proposed Long Beach Visitor Center, located in the North Area, would be within an area that has been previously disturbed as part of oil field development (i.e., it would be relocated to an area currently occupied by a tank farm). In addition, the proposed parking lot for the Long Beach Visitor Center would be constructed on already disturbed areas, and the public access trail would utilize to the extent feasible, existing oil roads. As proposed within the North Area, the Southern Synergy Oil site and Alamitos Bay Partners site also include the relocation of oil infrastructure, which would be relocated to areas where there are existing oil operations. Thus, the proposed program would be located within close proximity to existing developed areas that are able to accommodate additional development. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30251: Scenic and Visual Qualities	Consistent	An evaluation of visual quality impacts is contained in Section 3.1, *Aesthetics*, of this PEIR. As described therein, development of the proposed program would change views from public viewpoints; however, a majority of the viewpoints would be enhanced by the proposed program, and scenic quality would increase with the phasing out of oil production facilities and non-native, invasive species, and the restoration of native vegetation and wetland habitat. The proposed program would not substantially obstruct, alter, or degrade the quality of any scenic vistas. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30252: Maintenance and Enhancement of Public Access	Consistent	The proposed program would improve public access and provide visitor amenities through the construction of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, and viewing areas with overlooks, which would serve to provide nonautomotive circulation within the proposed program. In addition, the proposed program would provide adequate parking facilities including new and improved parking facilities within the South Area to accommodate guests going to the visitor center, and parking for the Central Area. Therefore, the proposed program would be consistent with this policy of the CCA.
Section 30253: Minimization of Adverse Impacts	Consistent	The proposed program would be consistent with this policy in that: a) Site preparation would address geologic conditions of the property designed to avoid flooding and fire hazards; b) For the reasons discussed in Section 3.8, *Hydrology and Water Quality*, and Section 3.5, *Geology, Soils, and Paleontological Resources*, the proposed program would not contribute to erosion, geologic instability, or alternation of landforms within the program area; c) The proposed program would obtain permits from SCAQMD and comply with air quality requirements; d) The proposed program would provide access to the Los Cerritos wetlands with new visitors center and public access trail.

TABLE 3.9-1
CONSISTENCY ANALYSIS WITH LOCAL LAND USE PLANS

Goals and Policies	Consistency Determination	Consistency Analysis
Section 30260: Location or Expansion	Consistent	The proposed program provides for the phasing out of oil facilities from wetlands areas that can be preserved and revitalized. The new production sites have been used for industrial activities, including oil production, and are adjacent to other existing industrial uses. Therefore, the proposed program would be consistent with this policy.
Section 30262: Oil and Gas Development	Consistent	Development of the proposed program would occur in accordance with the provisions set forth in CCA Section 30262, including: 1) The proposed activities would be addresses geologic conditions of the property designed to avoid flooding and fire hazards; 2) The proposed program would include consolidation of oil facilities and consolidation would not have an adverse environmental consequences or significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir; 5) The proposed program would not contribute to subsidence hazards as described in Section 3.5, *Geology, Soils, and Paleontological Resources*; 6) As a part of the proposed program, water extracted during the oil production process would be injected back into production zones.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.9.6 Cumulative Impacts

Cumulative impacts occur when effects of a project combine with similar effects from other past, present, or reasonably foreseeable projects in a similar geographic area to result in significant impacts. As described in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, the adopted growth projections used for the cumulative analysis in this PEIR are derived from the SCAG Integrated Growth Forecast of the 2016–2040 RTP/SCS, for the cities of Seal Beach and Long Beach. As discussed above, the proposed program would be consistent with the applicable state, regional and local plans and policies, including the City of Seal Beach General Plan and City of Long Beach General Plan as described above, and, thus, is consistent with the SCAG Integrated Growth Forecast of the 2016–2040 RTP/SCS. Therefore, cumulative impacts with regard to land use would be less than significant.

3.9.7 References

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SECTION 3.10
Mineral Resources

3.10.1 Introduction

This section evaluates the potential for the proposed program to result in adverse impacts related to mineral resources. The analysis is based on review of available reports and maps of the program area and vicinity, relevant regulations, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section analyzes the potential for both program-level and cumulative environmental impacts. All information sources used are included as citations within the text; sources are listed in Section 3.10.7, *References*.

3.10.2 Environmental Setting

Figure 2-1, *Regional Location*, and Figure 2-2, *Project Site and Local Vicinity*, in Chapter 2, *Project Description*, of this PEIR, show the program area, which is comprised of four program areas (North, Central, Isthmus, and South), made up of 17 individual sites. Relative to mineral resources information, the North and Central Areas have been extensively investigated in support of the recently certified in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083).

The program area been used for oil production for nearly 100 years. In 1921, oil was discovered in the Long Beach Oil Field and soon after in the Seal Beach Oil Field. All four program areas currently have oil and/or natural gas producing wells. The current statuses of active, idle, and plugged wells are summarized below in **Table 3.10-1**, *Oil Wells by Site*, and the locations shown in Figure 3.5-3, provided in Section 3.5, *Geology, Soils, and Paleontological Resources*. The active oil fields contain a network of roads, pipelines, and other oil-field-associated infrastructure, which include production wells, reinjection wells, below ground and aboveground pipelines, wastewater disposal and vapor recovery areas, storage tanks, shed, and transformers.

Regarding non-petroleum mineral resources, the program area is located within Mineral Resource Zone 3 (MRZ-3) (CDMG 1982) (see **Figure 3.10-1**, *Mineral Resource Zones*), which is defined as an area containing mineral deposits that have an undetermined significance. The program area is not currently nor has ever been used as a source of aggregate. Given the previous wetlands and marsh nature of the program area, the native alluvial materials would not be considered a viable source of aggregate.

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Synergy Oil Field Site					
Synergy	1	037-06973	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	2	037-06974	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	4	037-06977	Synergy Oil & Gas, LLC	Production	Active
Synergy	5	037-06978	Synergy Oil & Gas, LLC	Wastewater Injection	Plugged
Synergy	6	037-06979	Synergy Oil & Gas, LLC	Production	Idle
Synergy	7	037-06980	Synergy Oil & Gas, LLC	Production	Active
Synergy	12	037-06985	Synergy Oil & Gas, LLC	Production	Active
Synergy	13	037-06986	Synergy Oil & Gas, LLC	Production	Active
Synergy	14	037-06987	Synergy Oil & Gas, LLC	Production	Active
Synergy	22	037-06995	Synergy Oil & Gas, LLC	Production	Active
Synergy	24	037-06997	Synergy Oil & Gas, LLC	Production	Idle
Synergy	26	037-06999	Synergy Oil & Gas, LLC	Wastewater Injection	Plugged
Synergy	28	037-07001	Synergy Oil & Gas, LLC	Production	Active
Synergy	30	037-07003	Synergy Oil & Gas, LLC	Production	Idle
Synergy	32	037-07005	Synergy Oil & Gas, LLC	Production	Idle
Synergy	33	037-07006	Synergy Oil & Gas, LLC	Production	Idle
Synergy	34	037-07007	Synergy Oil & Gas, LLC	Production	Active
Synergy	38	037-07011	Synergy Oil & Gas, LLC	Production	Active
Synergy	40	037-07013	Synergy Oil & Gas, LLC	Production	Idle
Synergy	41	037-07014	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	44	037-07017	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	45	037-07018	Synergy Oil & Gas, LLC	Production	Active
Synergy	46	037-07019	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	47	037-07020	Conoco Inc.	Production	Plugged
Synergy	49	037-07022	Synergy Oil & Gas, LLC	Production	Active
Synergy	50	037-07023	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	51	037-07024	Synergy Oil & Gas, LLC	Production	Active
Synergy	52	037-07025	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	53	037-06351	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	54	037-07126	Synergy Oil & Gas, LLC	Production	Active
Synergy	55	037-07127	Synergy Oil & Gas, LLC	Production	Active
Synergy	56	037-07128	Synergy Oil & Gas, LLC	Production	Active
Synergy	57	037-07129	Synergy Oil & Gas LLC	Production	Active
Synergy	58	037-07130	Synergy Oil & Gas, LLC	Wastewater Injection	Plugged
Synergy	59	037-07131	Synergy Oil & Gas, LLC	Production	Active
Synergy	60	037-07132	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	61	037-07133	Synergy Oil & Gas, LLC	Wastewater Injection	Idle

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Synergy	62	037-07134	Synergy Oil & Gas, LLC	Production	Active
Synergy	65	037-07137	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	67	037-07139	Synergy Oil & Gas, LLC	Wastewater Injection	Plugged
Synergy	69	037-07141	Synergy Oil & Gas, LLC	Production	Active
Synergy	70	037-07142	Synergy Oil & Gas, LLC	Production	Idle
Synergy	72	037-07143	Conoco Inc.	Production	Plugged
Synergy	73	037-05601	Synergy Oil & Gas, LLC	Production, Wastewater Injection	Plugged
Synergy	74	037-07145	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	75	037-07146	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	76	037-07147	Synergy Oil & Gas, LLC	Production	Active
Synergy	77	037-07148	Synergy Oil & Gas, LLC	Production	Active
Synergy	78	037-07149	Synergy Oil & Gas, LLC	Wastewater Injection	Idle
Synergy	79	037-07150	Synergy Oil & Gas, LLC	Production	Plugged
Synergy	81	037-07151	Synergy Oil & Gas, LLC	Production	Active
Synergy	82	037-20684	Synergy Oil & Gas, LLC	Production	Idle
Total No. of Wells (Synergy Oil Field site)	**52**				**22 Active 17 Idle 13 Plugged**
Long Beach City Property Site					
City Property	8	037-06981	Synergy Oil & Gas LLC	Production	Active
City Property	9	037-06982	Synergy Oil & Gas LLC	Production	Plugged
City Property	10	037-06983	Synergy Oil & Gas LLC	Production	Active
City Property	16	037-06989	Synergy Oil & Gas LLC	Production	Active
City Property	17	037-06990	Synergy Oil & Gas LLC	Production	Active
City Property	18	037-06991	Synergy Oil & Gas LLC	Production	Plugged
City Property	19	037-06992	Synergy Oil & Gas LLC	Production	Plugged
City Property	21	037-06994	Synergy Oil & Gas LLC	Production	Idle
City Property	25	037-06998	Synergy Oil & Gas LLC	Production	Active
City Property	27	037-7000	Synergy Oil & Gas LLC	Production, Wastewater Injection	Plugged
City Property	29	037-7002	Synergy Oil & Gas LLC	Production	Plugged
City Property	31	037-7004	Synergy Oil & Gas LLC	Production	Active
City Property	36	037-07009	Synergy Oil & Gas, LLC	Production	Active
City Property	37	037-7010	Synergy Oil & Gas LLC	Production	Plugged
City Property	39	037-7012	Synergy Oil & Gas LLC	Production	Active
City Property	42	037-7015	Synergy Oil & Gas LLC	Production	Active
City Property	43	037-7016	Synergy Oil & Gas LLC	Production	Active
City Property	48	037-7021	Synergy Oil & Gas LLC	Production	Plugged
City Property	64	037-7136	Synergy Oil & Gas LLC	Production	Active
City Property	66	037-7138	Synergy Oil & Gas LLC	Production	Plugged

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
City Property	68	037-7140	Synergy Oil & Gas LLC	Wastewater Injection	Plugged
City Property	80	037-7144	Synergy Oil & Gas LLC	Production	Idle
Total No. of Wells (City Property site)	**22**				**11 Active 2 Idle 9 Plugged**
Termo/Alamitos Bay Partners Site					
Termo	SGI-28	403708504	Alamitos Bay Partners	Production	Active
Termo	SGI-44	403708519	Alamitos Bay Partners	Production	Active
Termo	SGI-52	403708541	Alamitos Bay Partners	Production	Active
Termo	SGI-15	403708530	Alamitos Bay Partners	Production, Wastewater Injection	Plugged
Termo	SGI-41	403708517	Alamitos Bay Partners	Production, Wastewater Injection	Idle
Termo	SGI-1	403708490	Alamitos Bay Partners	Production	Plugged
Total No. of Wells Termo Site)	**6**				**3 Active, 1 Idle, 2 Plugged**
Pumpkin Patch Site					
Pumpkin Patch	11	037-06984	Synergy Oil & Gas, LLC	Production	Active
Pumpkin Patch	20	037-06993	Synergy Oil & Gas, LLC	Production	Plugged
Total No. of Wells (Pumpkin Patch Site)	**2**				**1 Active, 1 Plugged**
Central Bryant Site					
Central Bryant	8	403707997	Shell Western E&P Inc.	Production	Plugged
Central Bryant	10	403707999	Shell Western E&P Inc.	Production	Plugged
Total No. of Wells (Central Bryant Site)	**2**				**2 Plugged**
Central LCWA Site					
Central LCWA	1	403708566	Signal Hill Petroleu	Production	Active
Central LCWA	1	403708485	Chevron U.S.A. Inc.	Production	Plugged
Central LCWA	1	403706954	Asphalt Petro. Co.	Production	Plugged
Central LCWA	2	403708567	Signal Hill Petroleum	Production	Plugged
Central LCWA	2	403708486	Chevron U.S.A. Inc.	Production	Plugged
Central LCWA	3	403708568	Signal Hill Petroleum	Production	Active
Central LCWA	4	403708569	Signal Hill Petroleum	Production	Active
Central LCWA	4	403707993	Shell Western E&P Inc.	Production	Plugged
Central LCWA	7	403708572	Signal Hill Petroleum	Production	Plugged
Central LCWA	11	403708000	Shell Western E&P Inc.	Production	Plugged
Central LCWA	12	403708575	Signal Hill Petroleum	Production	Active
Central LCWA	14	403718803	Signal Hill Petroleum	Production	Plugged
Central LCWA	15	403718818	Signal Hill Petroleum	Production	Plugged

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Central LCWA	25	403718810	Signal Hill Petroleum	Production	Plugged
Central LCWA	26	403718811	Signal Hill Petroleum	Production	Active
Central LCWA	27	403718812	Signal Hill Petroleum	Production	Plugged
Central LCWA	28	403718813	Signal Hill Petroleum	Production	Active
Central LCWA	29	403718814	Signal Hill Petroleum	Production	Plugged
Central LCWA	30	403718815	Signal Hill Petroleum	Production	Active
Central LCWA	31	403718819	Signal Hill Petroleum	Injection	Plugged
Central LCWA	5N	403707994	Signal Hill Petroleum	Production	Plugged
Total No. of Wells (Central LCWA Site)	**21**				**7 Active, 14 Plugged**
Isthmus LCWA Site					
Isthmus LCWA Site	6	403708571	Signal Hill Petroleum	Production	Plugged
Isthmus LCWA Site	10	403708573	Signal Hill Petroleum	Production	Plugged
Isthmus LCWA Site	13	403718802	Signal Hill Petroleum	Production	Plugged
Isthmus LCWA Site	16	403718804	Signal Hill Petroleum	Production	Plugged
Isthmus LCWA Site	18	403718805	Signal Hill Petroleum	Injection	Active
Isthmus LCWA Site	24	403718809	Signal Hill Petroleum	Injection	Active
Isthmus LCWA Site	32	403700340	Signal Hill Petroleum	Production, Wastewater Injection	Plugged
Isthmus LCWA Site	33	403718816	Signal Hill Petroleum	Production	Active
Isthmus LCWA Site	34	403718817	Signal Hill Petroleum	Production	Active
Total No. of Wells (Isthmus LCWA Site)	**9**				**4 Active, 5 Plugged**
Isthmus Bryant Site					
Isthmus Bryant Site	7	403707996	Shell Western E&P Inc.	Production	Plugged
Total No. of Wells (Isthmus Bryant Site)	**1**				**1 Plugged**
Zedler Marsh Site					
Zedler Marsh Site	1	403707990	Shell Western E&P Inc.	Production	Plugged
Zedler Marsh Site	5	403708570	Signal Hill Petroleum,	Production	Plugged
Zedler Marsh Site	11	403708574	Signal Hill Petroleum	Production	Plugged
Zedler Marsh Site	21	403718806	Chevron U.S.A. Inc.	Production	Plugged
Zedler Marsh Site	22	403718807	Signal Hill Petroleum	Production	Plugged

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Zedler Marsh Site	23	403718808	Signal Hill Petroleum	Production	Plugged
Zedler Marsh Site	35	403706396	Signal Hill Petroleum	Production	Plugged
Total No. of Wells (Zedler Marsh Site)	**7**				**7 Plugged**
Haynes Cooling Channel					
Haynes Cooling Channel	1	403708565	Shell Western E&P Inc.	Production	Plugged
Haynes Cooling Channel	2	403707991	Shell Western E&P Inc.	Production	Plugged
Total No. of Wells (Haynes Cooling Channel)	**2**				**2 Plugged**
Los Alamitos Pump Station Site					
Los Alamitos Pump Station Site	6	403707995	Shell Western E&P Inc.	Production	Plugged
Total No. of Wells (Los Alamitos Pump Station Site)	**1**				**1 Plugged**
South LCWA Site					
South LCWA Site	1	405920817	Hellman Properties LLC	Injection	Plugged
South LCWA Site	2	405907912	Hellman Properties LLC	Injection	Plugged
South LCWA Site	16	405904268	Hellman Properties LLC	Production	Plugged
South LCWA Site	17-A	405904271	Hellman Properties LLC	Production	Plugged
Total No. of Wells (South LCWA Site)	**4**				**4 Plugged**
Hellman Retained					
Hellman Retained	1	405907017	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	1	405920291	Conoco Inc.	Production	Plugged
Hellman Retained	1	405904651	Hellman Properties LLC	Production	Active
Hellman Retained	2	405904252	Hellman Properties LLC	Production	Active
Hellman Retained	3	405904253	Hellman Properties LLC	Production	Plugged
Hellman Retained	3	405904652	Conoco Inc.	Production	Plugged
Hellman Retained	4	405904255	Hellman Properties LLC	Production	Active
Hellman Retained	5	405904256	Hellman Properties LLC	Production	Active
Hellman Retained	6	405904257	Hellman Properties LLC	Production	Active
Hellman Retained	7	405904258	Hellman Properties LLC	Production	Active
Hellman Retained	8	405904259	Hellman Properties LLC	Production	Idle
Hellman Retained	9	405904260	Hellman Properties LLC	Production	Active
Hellman Retained	10	405904261	Hellman Properties LLC	Production	Active
Hellman Retained	11	405904263	Hellman Properties LLC	Production	Active

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Hellman Retained	12	405904264	Hellman Properties LLC	Production	Active
Hellman Retained	13	405904265	Hellman Properties LLC	Production	Idle
Hellman Retained	14	405904266	Hellman Properties LLC	Production	Idle
Hellman Retained	15	405904267	Hellman Properties LLC	Production	Active
Hellman Retained	18	405904272	Hellman Properties LLC	Production	Active
Hellman Retained	19	405904273	Hellman Properties LLC	Production	Active
Hellman Retained	20	405904274	Hellman Properties LLC	Production	Idle
Hellman Retained	21	405904275	Hellman Properties LLC	Production	Active
Hellman Retained	22	405904251	Hellman Properties LLC	Production	Idle
Hellman Retained	23	405904653	Hellman Properties LLC	Production	Idle
Hellman Retained	24	405904654	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	25	405904655	Hellman Properties LLC	Production	Active
Hellman Retained	26	405904656	Hellman Properties LLC	Production	Active
Hellman Retained	27	405904657	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	28	405904658	Hellman Properties LLC	Production	Idle
Hellman Retained	29	405904659	Hellman Properties LLC	Production	Active
Hellman Retained	30	405904660	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	31	405904661	Hellman Properties LLC	Production	Active
Hellman Retained	32	405904662	Hellman Properties LLC	Production	Active
Hellman Retained	33	405904663	Hellman Properties LLC	Production	Active
Hellman Retained	34	405904664	Hellman Properties LLC	Production	Active
Hellman Retained	35	405904665	Hellman Properties LLC	Production	Active
Hellman Retained	36	405904666	Hellman Properties LLC	Production	Active
Hellman Retained	37	405904667	Hellman Properties LLC	Production	Active
Hellman Retained	38	405904668	Hellman Properties LLC	Production	Active
Hellman Retained	39	405904669	Hellman Properties LLC	Production	Active
Hellman Retained	40	405904670	Hellman Properties LLC	Production, Wastewater Injection	Idle
Hellman Retained	41	405904671	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	42	405904672	Hellman Properties LLC	Production	Active
Hellman Retained	43	405904673	Hellman Properties LLC	Production	Active
Hellman Retained	44	405904674	Hellman Properties LLC	Production	Active
Hellman Retained	45	405904675	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	46	405907001	Hellman Properties LLC	Injection	Plugged
Hellman Retained	47	405907002	Hellman Properties LLC	Production, Wastewater Injection	Idle
Hellman Retained	48	405907003	Hellman Properties LLC	Production	Idle
Hellman Retained	49	405907004	Hellman Properties LLC	Production	Active
Hellman Retained	50	405907005	Hellman Properties LLC	Production	Active
Hellman Retained	59	405907014	Hellman Properties LLC	Production	Active
Hellman Retained	60	405907015	Hellman Properties LLC	Production	Active

TABLE 3.10-1
OIL WELLS BY SITE

Site	Well No.	API Number	Operator	Well Type	Well Status
Hellman Retained	61	405907016	Hellman Properties LLC	Production	Plugged
Hellman Retained	62	405921233	Hellman Properties LLC	Production	Active
Hellman Retained	63	405921289	Hellman Properties LLC	Production	Idle
Hellman Retained	64	405921290	Hellman Properties LLC	OG	Active
Hellman Retained	10A	405904262	Hellman Properties LLC	OG	Active
Hellman Retained	17-X1	405904269	Hellman Properties LLC	Production, Wastewater Injection	Active
Hellman Retained	3A	405904254	Hellman Properties LLC	OG	Active
Total No. of Wells (Hellman Retained Site)	**62**				**46 Active 11 Idle 5 Plugged**

NOTES:
Idle wells have regulatory approval for operation and are physically capable of active production, although they were not active at the time this table was prepared. Currently, water produced during oil extraction operations is conveyed into the sewer system.
CalGEM well statuses are occasionally not up to date.
SOURCE: CalGEM 2019; ESA 2017; Arcadis 2018

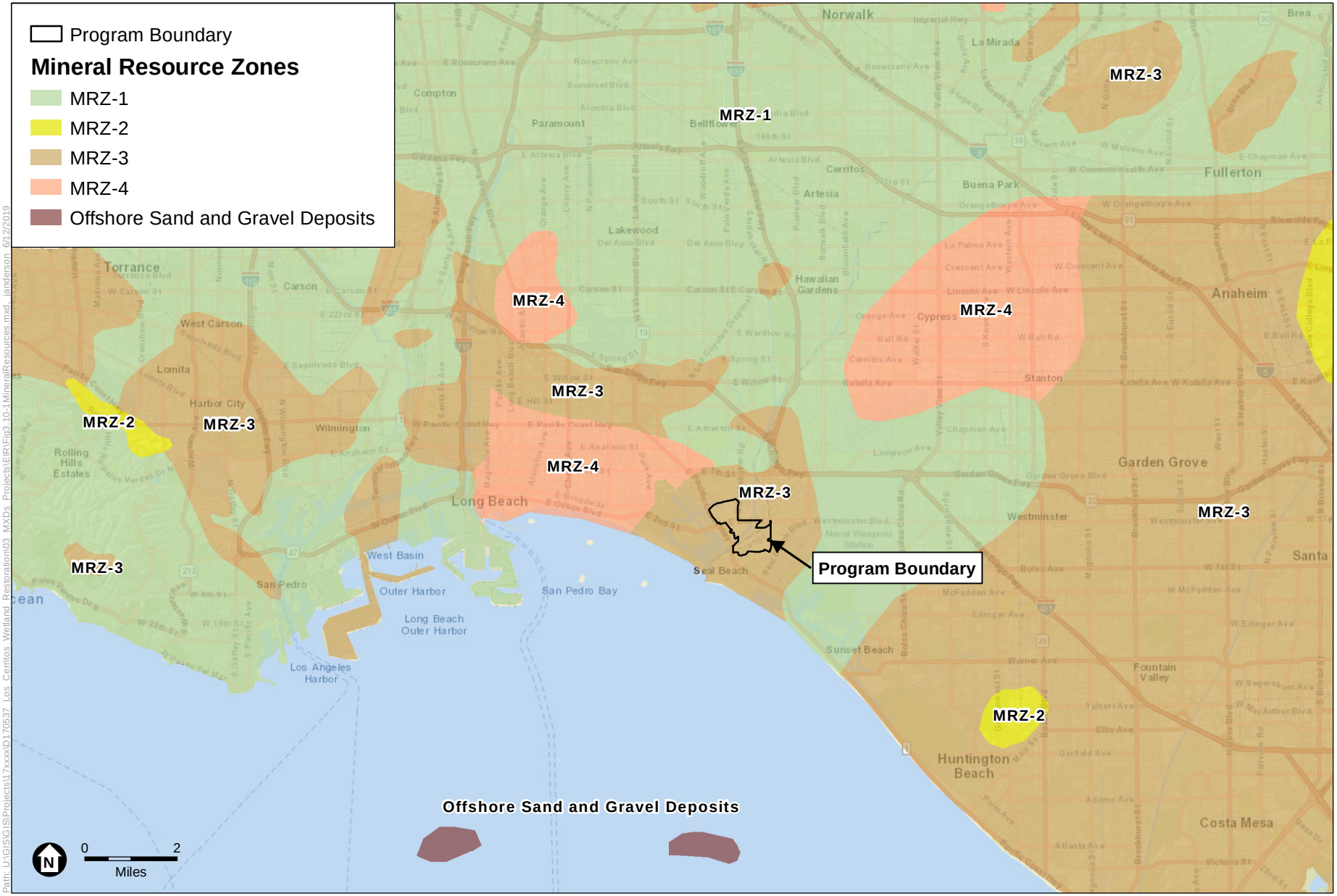
3.10.3 Regulatory Framework

3.10.3.1 State

Division of Oil, Gas, and Geothermal Resources

All California oil and gas wells on state and private lands are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by California Geologic Energy Management Division (CalGEM) [formerly known as Division of Oil, Gas, and Geothermal Resources (DOGGR)]. Regulated facilities include development and prospect wells, enhanced-recovery wells, water-disposal wells, service wells (i.e., structure, observation, temperature observation wells), core-holes, and gas-storage wells. The requirements are applicable to both onshore and offshore wells, with offshore wells being defined as well facilities located within 3 nautical miles of the coastline.

Regulations pertaining to oil and natural gas production are summarized in CalGEM Publication No. PRC10, *California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*, dated January 2017 (CalGEM 2017). Regulations for the installation and abandonment of oil and natural gas wells are codified in 14 CCR Sections 1712 through 1724.10. Environmental protection regulations for oil and natural gas well installations, operations, and abandonments are codified in 14 CCR Sections 1750 through 1789.



SOURCE: ESRI; California Division of Mines and Geology 1982

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.10-1
Mineral Resource Zones

ESA

California Geological Survey Mineral Land Classification

For non-fuel mineral resources, the California Geological Survey (CGS) produces mineral land classification maps and reports based on economic and geologic expertise. CGS-identified MRZs are defined as follows:

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** Areas containing mineral deposits; the significance of which cannot be evaluated from available data.
- **MRZ-4:** Areas where available information is inadequate for assignment to any other MRZ.

3.10.3.2 Local

City of Seal Beach Municipal Code

Oil and gas extraction activities in the City of Seal Beach are regulated by the Seal Beach Public Works Department. Relevant municipal codes are provided below.

Chapter 5.55 Oil and Gas Production

5.55.075 Permit Requirement. It shall be unlawful and a nuisance for any person hereafter to conduct any drilling operations for a well hole or hereafter to drill and produce any oil and gas well or well hole in the surface or subsurface of the city from any drill site without first having applied for and obtained from the city council an oil/gas production permit. (Ord. 1515)

5.55.090 Operation Standards. Drilling shall be conducted in accordance with the following operation standards:

I. The operation of any oil and gas well and production therefrom drilled pursuant to an oil/gas production permit shall be in accordance with the rules and regulations of the Division of Oil and Gas of the state, or any successor agency or body thereto.

Long Beach Gas & Oil Department

Oil and gas extraction activities in the City of Long Beach are regulated by the Long Beach Gas & Oil Department. This department manages the City's oil interests and subsidence control measures. Relevant municipal codes are provided below.

Title 12. Oil Production Regulations

Chapter 12.12.050: Drilling Permit—Application Contents. This chapter describes the requirements for oil well drilling permits, which include setbacks from specific facilities, drilling procedures, operations procedures, and a certification that the means or method by which liquid spills will be removed from diked areas or catchment basins will conform to the regulations of the DOGGR.

Chapter 12.16.050: Consolidated Drill Site Plans. This chapter describes locations exemption to encourage the consolidation of oil drilling surface facilities to make additional land available for non-oil production land uses.

Chapter 12.36.010: Abandonment Procedure. This chapter describes the permit requirements for well abandonment, including compliance with DOGGR regulations, the removal of all unused equipment, the cleaning out of all sumps, cellars, and ditches of all oil, oil residue, drilling fluid, and rubbish removed therefrom and the sumps, cellars, and ditches leveled or filled, all in accordance with the DOGGR regulations. Where such sumps, cellars, and ditches are lined with concrete, permittee shall cause the walls and bottoms to be broken up and removed and shall cause the premises to be cleaned and graded and left entirely free of oil, rotary mud, oil-soaked earth, asphalt, tar, concrete, litter, debris, and other substances, and left in a clean and neat condition, all to the satisfaction of the DOGGR.

Title 12. Oil Production Regulations

12.08.020. Permit required: Except as provided in this Chapter, no petroleum operations shall be carried on in any of the areas set out in this Chapter until a permit, as provided for in this Code, has been applied for and issued therefor.

3.10.4 Significance Thresholds and Methodology

This section describes the impact analysis relating to mineral resources for the proposed program. It describes the methods and applicable thresholds used to determine the impacts of the proposed program.

3.10.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on mineral resources if it would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

3.10.4.2 Methodology

This impact section assesses potential impacts related to mineral resources based on the potential for the proposed program to impact the accessibility or availability of mineral resources, using existing site conditions as a baseline for comparison. The potential for impacts to mineral resources is analyzed using available data from CalGEM, the CGS, and the proposed program that would include the plugging and abandonment of existing wells and the installation and consolidation of oil wells on the Pumpkin Patch site and all of the LCWA sites, as described in Chapter 2, *Project Description*, of this PEIR. In addition, the severity and significance of mineral resources impacts are analyzed in the context of existing mineral resource regulations and policies.

For purposes of this analysis, construction and operational activities are analyzed together. As described in Chapter 2, *Project Description*, of this PEIR, the proposed future for oil production operations is summarized as follows:

- **South, Central, and Isthmus Area:** In the short-term, oil production would continue in each well until oil production decreases to below economic levels. Thus, over the long-term, the oil

wells and associated oil production infrastructure would be phased out. Oil wells would be plugged and the associated infrastructure including pipelines would be removed. The work involved in phasing out oil production is discussed under the heading Oil Well Abandonment in Section 2.7.5, *Implementation and Restoration Process, Implementation Methods*, in Chapter 2, *Project Description*, and in Impact HAZ-1 in Section 3.7, *Hazards and Hazardous Materials*.

- **North Area, Synergy Site:** In the short-term, oil production on the Synergy and Long Beach City Property sites would continue until the oil supply is extracted to below economic levels. As production from oil wells drops to below economic levels, unproductive oil wells would be plugged and associated oil production infrastructure would be removed. New oil wells and associated infrastructure would be consolidated on the Pumpkin Patch site. The plugging, relocation, and consolidation of oil production on the Synergy, Long Beach City Property, and Pumpkin Patch sites were previously evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) will not be further evaluated in this PEIR.
- **North Area, Termo Site:** For the existing oil production operations on the Termo site operated by Alamitos Bay Partners site, oil production would be phased out in the long-term, with wells plugged and associated infrastructure removed to allow for restoration of the Termo site. A removal and restoration timeline has not yet been set. The work involved in abandoning oil wells is discussed under the heading Oil Well Abandonment in Section 2.7.5, *Implementation and Restoration Process, Implementation Methods*, in Chapter 2, *Project Description*, and in Impact HAZ-1 in Section 3.7, *Hazards and Hazardous Materials*.

As noted earlier in Section 3.10.2, *Environmental Setting*, pursuant to CGS maps, the program area is located within MRZ-3, which is defined as an area containing mineral deposits that have an undetermined significance. As no other mineral resource extraction activities other than oil and natural gas production have been conducted on any of the four individual program areas that comprise the program area, and no mineral resources other than petroleum hydrocarbon resources have been identified or encountered over the long history of oil production activities on the program area, non-petroleum mineral resources are not analyzed further.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to mineral resources were identified.

3.10.5 Program Impacts and Mitigation Measures

Impact MIN-1: The proposed program would result in a significant impact if the proposed program would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Oil production would continue on the Central, Isthmus, and South Areas until the production decreases to below economic levels. Once the oil production ceases, the oil wells would be plugged and the associated infrastructure would be removed. By that time, the economic mineral resources (petroleum) will have been removed and no economic resources would remain accessible at these locations. Therefore, there would be no impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

3.10.6 Cumulative Impacts

As previously discussed, the proposed program would have no impact with respect to the availability of mineral resources. Accordingly, the proposed program could not contribute to cumulative impacts related to mineral resources and is not discussed further.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

3.10.7 References

Arcadis. 2018. *Site Investigation Report, Termo, APN 7237022012, 6301 Pacific Coast Highway, Long Beach, California*, January 24.

California Geologic Energy Management Division (CalGEM), 2017. *Publication No. PRC10, California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*, January.

California Division of Mines and Geology (CDMG). 1982. *Mineral Land Classification of the Greater Los Angeles Area, Part IV: Classification of Sand and Gravel Resource Areas, San Gabriel Valley and Production-Consumption Region*. Special Report 143, Part IV.

Los Angeles County. 2014. *Los Angeles County General Plan*. Mineral Resources: Figure 9.6, May. Available at http://planning.lacounty.gov/assets/upl/project/gp_2035_2014-FIG_9-6_mineral_resources.pdf, accessed on February 7, 2017.

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SECTION 3.11
Noise

3.11.1 Introduction

This section evaluates the potential for the proposed program to result in adverse noise and vibration impacts related to noise and vibration sensitive receptors. The analysis includes noise and vibration regulations applicable to the proposed program, and the impact analysis methodology and thresholds used to determine whether the proposed program would result in significant noise and vibration impacts. This section identifies the potential for both program-level and cumulative environmental impacts to occur, as well as, feasible mitigation measures that would minimize or avoid noise and vibration impacts from the proposed program. Potential noise impacts to noise-sensitive wildlife species and their habitat are discussed in Section 3.3, *Biological Resources*. The noise and vibration analysis presented in this section is based on the *Los Cerritos Wetlands Restoration Program, Noise and Vibration Technical Report* (ESA 2019), which is included as Appendix K to this PEIR. All information sources used are included as citations within the text; sources are listed in Section 3.11.7, *References*.

3.11.1.1 Noise Fundamentals

Noise Principals and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the theoretical threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but

rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The typical human ear is not equally sensitive to this frequency range. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements. Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in **Table 3.11-1**, *Decibel Scale and Common Noise Sources*.

TABLE 3.11-1
TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at 3 feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

SOURCE: Caltrans, 2013a.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time; a noise level is a measure of noise at a given instant in time, as presented in Table 3.11-1. However, noise levels rarely persist at that level over a long period of time. Rather, community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many of the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time, which are applicable to the proposed program.

L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour ($L_{eq(1)}$). The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10 p.m. to 7 a.m. to account for nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

CNEL: The Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day that includes an addition of 5 dB to measured noise levels between the hours of 7 a.m. to 10 p.m. and an addition of 10 dB to noise levels between the hours of 10 p.m. to 7 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

Subjective effects (e.g., dissatisfaction, annoyance);

Interference effects (e.g., communication, sleep, and learning interference);

Physiological effects (e.g., startle response); and

Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Activities most affected by noise include rest, relaxation, recreation, study, and communications.

With regard to the subjective effects, the individuals' responses to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which a person has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived.

Outside of the laboratory, a 3 dBA change in ambient noise levels is considered to be a barely perceivable difference.

A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference.

A change in ambient noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the dB scale. The human ear perceives sound in a non-linear fashion; therefore, the dBA scale was developed. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.

Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet, etc.). Hard sites, such as asphalt or concrete surfaces or smooth bodies of water, act as a reflective surface between the source and the receiver. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement. Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels (Caltrans 2013a).

3.11.1.2 Vibration Fundamentals

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source.

In contrast to airborne noise, groundborne vibration is not a common environmental problem, as it is unusual for vibration from sources, such as buses and trucks, to be perceptible to humans, even in proximity to major roads. Some common sources of groundborne vibration are train movement, heavy trucks traveling on rough roads, and construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the

source of the vibration. Vibration sensitive receptors include buildings where vibration would interfere with operations or equipment within the building or cause structural damage (especially older masonry structures), or annoy people within the building.

Vibration can potentially cause structural damage to buildings, however, vibration is not a factor for most projects, with the exception of rock blasting or pile-driving during construction, or when operating heavy construction equipment adjacent to buildings. Annoyance from vibration often occurs when the vibration levels exceed the threshold of human perception by only a small margin. A vibration level that causes annoyance would be well below the structural damage threshold for modern buildings.

Vibration levels are typically quantified as the peak particle velocity (PPV) defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec) and used to determine vibration impacts to buildings, as well as, to humans.

3.11.2 Environmental Setting

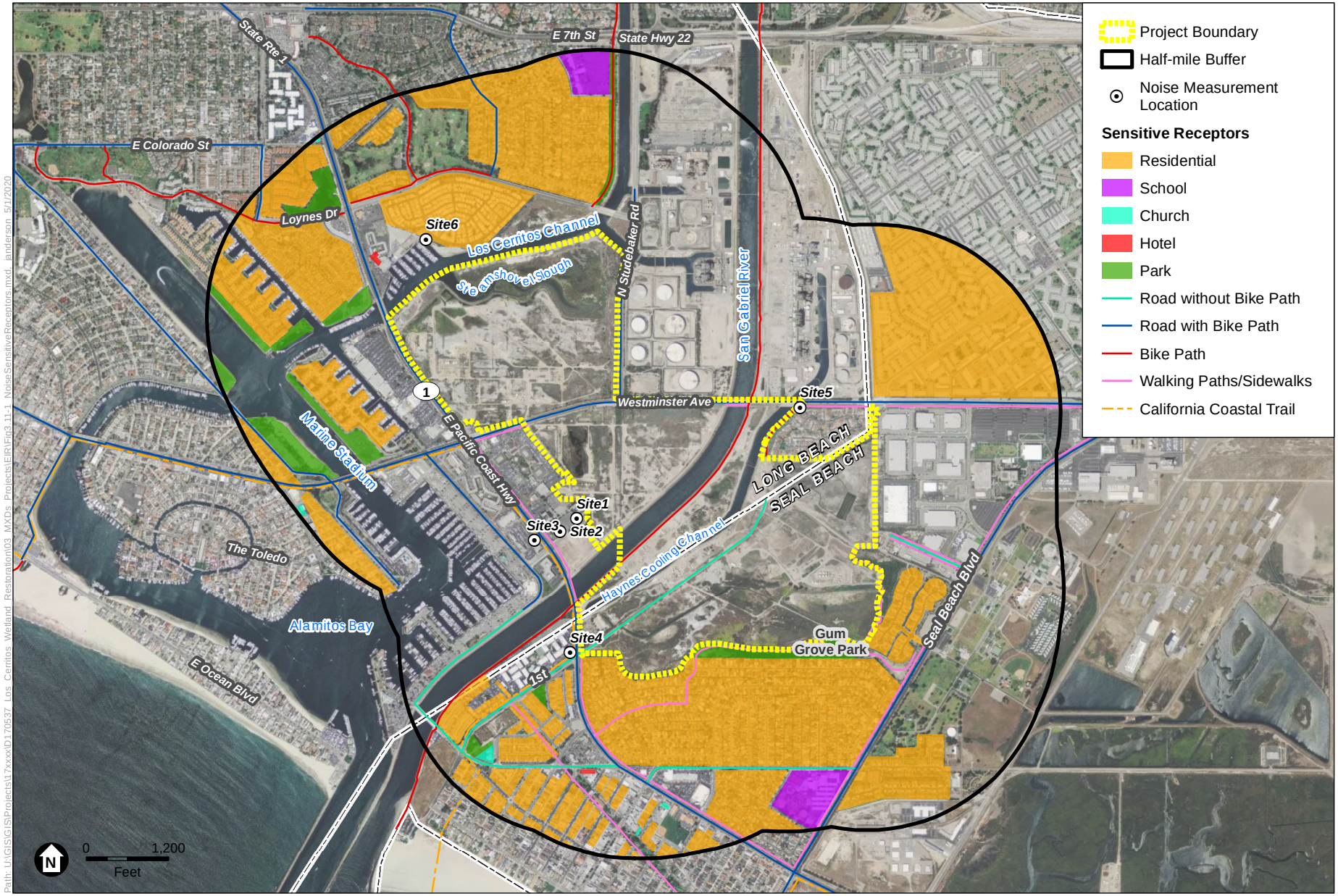
3.11.2.1 Noise-Sensitive Receptors

Certain land uses can be more sensitive to noise than other land uses based on the types of activities typically conducted at the land use (i.e., land uses for sleeping, concentration, and convalescence are considered noise sensitive). Therefore, people at residences, motels and hotels, schools, libraries, religious facilities, hospitals, nursing homes, natural areas, parks, and other passive outdoor recreation areas are generally more sensitive to noise than people at commercial and industrial land uses. Consequently, noise standards for noise-sensitive land uses are more stringent than for those less-sensitive uses.

The land uses of the program area are mainly vacant and industrial uses. Noise-sensitive receptors located in the program area are associated with passive recreational areas of the San Gabriel River Trail, which bisects the program area east-west along the southern bank of the San Gabriel River; the outdoor recreation amenities at Zedler Marsh; the fishing area at the Haynes Cooling Channel; and the boating and kayaking opportunities at the Los Cerritos Channel. The areas surrounding the program area are industrial, commercial, parks and open space, and single- and multifamily residential. The existing noise-sensitive land uses within 500 feet of the program area boundary include residences, Gum Grove Park, and bicycle and pedestrian trails, with two elementary schools within a one-half mile. **Figure 3.11-1**, *Noise-Sensitive Receptors*, illustrates the program area and its immediate surrounding land uses.

3.11.2.2 Vibration-Sensitive Receptors

Typically, groundborne vibration generated by anthropogenic activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source. FTA uses a screening distance of 50 feet for residential uses and schools; when inhabited buildings are within 50 feet from a project site with non-impact construction activities (i.e., no pile driving), detailed vibration impact analysis is required.



SOURCE: Mapbox, LCWA

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Figure 3.11-1
Noise Sensitive Receptors

ESA

There are no existing inhabited structures located within the program area. Outside of the program area boundary, there are no inhabited structures within 50 feet of the proposed operation of heavy equipment (e.g., bulldozer) for restoration activities in the program area. The nearest inhabited structures are located at distances greater than 50 feet from the operation of heavy equipment for restoration activities within the program area.

3.11.2.3 Ambient Noise Levels

The existing noise sources of the program area include primarily the operating oil wells, and in surrounding areas, vehicle traffic on adjacent roadways. Secondary noise sources of surrounding areas include general residential-related activities, such as landscaping; and commercial-related activities, such as loading dock/delivery truck activities, trash compaction, and refuse service activities.

Ambient noise measurements were previously conducted at commercial and residential uses in proximity to the program area in 2017 for the *Los Cerritos Wetland Oil Consolidation and Restoration Project* (Greve & Associates 2017). The noise measurements were short-term (15-minute duration), conducted to characterize the existing ambient noise environment at residences and commercial facilities. Overall, the average noise level measurements ranged from 50.1 to 71.1 dBA L_{eq} based on proximity of the measurement locations to various noise sources, primarily vehicle traffic on area roadways. Measurements at residences, as shown on Figure 3.11-1, included:

> 71.1 dBA L_{eq} at Site 5 represents the housing development southeast of the LCWA site, the loudest of the sites measured. Noise sources were vehicle traffic on 2nd Street including trucks and motorcycles, and the operating power plant across 2nd Street from the housing development producing a continuous noise level of 55 to 60 dBA.
>
> 50.1 dBA L_{eq} at Site 6 represents the mobile home park, the quietest of the six sites measured. Noise sources were distant vehicle traffic on Pacific Coast Highway, nearby chirping birds, and occasional aircraft flyovers.

3.11.3 Regulatory Framework

3.11.3.1 Federal

There are no federal noise or vibration standards that directly regulate environmental noise and vibration related to the construction or operation of the proposed program. FTA provides vibration criteria to evaluate potential vibration impacts of structural damage to buildings and human annoyance, similar to the California Department of Transportation (Caltrans) vibration criteria, which is provided below.

3.11.3.2 State

There are no state noise or vibration standards that directly regulate environmental noise and vibration related to the construction or operation of the proposed program. However, the Caltrans *Transportation and Construction Vibration Guidance Manual* (Caltrans 2013b) provides vibration criteria to evaluate potential vibration impacts of building structural damage and human annoyance

from project construction and operation, depending upon transient or continuous/frequent intermittent sources, as shown in **Table 3.11-2**, *Caltrans Vibration Damage Potential Threshold Criteria*, and **Table 3.11-3**, *Caltrans Vibration Annoyance Potential Criteria*, respectively.

TABLE 3.11-2
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile-drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
SOURCE: Caltrans, 2013b.

As shown in Table 3.11-2, the vibration damage potential criteria from transient vibration sources (i.e., the operation of heavy equipment for program restoration) to various types of buildings, ranges from 0.12 in/sec PPV for extremely fragile historic buildings, ruins and ancient monuments to 2.0 in/sec PPV or higher for modern industrial/commercial buildings, and for old to new residential structures at 0.50 to 1.0 in/sec PPV, respectively.

TABLE 3.11-3
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile-drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
SOURCE: Caltrans, 2013b.

As shown in Table 3.11-3, the vibration annoyance potential criteria from transient sources ranges from 0.04 in/sec PPV for “barely perceptible” at to 2.0 in/sec PPV for “severe.”

3.11.3.3 Local

Local noise regulation involves implementation of the noise goals and policies of the noise element of the General Plan, and the noise standards of the noise ordinance. The proposed program is located in the cities of Seal Beach and Long Beach; therefore, the General Plan Noise Element and Noise Ordinance for the cities of Seal Beach and Long Beach are applicable to the proposed program.

City of Seal Beach

General Plan, Noise Element

The Noise Element of the City of Seal Beach General Plan (City of Seal Beach, 2003), identifies residences as the most noise-sensitive land use in Seal Beach. Additionally, the City of Seal Beach has a number of public and private educational facilities that are considered noise sensitive. The Noise Element includes the Plan for Control and Management of Noise, of which Issue 3, Community Noise Control for Non-Transportation Noise Sources, requires construction activity to comply with the limits established in the City of Seal Beach Noise Ordinance.

Municipal Code, Noise Ordinance

City of Seal Beach Municipal Code, Chapter 7.15 represents the City of Seal Beach Noise Ordinance, which establishes noise criteria for noise that impacts adjacent properties. Similar to the City of Long Beach Noise Ordinance, the City of Seal Beach Noise Ordinance provides noise level limits for L_{max} (the maximum noise level) and L_{eq} (the hourly average noise level). The noise levels allowed by the City of Seal Beach Noise Ordinance are listed below by land use zone in **Table 3.11-4**, *City of Seal Beach Noise Ordinance Criteria*.

TABLE 3.11-4
CITY OF SEAL BEACH NOISE ORDINANCE CRITERIA

Time Period	L_{max}	L_{eq}
Zone 1 (Residential)		
Daytime (7 a.m. to 10 p.m.)	75	55
Nighttime (10 p.m. to 7 a.m.)	70	50
Zone 2 (Commercial)		
Anytime	85	65
Zone 3 (Industrial)		
Anytime	90	70

SOURCE: City of Seal Beach, 2016.

As shown in Table 3.11-4, greater noise levels are allowed during the daytime period (7 a.m. to 10 p.m.) as compared to the nighttime period (10 p.m. to 7 a.m.). Of note is that the City of Seal Beach's Noise Ordinance criteria, are 5 dB less stringent for residential districts/zones (i.e., District/Zone 1) than the City of Long Beach Noise Ordinance criteria, as previously shown in Table 3.11-2. If the ambient noise level is higher than the criteria levels shown in Table 3.11-3,

then the City of Seal Beach Noise Ordinance Section 7.15.015C allows the noise level limits to be increased to the ambient noise level.

City of Seal Beach's Noise Ordinance Section 7.15.025E exempts noise generated by construction activities during certain hours depending on the day of the week. Construction is exempt between 7 a.m. and 8 p.m. on weekdays, and on Saturdays between 8 a.m. and 8 p.m. On Sundays, construction is prohibited all day.

City of Long Beach

General Plan, Noise Element

The Noise Element of the City of Long Beach General Plan (City of Long Beach, 1975) identifies an interior noise goal of 45 L_{dn} for residential uses, but does not identify standards for other land uses. The City of Long Beach is in the process of updating its General Plan with an updated Noise Element (City of Long Beach 2019) with the goal of providing a tailored approach to noise policy across Long Beach neighborhoods. The updated Noise Element will contain a set of goals, policies, and implementation measures to limit noise exposure, particularly in areas with nearby housing, hospital, school or day care center uses.

Municipal Code, Noise Ordinance

Long Beach Municipal Code (LBMC) Chapter 8.80 represents the City's Noise Ordinance, which governs construction and operational noise. Section 8.80.202, Construction Activity, regulates construction noise and exempts noise generated by construction activities during daytime hours depending on the day of the week. Construction is prohibited between 7 p.m. and 7 a.m. on weekdays and federal holidays. On Saturdays, construction is prohibited between 7 p.m. on Friday and 9 a.m. on Saturday, and after 6 p.m. on Saturday. On Sundays, construction is prohibited all day.

Chapter 8.80 also governs operational noise generated on one property, potentially impacting an adjacent property. The City of Long Beach Noise Ordinance establishes operational noise criteria of allowable noise levels for percentages of an hour over a given time of day period within a land use district as shown on the Noise District Map provided in the City of Long Beach Noise Ordinance. The program area is located within District 1 and District 4. The noise levels allowed by the City of Long Beach's Noise Ordinance for Districts 1 and 4 are listed in **Table 3.11-5**, *City of Long Beach Noise Ordinance Criteria*.

TABLE 3.11-5
CITY OF LONG BEACH NOISE ORDINANCE CRITERIA

Time Period	L_{max}	L_{leq}
District 1		
Daytime (7 a.m. to 10 p.m.)	70	50
Nighttime (10 p.m. to 7 a.m.)	65	45
District 4		
Anytime	90	70

SOURCE: City of Long Beach, 2016.

As shown in Table 3.11-5, higher noise level limits are allowed during the daytime (7 a.m. to 10 p.m.) as compared to the more noise-sensitive nighttime period (10 p.m. to 7 a.m.). If a location is on a boundary between two different districts, the applicable noise level limit is the arithmetic mean of the two districts. The noise level limits are provided by district for the day- and nighttime periods as L_{max} (the maximum noise level) and L_{eq} (the hourly average noise level). District 1 includes the Northern Synergy Oil Field, Southern Synergy Oil Field, Alamitos Bay Partners, Pumpkin Patch, and Long Beach City Property sites (which is generally defined predominantly residential with other land use types also present), and District 4 includes the Central LCWA and Bryant sites (which is generally defined as predominantly industrial with other land types use also present). City of Long Beach Noise Ordinance Section 8.80.150C allows for adjustments to the noise criteria if the existing ambient noise level is higher than criteria levels, where, the limits should be increased in 5 dB increments as necessary to encompass the ambient noise level.

3.11.4 Significance Thresholds and Methodology

3.11.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on noise resources if it would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b. Generation of excessive groundborne vibration or groundborne noise levels; or

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

3.11.4.2 Methodology

Noise

The evaluation of noise impacts is based on the development assumptions for the proposed program, as described in Chapter 2, *Project Description*, of this PEIR. The proposed program would include the remediation of contaminated soil and groundwater, soil grading, revegetation, construction of new public access opportunities (including trails, a visitor center and parking lot, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities.

Implementation of the proposed program would generate noise primarily from program construction, and to a lesser degree, the operation of constructed facilities on the program area (i.e., visitor center), with minimal construction and operational-related traffic generated on local roadways. The primary sources of construction noise associated with the proposed program would be construction activities within the program area and construction-related traffic volumes

generated by daily worker commuting trips, and the truck trip for the transport of construction equipment and materials.

On-site construction noise impacts were evaluated by determining the noise levels generated by the different types of construction activity anticipated, calculating the construction-related noise levels produced by the mix of equipment assumed for all construction activities at the source and at nearby sensitive receptor locations. Estimated noise levels generated by program construction activities and operational sources were compared to the applicable noise standards and thresholds of significance of the applicable city noise ordinances in Section 3.11.3, *Regulatory Framework*. For construction noise, the noise ordinances of both cities set allowable hours of construction in which construction activities are exempt from noise regulations; however, the Cities' noise ordinances do not establish construction noise level limits. For operational noise, established criteria noise levels for noise-sensitive uses must not be exceeded by the program traffic noise.

Vibration

In addition to noise levels, groundborne vibration would also be generated on site during construction by various construction-related activities and equipment. The groundborne vibration levels generated by these sources have also been estimated and compared to applicable Caltrans vibration criteria (Caltrans, 2013b).

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. No issues related to noise were identified.

3.11.5 Program Impacts and Mitigation Measures

Impact NOI-1: The proposed program would result in a significant impact if the proposed program would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction

Program construction would require the use of heavy equipment during the construction activities on site. The proposed program would include the remediation of contaminated soil and groundwater, soil grading, revegetation, construction of new public access opportunities (including trails, a visitor center and parking lot, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities.

Subphases of program construction would include demolition and site preparation, grading/excavation for levees and berms, drainage/utilities/subgrade, building construction for the visitor center, paving for access roads and parking, and architectural coating for the visitor center

and traffic markings. The demolition and site preparation includes removal of pipelines, tanks, and other oil infrastructure. Solid waste is assumed to be hauled to the Montebello landfill located approximately 23 miles away. The main wetland restoration activities are covered in the grading/excavation phase, which includes construction, modifying, and removing berms, as well as, establishing tidal channels.

During each construction stage, a different mix of construction equipment would be used. As such, construction activity noise levels at and near the program area would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment. Individual pieces of construction equipment expected to be used during program construction could produce maximum noise levels of 75 to 90 dBA L_{max} and hourly average noise levels of 65 to 83 dBA L_{eq} at a reference distance of 50 feet from the noise source, as shown in **Table 3.11-6**, *Construction Equipment Noise Levels*. These maximum noise levels would occur when equipment is operating at full power. The estimated usage factor for the equipment is also shown in Table 3.11-6. The usage factors are based on FHWA's Roadway Construction Noise Model (RCNM) User's Guide (FHWA, 2006).

TABLE 3.11-6
CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	Estimated Usage Factor, %	Maximum Noise Level at 50 Feet (dBA Lmax)	Average Noise Level at 50 Feet (dBA Leq)
Air Compressors	40%	78	74
Bore/Drill Rig	20%	79	72
Cement and Mortar Mixer	40%	79	75
Concrete Saw	20%	90	83
Crane	16%	81	73
Excavator	40%	81	77
Forklift	10%	75	65
Generator Sets	50%	81	78
Grader	40%	85	81
Off-highway Trucks	20%	76	69
Other Equipment	50%	85	82
Paver	50%	77	74
Paving Equipment	20%	90	83
Pump	50%	81	78
Roller	20%	80	73
Rough Terrain Forklift	10%	75	65
Rubber Tired Dozer	40%	82	78
Rubber Tired Loader	50%	79	76
Scraper	40%	84	80
Tractor/Loader/Backhoe	25%	80	74
Welder	40%	74	70

SOURCE: FHWA, 2006.

Construction activities could occur at different locations within the 503-acre program area. Actual construction for the proposed program will vary over the three phases of near-, mid-, and long-term (next 10 years, 10–20 years, and 20+ years). Construction noise levels at off-site noise-sensitive receptors would be higher when construction activities and equipment are used in proximity to off-site noise-sensitive receptors compared to when construction activities and equipment are used in centrally located areas of the program area away from off-site sensitive receptors. For example, assuming that up to four pieces of construction equipment (ranging from 85 to 79 dBA L_{eq} at 50 feet) are operating on the program area, the combined noise level from the equipment would be approximately 88 dBA L_{eq} at 50 feet. However, with distance, for example 500 feet, the combined noise level from up to four pieces of construction equipment would be attenuated (reduced) to approximately 68 dBA L_{eq}, based on a 6 dBA reduction in noise level per doubling of distance.

As discussed in Section 3.11.3, *Regulatory Framework*, the Noise Ordinances of the cities of Seal Beach and Long Beach, exempts noise generated by construction activities during daytime hours depending on the day of the week. Per the Noise Ordinances, program construction would be required to occur within these defined daytime hours. The Cities' Noise Ordinances do not establish construction noise level limits. Therefore, program construction noise would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance.

Nonetheless, while program construction activities occurring within the allowed times as per the City of Seal Beach and City of Long Beach municipal codes would not exceed the applicable standards and thus result in a less than significant impact, because some of the construction activities within the program area would occur in proximity to noise-sensitive receptors (i.e., residences and passive recreation trails and waterways), as shown above in Figure 3.11-1, noise reduction measures are recommended to minimize noise levels to off-site noise-sensitive receptors. These recommended noise reduction measures are provided below on page 3.11-17.

Off-site construction noise associated with the proposed program would be the construction-related traffic volumes generated by daily worker commuting trips and the truck trips required for the transport of construction equipment and materials to and from the site. The proposed program is not likely to generate a substantial number of vehicle trips during construction and operation compared to traffic volumes on existing roadways; therefore, a detailed traffic study has not been prepared for the proposed program. Worst-case program construction traffic volumes, with all construction phases occurring simultaneously, are estimated at approximately 142 average daily trips (ADT) consisting of construction trucks and worker vehicles. Program construction traffic would access the program area via 2nd Street or Pacific Coast Highway, which in the vicinity of the program area, has ADT volumes of approximately 38,000 and 40,000, respectively. Therefore, the addition of the estimated worst-case daily construction trips on these major roadways would be a minimal increase in traffic volumes. Traffic noise is based primarily on traffic volumes. As discussed in Section 3.11.2, *Environmental Setting*, a doubling of traffic volumes results in a 3 dBA increase, which is an increase barely perceptible to the human ear. Program construction traffic would not double existing traffic volumes on area roadways; therefore, program construction traffic noise would be a negligible, non-perceptible increase.

Therefore, program off-site construction traffic noise would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance.

Operation

Operational noise associated with the proposed program would be the daily traffic volumes anticipated by visitors to the proposed visitor center on site. Though a detailed traffic study has not been prepared for the proposed program, the visitors center and recreational trails are assumed to generate the most visitors on Sundays, estimated at approximately 1,102 ADT. The visitors would access the visitor center via 2nd Street or Pacific Coast Highway, which in the vicinity of the program area has ADT volumes of approximately 38,000 and 40,000, respectively. As discussed in Section 3.11.1.1, *Noise Fundamentals*, a doubling of traffic volumes results in a 3 dBA increase, which is an increase barely perceptible to the human ear. Program operational traffic would not double existing traffic volumes on area roadways. Therefore, the addition of the estimated worst-case daily visitor trips on these major roadways would be a minimal increase in traffic volumes. As with program construction traffic, program operational traffic would be a negligible, non-perceptible increase. Therefore, program operational noise would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance.

Mitigation Measure

No mitigation is required.

As discussed above, the proposed program would result in less-than-significant impacts associated with construction noise. Therefore, no construction noise mitigation measures would be required. However, to reduce and minimize the construction noise generated on the program area and attenuated at the nearest off-site residences, the following construction noise reduction measures are recommended:

> **Noise Reduction Measure NOISE-1: Staging Areas and Mufflers.** Staging areas for construction shall be located away from existing off-site residences. All construction equipment shall use properly operating mufflers. These requirements shall be included in construction contracts.
>
> **Noise Reduction Measure NOISE-2: Limit Grading.** All grading activities shall be conducted outside of the nesting season for sensitive bird species. The nesting season has been identified as extending from March 1 to August 15. (Refer to Section 3.3, *Biological Resources*, for more information on potential impacts to bird species and the corresponding mitigation).
>
> **Noise Reduction Measure NOISE-3: Noise Barriers.** Where feasible, grading plans and specifications shall include temporary noise barriers for all grading, hauling, and other heavy equipment operations that would occur within 300 feet of sensitive off-site receptors and occur for more than 20 working days. The noise barriers shall be 12-feet high, but may be shorter if the top of the barrier is at least one foot above the line of sight between the equipment and the receptors. The barriers shall be solid from the ground to the top of the barrier, and have a weight of at least 2.5 pounds per square foot, which is

equivalent to ¾ inch thick plywood. The barrier design shall optimize the following requirements: (1) the barrier shall be located to maximize the interruption of line-of-sight between the equipment and the receptor, which is normally at the top-of-slope when the grading area and receptor are at different elevations. However, a top-of-slope location may not be feasible if the top-of-slope is not on the project site; (2) the length and height of the barrier shall be selected to block the line-of-sight between the grading area and the receptors; (3) the barrier shall be located as close as feasible to the receptor or as close as feasible to the grading area; a barrier is least effective when it is at the midpoint between noise source and receptor.

Significance after Mitigation

Less than Significant

Impact NOI-2: The proposed program would result in a significant impact if the proposed program would result in generation of excessive groundborne vibration or groundborne noise levels.

Construction

Construction activities at the program area have the potential to generate relatively low levels of groundborne vibration, as the operation of heavy equipment (e.g., backhoe, dozer, excavators, drill rig, loader, scraper, and haul trucks) generates vibrations that propagate though the ground and diminish in intensity with distance from the source. No rock blasting with explosives or pile driving would be used during program construction.

Program construction would generate varying degrees of ground vibration, depending on the construction procedures and the construction equipment used. The PPV vibration velocities for several types of construction equipment measured at increasing distances are identified in **Table 3.11-7**, *Construction Equipment Vibration Levels with Distance*.

TABLE 3.11-7
CONSTRUCTION EQUIPMENT VIBRATION LEVELS WITH DISTANCE

	Approximate PPV (in/sec)			
Equipment	**25 Feet**	**50 Feet**	**75 Feet**	**100 Feet**
Large Bulldozer	0.089	0.031	0.017	0.011
Loaded Trucks	0.076	0.027	0.015	0.010
Small Bulldozer	0.003	0.001	0.0006	0.0004

SOURCE: FTA, 2018; ESA, 2018.

As shown in Table 3.11-7, at 50 feet, the maximum vibration levels would be up to approximately 0.031 in/sec PPV, respectively, from the operation of a large bulldozer with typical soil conditions.

As previously shown in Table 3.11-2, Caltrans vibration criteria for potential structural damage from transient sources for old residential buildings is 0.5 in/sec PPV (Caltrans 2013b). Therefore, the proposed program would generate vibration levels at 50 feet that would not exceed the structural damage potential criteria of 0.5 in/sec PPV. Residences are located as close as approximately 50 feet outside of the program boundary, and program restoration activities with the operation of heavy equipment (i.e., bulldozer) would not occur at the program boundary. As such, the potential vibration impacts for structural damage at off-site residences would be less than significant; therefore, no mitigation measures would be required.

In addition to structural damage, the residences adjacent to the program boundary would be considered as potential vibration sensitive receptors for human annoyance. As shown in Table 3.11-3, Caltrans vibration criteria for human annoyance from transient sources for "barely perceptible" is 0.04 in/sec PPV. As shown in Table 3.11-7, at 50 feet, the maximum vibration levels would be approximately 0.031 in/sec PPV, respectively, from the operation of a large bulldozer with typical soil conditions, which would be less than the "barely perceptible" criteria of 0.04 in/sec PPV. As such, the potential vibration impacts for human annoyance at off-site inhabited residences would be less than significant; therefore, no mitigation measures would be required. Therefore, the program construction would not result in the generation of excessive groundborne vibration or groundborne noise levels.

Operation

The proposed program would construct and operate a visitor center, which would potentially include typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which would produce low level vibration that would not result in structural damage or human annoyance impacts. According to America Society of Heating, Refrigerating and Air-Conditioning Engineers, pumps or compressor would generate groundborne vibration levels of 0.5 in/sec PPV at a reference distance of 1 foot, which would dissipate rapidly with distance. As such, vibration impacts associated with operation of the proposed program would be below the structural damage and human annoyance criteria of 0.5 in/sec PPV, therefore, the impacts would be less than significant. Therefore, the program operation would not result in the generation of excessive groundborne vibration or groundborne noise levels.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact NOI-3: The proposed program would result in a significant impact if the proposed program would expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan.

The program area is not located within two miles of a public airport or public use airport. The nearest public airports or airfields to the program area are the Los Alamitos Army Airfield, approximately 2.7 miles northeast, and the Long Beach Airport, approximately 3.2 miles northwest. The Joint Forces Training Base (JFTB) Los Alamitos boundary is located approximately 2.32 miles from the program area boundary, and the program area is located within the Airport Influence Area of the airport land use plan of the Los Alamitos JFTB. However, the program area is outside of the aircraft noise contours for the JFTB; i.e., the area is not exposed to noise levels greater than 60 dBA CNEL due to operations at JFTB (Orange County ALUC, 2016). Thus, the implementation of the proposed program would not expose people visiting or working in the program area (at the proposed visitor center or as part of wetland restoration maintenance activities) to excessive aircraft noise levels. Therefore, no airport/airstrip-related noise impacts would occur.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

No Impact

3.11.6 Cumulative Impacts

The geographic scope for the consideration of cumulative program noise impacts are primarily the areas immediately surrounding the program area, and to a lesser degree, along designated roadways, where program traffic would travel. Generally, noise impacts are limited to the area directly surrounding the noise sources, as noise attenuates logarithmically with distance at a higher rate in proximity to the source, and only has the potential to combine with other noise sources occurring simultaneously in the immediate vicinity. The proposed program's potential noise impacts, when viewed together with the environmental impacts from past, present, and probably future projects, could be cumulatively considerable if proposed program impacts exceed impact thresholds, resulting in significant impacts.

3.11.6.1 Construction

Program construction activities would generate noise from the operation of heavy equipment during construction activities, during which, would increase ambient noise levels at the activity, which would increase ambient noises levels to a lesser extent as attenuated by distance. However, the increase in ambient levels due to program construction noise was determined to not expose persons to, or generate, noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies. Therefore, the noise impacts would

be less than significant. Therefore, program construction noise would not be of the magnitude to potentially combine with other cumulative projects potentially located in immediate proximity to the program area, where the noise could combine together to cumulatively substantially temporarily increase the ambient noise environment in the program area. Therefore, program construction would not be a cumulatively considerable noise impact. Furthermore, implementation of recommended construction noise reduction measures (i.e., construction best management practices) would further reduce the construction noise levels at the sources, thereby, reducing noise levels at the nearest sensitive receptors.

As previously discussed for vibration, program construction would not generate high levels of vibrations at the source and construction activities would not occur in proximity to structures and inhabited buildings to be impacted for structural damage and/or human annoyance. Therefore, vibration impacts would be less than significant. Therefore, program construction would not be a cumulatively considerable vibration impact.

3.11.6.2 Operation

Operational noise associated with the proposed program would be the daily traffic volumes anticipated by visitors to the proposed visitor center on site. As with program construction traffic, program operational traffic would be a negligible, non-perceptible increase. As such, program operational noise would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance. Therefore, the impact would be less than significant, and future operational noise levels would not be cumulatively significant.

Program operation would not result in the generation of excessive groundborne vibration or groundborne noise levels. Therefore, program operation would not be a cumulatively considerable vibration impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.11.7 References

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SECTION 3.12
Public Services

3.12.1 Introduction

This section evaluates the potential for the proposed program to result in substantial adverse physical effects associated with the provision of public services, including police protection and fire protection, and whether the proposed program would require new or expanded facilities to maintain acceptable service levels. The analysis is based on review of available information on the police and fire departments, the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts, as well as feasible mitigation measures that could reduce or avoid the identified impacts.

Although the category of public services includes schools, libraries, and parks, these public services were not evaluated in this section since the proposed program would not create an increase in population that would increase the use of nearby schools or libraries. The proposed program's potential impact on the need for new parks is addressed in Section 3.13, *Recreation*. See Section 3.12.4.1, *Significance Criteria*, for more information on this conclusion below.

Data used in this section includes review of published documents, information, and public data, the City of Seal Beach General Plan, and the City of Long Beach Municipal Code (LBMC). All information sources used are included as citations within the text; sources are listed in Section 3

3.12.2 Environmental Setting

3.12.2.1 Orange County Fire Authority

The Orange County Fire Authority (OCFA) provides fire protection and emergency medical response services to the City of Seal Beach. OCFA also provides prevention services (e.g., inspections, permits, and drills) within its jurisdiction. OCFA has mutual aid agreements with other jurisdictions and practices unified command in response to potential emergencies. OCFA has adopted the following service standards for the provision of fire protection:

- First-in fire engine should arrive on scene to both medical aids and fires within 5 minutes, 80 percent of the time;
- First-in truck company should arrive on scene to fires within 10 minutes, 80 percent of the time; and
- First-in paramedic company should arrive on scene at all medical aids within 8 minutes, 90 percent of the time.

Additionally, the City of Seal Beach's Safety Element requires a performance standard of an average total reflex time of seven minutes or less (City of Seal Beach, 2003).

The Seal Beach portions of the program area are served by OCFA Fire Station No. 44, which is located 0.5 miles south of the program area. Fire Station No. 44, located at 718 Central Avenue in Seal Beach, is staffed with three fire captains, three fire apparatus engineers, and three firefighters. According to the Seal Beach General Plan's Safety Element, which provides the most recent data available, the average emergency and non-emergency response times for Stations 44 is approximately 3 to 5 minutes (City of Seal Beach 2003). Additionally, as mentioned above, LBFD has a mutual aid agreement with OCFA to provide additional fire protection services when necessary (LBFD 2016).

As discussed in Section 3.7, *Hazards and Hazardous Materials*, the program area is not located in a very high fire hazard severity zone associated with wildland fires (CAL FIRE, 2019). However, areas of the wetlands have been previously subject to wildfires.

3.12.2.2 Seal Beach Police Department

The Seal Beach Police Department (SBPD), headquartered 0.2 mile east of the program area at 911 Seal Beach Boulevard, provides police protection to the City of Seal Beach, including the Seal Beach portions of the program area. The SBPD covers a service area of approximately 13 square miles and a population of 24,605. SBPD has 40 sworn police officers, or a ratio of 0.615 police officers for every 1,000 persons. SBPD also has 24 civilian staff (City of Seal Beach 2016). While service calls and response times are not available at this time for the SBPD, crime statistics are provided below.

Crime Statistics

The SBPD's crime statistics for the years 2009 through 2014, the most recent data available are listed below in **Table 3.12-1**, *Seal Beach Police Department (SBPD) 2009–2014 Crime Statistics*. As shown, property crimes, which include burglary, grand theft, petty theft, and arson, have fluctuated between increasing and decreasing within this 5-year period. Similarly, violent crimes, which include murder, rape, robbery, and aggravated assault, have also fluctuated between increasing and decreasing within this 5-year period.

TABLE 3.12-1
SEAL BEACH POLICE DEPARTMENT (SBPD) 2009–2014 CRIME STATISTICS

	2009	2010	2011	2012	2013	2014
Violent	51	47	30	17	16	26
Property	504	524	530	545	462	494
Total	**555**	**571**	**560**	**562**	**478**	**520**

SOURCE: United States Department of Justice, 2020.

3.12.2.3 Long Beach Fire Department

Local fire protection prevention and emergency medical services within the City of Long Beach are provided by the LBFD. The LBFD operates 24 fire stations throughout the City of Long Beach as well as a headquarters and beach operations facility (LBFD 2019a). The LBFD is divided into the following four bureaus: Operations Bureau, Fire Prevention Bureau, Support Services Bureau, and Administration Bureau (LBFD 2019b).

Different fire stations would provide initial response to the program area depending on the area requiring service. The City of Long Beach portion of the program area would be served by Fire Station 4 at 411 Loma Avenue (approximately 2.0 miles west of the program area), Fire Station 8 at 5365 East 2nd Street (approximately 1.0 miles west of the program area), Fire Station 14 at 5200 East Eliot Street (approximately 1.0 miles northwest of the program area), Fire Station 17 at 2241 Argonne Avenue (approximately 2.7 miles northwest of the program area), or Fire Station 22 located at 6340 Atherton Street (approximately 0.5 miles north of the program area).

There are two basic levels of response that can be used to illustrate service coverage to the proposed program. The first is medical aid and the units that would typically respond, and the second is structure fires and the units that would typically respond. A medical response would typically receive one engine or truck company (whichever equipment is closest) and one paramedic unit. A structure response would receive three engine companies, one truck company, one paramedic rescue, and one battalion chief. If on-scene units request more resources based on the size and scope of the emergency, they can continue to request resources as required to mitigate the incident. In case of an emergency, all 23 fire stations in the City of Long Beach could be part of any emergency response. Additionally, LBFD has a mutual aid agreement with OCFA to provide additional fire protection services when necessary (City of Long Beach 2014).

Service Calls and Response Times

The LBFD was estimated to have received 51,300 calls for service in the 2018 fiscal year; the number of calls for the 2019 fiscal year is projected to be 52,000. The percentage of on-scene arrivals for fire calls within 6 minutes, 20 seconds was 86 percent for the 2018 fiscal year and is projected to be 90 percent for the 2019 fiscal year (City of Long Beach 2019).

3.12.2.4 Long Beach Police Department

The Long Beach Police Department (LBPD) provides police protection services and emergency services to the City of Long Beach, including portions of the program area. The LBPD is the second largest municipal police agency in Los Angeles County. LBPD includes over 800 sworn officers and employs over 1,200 personnel. LBPD is organized into the Office of the Chief of Police, Staff Divisions and Internal Affairs Division, and the following five bureaus: Administration, Financial, Investigation, Patrol, and Support. The geographic areas served by LBPD is organized into the following three patrol stations: North Patrol Division, East Patrol Division, and West Patrol Division (LBPD 2019a).

The proposed program is located within the LBPD's East Patrol Division. The headquarters of the LBPD East Patrol Division—the closest police station to the program area—is located

approximately 3.6 miles northwest of the program area at 3800 East Willow Street. Specifically, the program area is within Police Beat No. 13 and reporting Districts 624, 596, and 595. The East Division is the largest geographical patrol division of the LBPD and covers approximately 46 percent of the City of Long Beach. It is bounded by Del Amo Boulevard to the north, the Pacific Ocean shoreline to the south, and the eastern City of Long Beach border to the east. The division is bounded on the west by Cherry Avenue and the City of Long Beach's borders with the cities of Signal Hill and Lakewood (LBPD 2016).

Service Calls and Response Times

The LBPD was estimated to have received 616,692 calls for service in the 2018 fiscal year; the number of calls for the 2019 fiscal year is projected to be 600,000. The average response time to Priority 1 calls was 4.5 minutes in the 2018 fiscal year; Priority 1 calls refer to potentially life-threatening emergencies, such as a shooting or robbery in progress. The City of Long Beach estimates that available resources will continue to allow them to respond to Priority 1 calls in 5.0 minutes or less in the 2019 fiscal year (City of Long Beach 2019).

Crime Statistics

The LBPD's crime statistics for the years 2013 through 2018 are listed below in **Table 3.12-2**, *Long Beach Police Department (LBPD) 2013–2018 Crime Statistics*. As shown, property crimes, which include burglary, grand theft, petty theft, and arson, have fluctuated between increasing and decreasing within this 5-year period. Similarly, violent crimes, which include murder, rape, robbery, and aggravated assault, have also fluctuated between increasing and decreasing within this 5-year period.

TABLE 3.12-2
LONG BEACH POLICE DEPARTMENT (LBPD) 2013–2018 CRIME STATISTICS

	2013	2014	2015	2016	2017	2018
Violent	2,346	2,269	2,753	2,848	3,099	2,587
Property	13,084	12,449	14,367	14,294	12,683	11,876
Total	**15,430**	**14,718**	**17,120**	**17,142**	**15,782**	**14,463**

SOURCE: LBPD, 2019c.

3.12.3 Regulatory Framework

3.12.3.1 Federal

International Fire Code

The International Fire Code (IFC) regulates minimum fire safety requirements for new and existing buildings, facilities, storage, and processes. The IFC includes general and specialized technical fire and life safety regulations addressing fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, use and storage of hazardous materials, protection of emergency responders, industrial processes, and many other topics.

3.12.3.2 State

California Fire Code

The California Fire Code (CFC) (California Code of Regulations Title 24, Part 9) is based on the 2012 IFC and includes amendments from the State of California fully integrated into the code. The CFC contains fire safety–related building standards that are referenced in other parts of California Code of Regulations Title 24.

California Health and Safety Code

California Health and Safety Code Sections 13000 et seq. include fire regulations for building standards (also in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

3.12.3.3 Local

City of Seal Beach General Plan

The policies, goals, and implementation measures in the Seal Beach General Plan for Public Services applicable to the proposed program are provided below. The Seal Beach General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to activities such as the proposed program, therefore, they are not listed below. However, all policies, goals, and implementation measures in the Seal Beach General Plan are incorporated herein by reference (City of Seal Beach 2013).

Safety Element

Topic 4: Fire Hazards

4A: Ensure that adequate facilities and fire service personnel are maintained based on population, fire hazards in and around the City, and a performance standard of an average total reflex time of seven minutes or less.

4H: Encourage property owners to consider ″fire-wise″ planting and the use of fire-resistant building materials, especially in landscaped and developed areas adjacent to Gum Grove Park.

City of Seal Beach Municipal Code

There are no goals, policies, or codes within the Seal Beach Municipal Code that apply to Public Services.

City of Long Beach General Plan

The policies, goals, and implementation measures in the Long Beach General Plan for Public Services applicable to the proposed program are provided below. The Long Beach General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to the proposed program, therefore, they are not listed below. However, all policies, goals, and implementation measures in the Long Beach General Plan are incorporated herein by reference (City of Long Beach 2014).

Local Coastal Program Element

II. Safety. In order to maintain adequate fire safety standards, it is recommended that nowhere in the Coastal Zone should safety standards lower than the Uniform Fire Code be allowed.

City of Long Beach Municipal Code

The LBMC identifies land use categories, development standards, and other general provisions that ensure consistency between the City of Long Beach General Plan and proposed development projects. The following provisions from the LBMC focus on fire and police services impacts associated with new development projects and are relevant to the proposed program:

Chapter 18.22: Police Facilities Impact Fee. Imposed on any residential and nonresidential development requiring the obtainment of a building permit for the purpose of assuring that impacts created by new development pay its fair share of costs required to support needed police facilities and related costs necessary to accommodate such development. For nonresidential developments, a base fee per square foot is applied to the gross floor area of the proposed buildings.

Chapter 18.23: Fire Facilities Impact Fee. This chapter of the Municipal Code sets forth the fees that area imposed on residential and nonresidential development to ensure that new development pays its fair share of the costs required to support needed fire facilities and related costs necessary to accommodate such development. The funds are to be utilized for payment of the actual or estimated costs of fire facilities, apparatus, and equipment related to new residential and nonresidential construction. For nonresidential developments, a base fee per square foot is applied to the gross floor area of the proposed buildings.

Chapter 18.48 (Fire Code). The Long Beach City Council has adopted and incorporated by reference, as though set forth in full in this chapter of the Municipal Code, the 2013 Edition of the California Fire Code (CFC), excluding sections, chapters or appendices pursuant to Section 18.48.040. The CFC sets forth requirements including emergency access, emergency egress routes, interior and exterior design and materials, fire safety features including sprinklers, and hazardous materials.

Fees are applied at the time a building permit is issued and are due prior to issuance of a Certificate of Occupancy. To determine the exact price of these development fees for a specific project, LBFD and LBPD must be contacted (City of Long Beach 2017).

3.12.4 Significance Thresholds and Methodology

3.12.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on public services if it would:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to

maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

i) Fire protection;

ii) Police protection;

iii) Schools;

iv) Parks; or

v) Other public facilities.

As detailed in the Initial Study (refer to Appendix A of this PEIR), the proposed program would result in no impacts to thresholds "a-iii" and "a-v." No further analysis is provided in this section.

3.12.4.2 Methodology

The evaluation of public services impacts is based on the development assumptions for the proposed program, as described in Chapter 2, *Project Description*. The proposed program would restore the wetlands and implement public access improvements, including new pedestrian trails and bike paths, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and a visitor center. As described in Chapter 2, *Project Description*, the environmental effects associated with the Long Beach Visitor Center, construction of a parking lot, trails, overlook terrace, sidewalk enhancements, and bikeway improvements previously evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse No. 2016041083) will not be further evaluated in this PEIR.

The methodology for this analysis is based on a review of LBFD and LBPD published documents, information, and public data. The proposed program could affect fire protection and police protection services by creating a need for these services that exceeds the existing OCFA, LBFD, SBPD, and LBPD's available resources. The analysis below considers the increase in fire and police services that would be generated by the proposed program and the ability of existing public service facilities in the surrounding area to meet the potential demand from temporary construction workers, permanent employees on site, and new visitors.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent an NOP to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. No issues related to public services were identified.

3.12.5 Program Impacts and Mitigation Measures

Impact PS-1a: The proposed program would result in a significant impact if the proposed program results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.

Construction

Construction activities for the proposed program include remediation of contaminated soil and groundwater, extensive grading, revegetation, construction of new public access opportunities (including trails, the Seal Beach Visitor Center, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. Activities associated with demolition and construction requiring electrical power, fuel, or handling oil would increase the fire risk on site and subsequent potential need for fire protection services. Construction activities would temporarily increase the number of persons on site, which could increase the need for fire protection and emergency medical services. To reduce this potential impact, as part of Mitigation Measure PS-1, fire safety prevention training would be given to construction workers regarding activities that pose a potential fire risk, such as handling of oil and other flammable liquids and welding and cutting. Additionally, construction workers would likely come from an existing local and/or regional (County) construction labor force and would not likely relocate their households as a consequence of working on the proposed program. Therefore, the short-term increased employment of construction workers on the program area would not result in a notable increase in the residential population of the area surrounding the program area, resulting in an increased demand for fire protection services. Given that the proposed program would be implemented in multiple phases and the temporary nature of construction work, as well as implementation of Mitigation Measure PS-1, it is not anticipated that the proposed program would substantially increase the service demand for fire protection and emergency medical services in the area during construction. Therefore, impacts would be less than significant.

Operation

The proposed program would include the operation of the Seal Beach Visitor Center and a public access trail system, which would increase the number of employees, volunteers, and daytime visitors within the program area. Introduction of new structures and persons on site, could increase the fire hazard potential of the area and the subsequent potential need for fire protection and emergency medical services. However, employees and volunteers are anticipated to be local residents or regional commuters. Thus, any potential increase in service population would be minimal. Although the number of daytime visitors is unknown, the proposed program would be required to pay both the County of Orange's and the City of Long Beach's Fire Facilities Impact Fees as part of its building fees to compensate for anticipated impacts to fire services from its operation. Furthermore, all proposed facilities would be designed to meet modern fire safety codes, including access requirements and fire suppression and emergency response systems. As part of the building plan check, OCFA and LBFD would check and review site design plans for

compliance with appropriate safety codes prior to construction. Additionally, fuel modification would result of the proposed program's habitat restoration activities, which would further reduce the potential for fires to occur during operation of the proposed program. Therefore, it is not expected that the proposed program would result in the need for new or physically altered facilities to maintain acceptable response times for fire protection and emergency medical services. Impacts would be less than significant.

Mitigation Measure

Mitigation Measure PS-1: Fire Prevention and Protection Training. Prior to the start of construction activities, the Applicant shall prepare and conduct a fire prevention and protection training for all construction personnel associated with the proposed program. Topics shall include general fire prevention practices such as avoiding smoking on the program area as well as specific preventative measures pertaining to high-fire-risk activities including handling of oil and welding and cutting. Personal protection measures including the locations of fire extinguishers on the program area and site exit routes should also be disclosed to ensure construction worker safety in the event of a fire. The material for the training shall be obtained in consultation with the Orange County Fire Authority and the Long Beach Fire Department.

Significance after Mitigation

Less than Significant with Mitigation

Impact PS-1b: The proposed program would result in a significant impact if the proposed program results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.

Construction

During the construction activities, the need for police services would increase due to the potential for additional crime and accidents associated with construction sites. Crime and safety issues during program construction may include: theft of building materials and construction equipment, malicious mischief, graffiti, and vandalism. To deter crime, the proposed program would include security measures such as fencing along site perimeter of the construction sites and lighting during non-construction hours, which decreases the likelihood of crime and incidents. Construction contractors could also hire security personnel to patrol the individual sites at night during construction activities. Additionally, construction workers would likely come from an existing local and/or regional (County) construction labor force and would not likely relocate their households as a consequence of working on the proposed program. Therefore, the short-term increased employment of construction workers on the program area would not result in a notable increase in the residential population of the area surrounding the program area, resulting in an increased demand for police protection services. Given that construction activities are localized and would be temporary, and given the security measures that would be in place during construction, the proposed program would not substantially increase the demand for SBPD's or

LBPD's, services. Nor would implementation of the proposed program significantly increase SBPD's or LBPD's response times to either to the program area or the surrounding vicinity. Therefore, it is not anticipated that the proposed program would substantially increase the service demand for police services in the area, and impacts would be less than significant.

Operation

During operation of the proposed program, the need for police services could increase due to the potential for additional crime and accidents associated with more structures and people on site. Crime and safety issues during operation may include: theft of building materials and operational equipment, malicious mischief, graffiti, and vandalism. However, the proposed program would include security measures such as monthly patrols by land manager, fencing along site perimeter, security cameras, and security lighting, which would decrease the likelihood of crime on the program area during operation. Furthermore, although the proposed Seal Beach Visitor Center and public access trail would increase the number of employees, volunteers, and daytime visitors within the program area, the proposed program would pay fees to compensate for any impacts to police services anticipated from its operation. This includes both the City of Seal Beach's and City of Long Beach's the Police Facilities Impact Fee as part of the proposed program building fees. Therefore, it is not expected that the proposed program would result in the need for new or physically altered facilities in order to maintain acceptable response times for police protection. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact PS-1c: The proposed program would result in a significant impact if the proposed program results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks.

Refer to Section 3.13, *Recreation*, for a discussion and evaluation of parks and recreational resources within the program area.

3.12.6 Cumulative Impacts

Cumulative impacts for a project are considered significant if the incremental effects of the individual project are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the program area. The geographic area for cumulative analysis of fire protection services is the service territory for OCFA, LBFD,

SBPD, and LBPD. As discussed above, police and fire service impacts related to the proposed program would be less than significant.

According to the most recent 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Growth Forecast, the population in the City of Seal Beach is projected to be approximately 24,800 persons by the year 2040. This represents a decrease of 1,184 persons from the 25,984 persons in 2018. Furthermore, the number of jobs in the City of Seal Beach is expected to decrease to approximately 12,300 jobs by the year 2040 from the current 12,774 jobs (SCAG 2019b). According to the most recent 2016-2040 RTP/SCS Growth Forecast, the population in the City of Long Beach is projected to be approximately 484,500 persons by the year 2040. This represents an increase of 5,939 persons from the 478,561 persons in 2018. Furthermore, the number of jobs in the City of Long Beach is expected to increase to approximately 181,700 jobs by the year 2040 from the current 156,914 jobs (SCAG 2019a). Therefore, the proposed program's incremental increase in population growth would be within the planned population growth for the area.

Similar to the proposed program, other projects in the OCFA, LBFD, SBPD, and LBPD's service area would pay the Fire Facilities and Police Facilities Impact Fees as determined appropriate by OCFA, LBFD, SBPD, and LBPD, which would help offset any impacts from those projects on fire and police services. Increased property and sales tax from future new developments would increase both City's General Funds, which would also provide funding for any capital improvements necessary to maintain adequate fire protection facilities, equipment, and/or personnel. Furthermore, as with the proposed program, individual development projects pursuant to the City of Seal Beach General Plan or City of Long Beach General Plan the would be reviewed by the appropriate City and OCFA or LBFD – depending on the project's jurisdictional location – for consistency with fire code requirements. Therefore, compliance with existing regulations pertaining to fees and fire code would ensure the proposed program in combination with other projects would not result in significant cumulative impacts to fire protection or police protection services.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.12.7 References

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SECTION 3.13
Recreation

3.13.1 Introduction

This section evaluates the potential for the proposed program to increase the use of existing parks and recreational facilities such that (1) physical deterioration or degradation of the facilities would occur or be accelerated; or (2) the potential for the proposed program to include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. The analysis is based on review of available information on the recreational facilities, the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts, as well as feasible mitigation measures that could reduce or avoid the identified impacts.

Data used in this section includes information obtained from the *City of Seal Beach General Plan* Open Space and Recreation Element (City of Seal Beach 2003), the *City of Seal Beach Parks and Community Services Master Plan* (City of Seal Beach 2013), the *Southeast Area Specific Plan (SEASP) Draft EIR* (City of Long Beach 2016), and the *City of Long Beach General Plan* Open Space and Recreation Element (City of Long Beach 2002). Published information pertaining to recreation facilities available via various online resources was also used. All information sources used are included as citations within the text; sources are listed in Section 3.13.7, *References*.

3.13.2 Environmental Setting

3.13.2.1 Existing Parks and Recreation Facilities

Seal Beach

The Seal Beach Community Services/Recreation (SBCSR) Department operates the parks and recreational programs and services in the City of Seal Beach. SBCSR owns and maintains 75.45 acres of parkland divided between 18 individual parks, 4 community centers, 1 tennis center, 1 gymnasium, and 1 aquatics facility (City of Seal Beach 2013). The City of Seal Beach has also created a number of venues that allow for recreational activities including the Edison Park Community Gardens, the Arbor Dog Park, Gum Grove Nature Park Hiking Trails, River's End Kitesurfing Park, the Seal Beach Pier, and the 2 miles of surf and sand.

The SBCSR has adopted Statewide, Park Acreage Standards to guide their long-range planning and acquisition of parklands. The SBCSR operates the following two categories of parks within

the city: community parks and neighborhood parks. These two park categories as defined by the California State Parks Planning Division, are described below (City of Seal Beach 2003):

- **Neighborhood parks** are designed to meet the needs of individual residential developments within the city. While providing for the recreational needs of several age groups, the neighborhood park is primarily designed to meet the needs of the 5- to 14-year-old group. Children's play equipment and tennis and basketball courts are among the facilities often found at neighborhood parks. Other improvements might include senior centers, youth centers, and aquatic facilities. These parks vary in size from a single lot to parcels of approximately 5 acres. There are 13 neighborhood parks in the City of Seal Beach, encompassing a total of 14.05 acres.
- **Community parks** are larger than neighborhood parks and are designed to serve the needs of a broader age group. They serve the entire city and are easily accessible via arterial roads, attracting people from outside the area in which they are located. Typically, these facilities contain tennis, volleyball, handball and basketball courts, picnic areas, and sports fields for seasonal sports such as baseball and football. Community parks generally range in size from approximately 5 to 30 acres. There are five community parks in the City of Seal Beach, encompassing a total of 61.4 acres.

Overall, the SBCSR maintains 75.45 acres of parks and recreation facilities for a population of 24,157 individuals, which equates to approximately 3.12 acres of parkland per 1,000 people. According to the Seal Beach Parks and Community Services Master Plan, the parkland per resident ratio is significantly below the adopted Standards' required ratio of 5 acres of parkland per 1,000 people primarily because a high percentage of the City of Seal Beach was developed prior to the adoption of the current acreage goal (City of Seal Beach 2013).

Table 3.13-1, *Seal Beach Recreational Facilities within the Vicinity of the Program Area*, lists the parks and recreational facilities in the City of Seal Beach within a 0.5-mile radius of the program area.

TABLE 3.13-1
SEAL BEACH RECREATIONAL FACILITIES WITHIN THE VICINITY OF THE PROGRAM AREA

Facility Name	Type of Facility	Description	Distance from Program Area
Electric Avenue Median Park	Community park	8.4-acre community park providing a stretch of greenery as well as picnic tables, through Old Town Seal Beach	0.33 miles southwest
Gum Grove Nature Park	Community park	25-acre open space area that hugs the edge of Los Cerritos Wetlands. There's one trail down the middle of the park and several small single track trails run along the hill that separates neighborhood homes from the park	0.0 miles south
Marina Park and Community Center	Neighborhood park	1.5 acres including a community center, open space, basketball courts, tennis courts, and a swimming pool	0.34 miles southwest
Seal Beach Senior Center	Neighborhood park	0.25-acre senior center facility that provides individuals ages 50 and over opportunities to meet new friends, develop new interests, and socialize	0.35 miles southwest
Zoeter Field	Neighborhood park	1.5 acres including softball fields and restrooms	0.39 miles south

SOURCE: City of Seal Beach, 2019.

Long Beach

The Long Beach Parks, Recreation, and Marine (LBPRM) Department operates the parks and recreational programs and services in the City of Long Beach. LBPRM owns and maintains 26 community centers, 2 historic sites, 2 major tennis courts, 1 municipal golf system with 5 courses, the Long Beach Animal Services Bureau, and the largest municipally operated marina system in the nation (comprised of Alamitos Bay Marina, Long Beach Shoreline Marina [Downtown Marina], and Rainbow Harbor/Rainbow Marina), with 3,677 boat slips and 6 miles of beaches. In addition, the City of Long Beach's recreational resources include parks, community gardens, bike and equestrian trails, special use recreation resources, and recreational programs such as youth/adult sports leagues, teen centers, sports and aquatic programs, skate parks, a sailing and aquatic center, public swimming pools, senior citizen services, adaptive recreation and cultural centers (City of Long Beach 2016).

The LBPRM also manages over 172 acres of estuaries within the City of Long Beach including three within a 2-mile radius of the program area. Jack Dunster Marine Biological Reserve, which is comprised of 1.5 acres of land and 1.2 acres of shallow waters, is located approximately 0.5 miles west of the Pumpkin Patch site, at the intersection of Boathouse Lane and Los Cerritos Channel in the City of Long Beach. The Colorado Lagoon, which consists of 27.5 acres of land and open saltwater area is located approximately 1.5 miles northwest of the Synergy Oil Field site, at 5119 East Colorado Street, in the city (City of Long Beach 2016). Sims' Pond Biological Reserve, which contains 6.06 acres of marsh habitat, is located approximately 0.65 miles northwest of the Synergy Oil Field site, at the intersection of Loynes Drive and the Pacific Coast Highway (PCH) in the City of Long Beach (City of Long Beach 2016). Unlike the publicly accessible Jack Dunster Marine Biological Reserve and the Colorado Lagoon mentioned above, Sims Pond is not accessible to the public and is surrounded by a chain-link fence (LCWS 2013).

The LBPRM operates the following five categories of parks within the City of Long Beach: mini parks, neighborhood parks, community parks, regional parks, and greenway parks. These five park categories are defined below:

- **Mini parks** consist of less than 2 acres of land and are designed to serve residents within an eighth-mile radius. These parks include the following amenities: landscape irrigation, walking paths, seating areas, picnic tables, tot lots, and sculpture/art. There are 22 mini parks in the City of Long Beach, encompassing approximately 21 acres.
- **Neighborhood parks** typically consist of an average 8 acres and serve residents within a 0.25- to 0.5-mile radius. Neighborhood parks include all the uses within a mini park, as well as recreation fields, courts and rinks, water features, libraries, day care centers, community centers, and restroom buildings. Building coverage in neighborhood parks is limited to 7 percent of the total park area. There are 19 neighborhood parks in the city, encompassing 147 acres.
- **Community parks** are on average 35 acres in size and serve neighborhoods within a 1-mile radius. These parks focus on community recreation, including sports fields, open space, and swimming pools. Building coverage is limited to 10 percent of the total park area. There are 13 community parks in the city, encompassing a total of 464 acres.

- **Regional parks** are a minimum 175 acres in size and serve communities within a half-hour drive time. Permitted uses at regional parks include all uses allowed within community parks and building coverage is limited to 2 percent of the total park area. There is one regional park in the city, El Dorado Regional Park, which encompasses 401 acres and is located approximately 2.3 miles northeast of the program area.
- **Greenway parks** are undeveloped green space, which connect recreational opportunities throughout a community. Building coverage is limited to 1 percent of the total park area at greenway parks. There are nine greenway parks located in the city, encompassing approximately 71 acres.

In addition to the mini, neighborhood, community, regional and greenway parks, the LBPRM also operates and maintains 28 special use parks (including the riverfront recreation vehicle campground, two special events parks [Queen Mary and Rainbow Lagoon], the calm water swimming park at Colorado Lagoon, and Shoreline/Riverfront, Santa Cruz, and Victory Parks, a nature center park, and a nature trail park), two ranchos, 247 acres of beaches, 568 acres of golf course, and 373 acres of water recreation facilities (including Alamitos Bay and Downtown Marina surface areas) (City of Long Beach 2016).

Table 3.13-2, *Long Beach Recreational Facilities within the Vicinity of the Program Area*, lists the parks and recreational facilities in the City of Long Beach within a 0.5-mile radius of the proposed program area.

TABLE 3.13-2
LONG BEACH RECREATIONAL FACILITIES WITHIN THE VICINITY OF THE PROGRAM AREA

Facility Name	Type of Facility	Description	Distance from Program area
Channel View Park	Neighborhood park	5.1 acres including open space and a popular walking path for joggers and strollers	0.1 mile northeast
Jack Nichol Park	Neighborhood park	3.5 acres including a basketball court, baseball field, playground, soccer field, softball field, restrooms, picnic area, and a youth recreation program	0.08 miles northwest
Jack Dunster Marine Reserve	Special use park	2.7-acre special use park that has green space and provides coastal viewing	0.20 miles west
Sims' Pond	Special use park	6-acre open space area	0.33 miles northwest
Bixby Village Golf Course	Special use park	Public, municipal 9-hole golf course	0.26 miles north
Alamitos Bay Marina	Special use park	Boat facilities, coastal viewing, and green space	0.26 miles southwest
Davies Launch Ramp	Special use park	Boat facilities, green space, and horseshoes	0.25 miles west

SOURCE: City of Long Beach, 2016.

In addition to parks, the City of Long Beach also has numerous marine recreation resources. These include beaches, a pier, a harbor, marinas and boat launches. The City of Long Beach has approximately 247 acres of beaches and 11 miles of shoreline with a visitation rate of millions of persons per year. Belmont Pier provides public fishing facilities. Rainbow Harbor includes eight

public piers to accommodate historic ship visitation, sightseeing, and fishing, and includes an aquarium. The City of Long Beach owns and operates two large marinas and one smaller marina with many boat slips: the Alamitos Bay Marina (1,967 boat slips), the Shoreline Marina (1,744 slips), and the Rainbow Marina (86 boat slips). There are five public boat launches within the city: Davies, Claremont, Granada, Marine Stadium, and South Shore. A variety of water equipment including powerboats, jet skis, sailboats, catamarans, and kayaks can be launched from these locations (City of Long Beach 2002). Within the vicinity of the program area, the Los Cerritos Channel is used by recreational kayakers year round.

3.13.2.2 Existing Bicycle Trails

Seal Beach

According to the City of Seal Beach Circulation Element of the General Plan, the City of Seal Beach has developed a local street bicycle circulation system that includes three classifications of bikeways that generally correspond to the Orange County Transportation Authority (OCTA) bikeway classifications. Class I bikeways provide for bicycle travel on a right-of-way completely separated from the street. Class II bikeways provide for a striped lane for one-way travel within the street right-of-way. Class III bikeways provide for on-road, signed only bikeways and are not included on the bike trail map due to their unique locations (City of Seal Beach 2003).

The OCTA has also been working to develop the Orange County (OC) Loop, which would connect 66 miles of bicycle lanes seamlessly within Orange County (OCTA 2020). Currently, 80 percent of the OC Loop is in place. Multiple agencies throughout Orange County have tried to secure funding to close gaps along the OC Loop.

Long Beach

According to the City of Long Beach Mobility Element of the General Plan, the City has developed a local street bicycle circulation system that includes signed bike routes (Class III bicycle facilities), striped and signed bikeways (Class II bicycle facilities), and on-street bike paths that are physically separated from automobile traffic (Class I bicycle facilities). This on-street bicycle network system includes 15 miles of bike routes, 19 miles of bikeways, and 29 miles of bike paths. In addition to the on-street bicycle network, the city has over 60 miles of off-street bike and pedestrian paths within its boundaries.

The City of Long Beach is served by Class I, II, and III bicycle facilities, bicycle boulevards, and separated bicycle lanes (Cycle Track or Class IV). As determined by Caltrans, the three classes of bikeways are defined as follows: Class I (a completely separated right of way for the exclusive use of bicycles and pedestrians), Class II (a striped lane for one-way bike travel on a street or highway), and Class III (a roadway allowing for shared use between bicycles and motor vehicle traffic) (Caltrans 2017). Based on a review of the City of Long Beach Draft Bicycle Master Plan (December 2016), existing bicycle facilities in the study area include:

- Class III bicycle lanes along 2nd Street west of PCH and 2nd Street/Westminster Avenue east of Studebaker Road and Class II bicycle lanes on 2nd/Westminster Avenue west of Studebaker Road;

- Class II bicycle lanes on PCH both north and south of 2nd Street;
- Class II bicycle lanes on Marina Drive south of 2nd Street; and
- Class II bicycle lanes on Studebaker Road between 2nd Street and Loynes Drive.

Additionally, there is a Class I bikeway (San Gabriel River Trail) that runs along the San Gabriel River. It extends 28 miles from the Pacific Ocean to Whittier Narrows and connects to the Rio Hondo River Trail, Bellflower Bike Trail, and Coyote Creek Bikeway, forming the backbone of a large regional trail system. Bikeways in close proximity to the program area and their associated classes are shown in relation to the program area on **Figure 3.13-1**, *Existing Bike and Pedestrian Paths*.

3.13.3 Regulatory Framework

3.13.3.1 Federal

There are no generally applicable federal laws, regulations, plans, or standards governing recreational facilities that are relevant to the proposed program.

3.13.3.2 State

There are no generally applicable state laws, regulations, plans, or standards governing recreational facilities that are relevant to the proposed program.

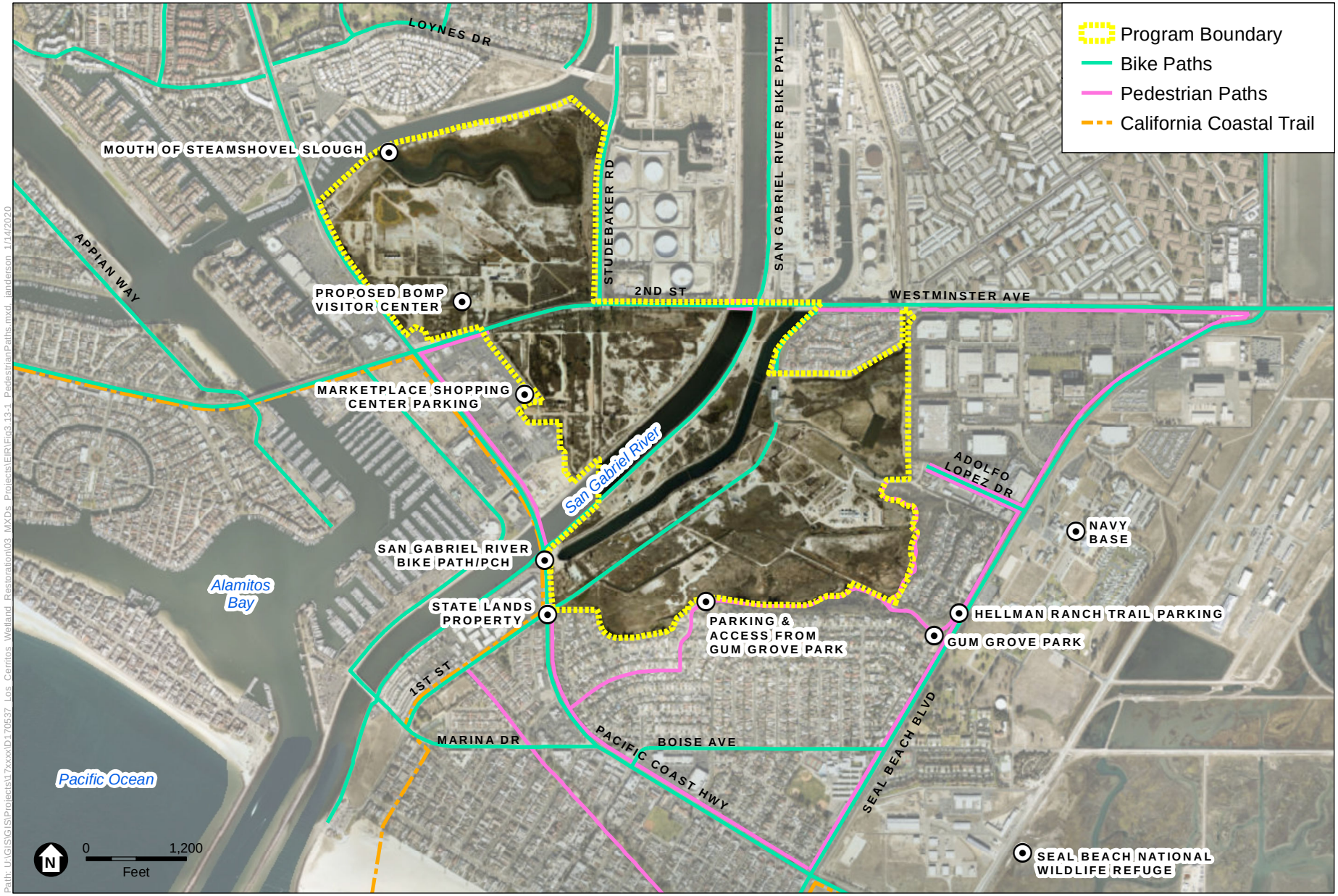
Quimby Act

The Quimby Act is a state legislation (codified at Government Code Section 66477) that requires the dedication of land and/or imposes a requirement for the payment of fees for park and recreational purposes in connection with the approval of new development that requires a tentative tract or parcel map (City of Long Beach 2017; City of Seal Beach 2003). Under the Quimby Act, park land dedication may be based on a ratio of number of residents to acres of land. Generally, under the Quimby Act, 3 acres of park land must be provided per thousand residents, and may be increased under certain criteria to 5 acres of park land dedication per thousand residents.

3.13.3.3 Local

Seal Beach General Plan Open Space and Recreation Element

The Seal Beach Open Space and Recreation Element of the General Plan contains plans for the preservation of open space and production of natural resources, open space management, open space for public health and safety, and open space for outdoor recreation. Further, it discusses the amount of recreational open space available in the City of Seal Beach and factors in future possible open space acquisition opportunities as the City of Seal Beach's population continues to grow. Additionally, the Seal Beach Open Space and Recreation Element establishes a recreation open space standard of 5 acres per 1,000 residents. Park and recreational areas exclude joint-use school facilities and only apply to parkland owned and maintained by the City of Seal Beach. Policies and programs that apply to the proposed program are discussed in Section 3.9, *Land Use and Planning*, of this PEIR.



SOURCE: ESRI

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 3.13-1
Existing Bike and Pedestrian Paths

ESA

City of Seal Beach Local Coastal Program

The City of Seal Beach is subject to a state-mandated Local Coastal Program under the jurisdiction of the California Coastal Commission, due to its proximity to the Pacific Ocean. The 1976 California Coastal Act, which provides protection for the natural and scenic resources of the coastal area, requires the preparation of a local coastal program for jurisdictions with land within the coastal zone. The policies defined by the Local Coastal Program set the standards that preserve and conserve the community's coastal influenced resources. The City of Seal Beach Local Coastal Program policies are included by reference as part of the City's General Plan. The Local Coastal Program is to be updated every five years (City of Seal Beach 2003).

Long Beach General Plan Open Space and Recreation Element

The Long Beach Open Space and Recreation Element of the General Plan contains plans for the preservation of open space and production of natural resources, open space management, open space for public health and safety, and open space for outdoor recreation. Further, it discusses the amount of recreational open space available in the City of Long Beach and factors in future possible open space acquisition opportunities as the City of Long Beach's population continues to grow. Additionally, the Long Beach Open Space and Recreation Element establishes a recreation open space standard of 8 acres per 1,000 residents. Park and recreational areas exclude joint-use school facilities and only apply to parkland owned and maintained by the City of Long Beach. Policies and programs that apply to the proposed program are discussed in Section 3.9, *Land Use and Planning*, of this PEIR.

Southeast Area Development and Improvement Plan

Approved in 1977, the Southeast Area Development and Improvement Plan (SEADIP) was the first Planned Development district (PD-1) in the City of Long Beach. The SEADIP document was intended to guide land use and development in the 1,500-acre area in southeast Long Beach during a period of rapid growth. The provisions provided in the SEADIP relevant to recreation are listed below.

> **Provision 18.** Developers shall improve and dedicate the City certain streets, recreation areas and other public facilities necessary to support the proposed private development, as specific by area in subsequent paragraphs. If any such required improvements are found by the Commission to be infeasible or undesirable for engineering, legal or other reasons, the Commission may accept alternative improvements proposed by the developer so long as they meet the intent of the original requirements and are consistent with the overall goals and objectives of the adopted Specific Plan. Developers shall make such improvements or furnish security in connection with such improvements prior to commencement of construction of adjacent areas, which the improvements are designed to support; improvements may be phased with the phased construction of such adjacent areas. In those cases where the developer is to dedicate land area for subsequent improvement by the City, the developer shall not be required to convey such area until the City has budgeted funds for the improvements.

Southeast Area Specific Plan 2060

In July 2016, the City of Long Beach circulated a draft of the Southeast Area Specific Plan (SEASP) 2060, which is a contemporary planning document for the program area, including re-

designating land uses for the program area for the next 50 years (City of Long Beach 2016). The SEASP 2060 was adopted by the City Council on September 19, 2017. Note that at the time of writing this PEIR, the CCC has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program. The development standards relevant to recreation are listed below.

Chapter 5.7, General Development Standards, Item c, Open Space and Amenities in Mixed-Use Designations

Developers shall construct public open space, trails, pathways and bicycle trails for each development in a manner that will be generally accessible to the public and that will interconnect with similar facilities in adjacent developments so as to form an integrated system of open space and trails connecting activity centers, important views and destinations in the SEASP program area.

Section 6.2.1, Pedestrian and Bicycle Circulation and Access

This section provides the requirements for Class I, II, and III bikeways, described in Section 3.13.2, *Environmental Setting*.

City of Long Beach Local Coastal Program

The City of Long Beach's Local Coastal Program provides policies regarding public access, recreation, marine environment, land resources, development, and industrial development. The Local Coastal Program identifies the following recreational facilities in the program area:

Neighborhood Services, Facilities and Amenities. Amenities are high in the SEADIP neighborhood. Multiple recreational uses are located here. Marine Stadium and Recreation Park offer active and passive recreation opportunities. The Marina off the Los Cerritos Flood Control Channel provides recreational opportunities and is a visual amenity to the residents of Costa del Sol, Spinnaker Coves and Marina Pacifica. Bixby Golf Course located along Loynes Drive is another recreational node. Los Cerritos Lagoon is a unique natural resource in SEADIP. It is a breeding ground for marine life and a habitat for shorebirds. Schools are abundant as well; Kettering Elementary, Hill Junior High, and the California State University at Long Beach are all close by.

3.13.4 Significance Thresholds and Methodology

3.13.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on recreation if it would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

As detailed in the NOP/IS (refer to Appendix A of this PEIR), the proposed program would result in less than significant impacts to threshold "a." Although not required, evaluation of the proposed program's impact to thresholds "a" was conducted in this section.

3.13.4.2 Methodology

The evaluation of public services impacts is based on the development assumptions for the proposed program, as described in Chapter 2, *Project Description*, of this PEIR. The proposed program would restore the wetlands and implement public access improvements, including new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and a visitor center. As described in Chapter 2, *Project Description*, the environmental effects associated with the Long Beach Visitor Center, construction of a parking lot, trails, overlook terrace, sidewalk enhancements, and bikeway improvements previously evaluated in the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) will not be further evaluated in this PEIR.

The methodology for this analysis is based on a review of planning documents obtained from the City of Seal Beach and the City of Long Beach, as well as other published information pertaining to recreation facilities available via various online resources. The analysis below considers the increase in use that would be generated by the proposed program and the ability of existing recreational facilities in the surrounding area to meet the potential demand from temporary construction workers, permanent employees on site, and new visitors. The analysis considers whether an increase in use would result in the substantial deterioration of existing neighboring recreational facilities, such as accelerated wear on sports facilities and fields, erosion along trails, or disturbance of vegetation, during and after the restoration of the wetlands and proposed public accessibility improvements.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent an NOP to responsible, trustee, and federal agencies, as well as to organizations and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. No issues related to recreation were identified.

3.13.5 Program Impacts and Mitigation Measures

Impact REC-1: The proposed program would result in a significant impact if the proposed program would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Construction

During construction of the proposed program, there would be a temporary increase in construction workers on the program area. These construction workers would likely come from an existing local and/or regional (County) construction labor force and would not likely relocate their households as a consequence of working on the proposed program. Therefore, the short-term increased employment of construction workers on the program area would not result in a notable

increase in the residential population of the area surrounding the program area. Accordingly, there would not be a corresponding demand or use of the existing parks and recreation facilities during this time as construction workers are more likely to use parks and recreation facilities near their places of residence. It is anticipated that construction workers would not use nearby parks during their lunch break, as lunch breaks are not typically long enough for workers to take advantage of such facilities and return to work within the typical 30- to 60-minute lunch break; however, if construction workers were to use the existing recreational facilities during their lunch break, it would only increase use at those facilities for 30 to 60 minutes a day, which would be considered a less than substantial impact. Thus, program construction workers would not generate an increase in demand for park and recreation facilities such that it would result in the accelerated physical deterioration of a park or recreation facilities.

Potential construction of new sidewalks is proposed by the proposed program and would result in temporary inaccessibility to portions of the bikeway. The streets that would be impacted would be as follows: the south side of 2nd Street for potential sidewalk improvements; the intersection of Shopkeeper Road and 2nd Street for a new crosswalk to improve public access between the North Area, Long Beach Visitor Center, and Central Area. All construction for this bikeway would occur within the existing right-of-way and would be implemented in accordance with the City of Long Beach standards. Additionally, bikeway detour signs would be posted to redirect bike users to utilize other bikeways in the area during this temporary construction period. Therefore, impacts during construction would be less than significant.

Operation

The proposed program would include the operation of the Seal Beach Visitor Center and a public access trail system, which would increase the number of employees, volunteers, and daytime visitors within the program area. The proposed program would provide employment opportunities for the local economy and it is anticipated that the majority of jobs would be filled by the local labor force. Thus, these employees would not likely relocate their households as a consequence of working on the proposed program. Accordingly, there would not be a corresponding demand or increased use of the existing parks and recreation facilities as most employees would be more likely to use parks and recreation facilities near their places of residences. Moreover, as they would be located next to the restored wetlands and trail, recreational opportunities would be provided on site for new employees and it is anticipated that the employees would not use nearby parks during their lunchbreak. However, if employees were to use the existing recreational facilities during their lunch break, it would only increase potential use at those facilities for 30 to 60 minutes a day per employee, which would not increase use of park and recreational facilities such that physical deterioration would occur.

The proposed program would also introduce publically accessible recreational areas to the program area with the development of new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and Seal Beach Visitor Center. Due to the increased availability of recreational amenities, the proposed improvements would bring an unknown number of daytime visitors to the program area could also increase the use of existing recreational facilities in the surrounding area. It is important to note that portions of the trails would be restricted to scheduled docent-led tours,

which would limit the number of visitors that would be allowed on the perimeter trail at the same time in order to ensure there would be no degradation to the wetlands as a result of human activity. Visitors would be accompanied by a docent at all times. Overall, opening the Seal Beach Visitor Center and public access trail to the public would allow for wider enjoyment of its recreational and open space amenities and, thereby, expand and enhance recreational opportunities available within the program vicinity. The public enhancements would enable able-bodied visitors to walk through what are now inaccessible areas on site and gain better views of the on-site wetland habitat. As such, the proposed program would result in direct beneficial effects to recreation and the proposed program would not result in the increased use of existing parks or recreational facilities such that substantial deterioration of these resources would occur or be accelerated.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact REC-2: The proposed program would result in a significant impact if the proposed program would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Currently, there are no existing recreational facilities located on the program area. The proposed program would construct recreational facilities on site through the development of new pedestrian trails, elevated perimeter pedestrian walkways, educational and interpretive features, viewing areas with overlooks, new and improved parking facilities, and Seal Beach Visitor Center. The public enhancements would enable able-bodied visitors to walk through what are now inaccessible areas on site and gain better views of the on-site wetland habitat. The proposed program could also include new sidewalk improvements. The construction and enhancement of recreational facilities are considered part of the proposed program; therefore, construction and enhancement of these facilities are described and analyzed with the rest of the proposed program components throughout Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, in Sections 3.1 through 3.16 of this PEIR, including air quality, traffic, and noise. Additionally, once constructed and operational, the proposed program would provide a beneficial impact with respect to increased recreational opportunities for the cities of Seal Beach and Long Beach. As described throughout this PEIR, the new pedestrian trails, elevated perimeter pedestrian walkways, educational or interpretive features, viewing areas with overlooks, new and improved parking facilities, and Seal Beach Visitor Center would be constructed in areas with the least potential to disturb native habitat and any potentially significant impacts would be mitigated to the maximum extent possible. No additional mitigation measures are needed.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.13.6 Cumulative Impacts

The geographic context for the analysis of recreation impacts is the Hellman Specific Plan area in City of Seal Beach and the PD-1 (SEADIP) area in the City of Long Beach, as this represents the largest areas within which the proposed program's direct and indirect impacts could manifest. The LBPRM Department maintains and operates the parks and recreational programs and services within the PD-1 (SEADIP) area, as well as throughout the City of Long Beach. The analysis considers the ongoing impacts of past programs and impacts that would result from the existing and reasonably foreseeable future programs identified in Chapter 2, *Program Description*, Table 3-1, List of Cumulative Projects. Given the 23 projects located within a 3-mile radius of the proposed program, those within the PD-1 (SEADIP) area are considered in this cumulative analysis. These cumulative projects include, but are not limited to, industrial, infrastructure, residential, and commercial programs.

While the restoration activities that would occur at the program area would not result in permanent residential and employment growth that could increase the amount of recreational users at the program area, it would provide a visitor center and public access to the program area, which is inaccessible under existing conditions. The proposed program would also construct improvements along the street frontages and could provide sidewalks. By providing these new and enhanced recreational facilities to the public, the use of the existing 2nd Street bike path and surrounding bike paths in the program area would likely increase. However, it is unlikely that creation would be increased to the extent that substantial physical deterioration of existing recreation facilities would occur. In light of the proposed program's long-term recreational benefits, there would be no significant adverse impact to recreation.

There are a number of present and foreseeable future programs in the study area that could result in the intensification of residential uses and, thus, could increase the population and, thereby, increase the demand for recreational opportunities and facilities in the program vicinity. There are 23 cumulative projects within the geographic scope of this cumulative impacts assessment that could contribute to a cumulative impact to recreation. These new and improved facilities, in combination with the less-than-significant impacts of the proposed program would have a less-than-significant cumulative impact.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.13.7 References

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SECTION 3.14
Transportation

3.14.1 Introduction

This section describes the potential for the proposed program to affect transportation and circulation. The section includes a description of the environmental setting to establish baseline conditions for transportation and traffic; a summary of the regulations related to transportation and traffic; and an evaluation of the proposed program's potential effects on transportation and circulation.

The analysis is based on review of applicable traffic and circulation plans to the program area and vicinity, the relevant regulatory ordinances, and a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts. This section analyzes the potential for both program-level and cumulative environmental impacts. All information sources used are included as citations within the text; sources are listed in Section 3.14.7, *References*.

3.14.2 Environmental Setting

3.14.2.1 Regional Setting

Existing Regional Traffic Circulation System

The program area is located in Orange and Los Angeles Counties, specifically in the cities of Seal Beach and Long Beach, respectively. The regional circulation system within which construction vehicles (i.e., trucks that would transport equipment and material as well as individual construction workers trips) and operational vehicles (i.e., routine maintenance workers and visitors to the Seal Beach Visitor Center and passive recreational trails), would travel to access the program area consists of the following regional highways:

- **San Diego Freeway (I-405)** is classified as a State Freeway in the Los Angeles Congestion Management Plan (CMP). I-405 runs from Irvine to San Fernando, cutting through the cities of Seal Beach and Long Beach. The City of Seal Beach designates I-405 as an official truck route through the city.
- **San Gabriel River Freeway (I-605)** is classified as a north–south State Freeway in the Los Angeles CMP. I-605 runs from I-405 and SR 22 in Seal Beach into Los Angeles County to Interstate 210 in Duarte. The City of Seal Beach designates I-605 as an official truck route through the city.
- **Pacific Coast Highway (SR 1)** is classified as a State Highway (Arterial) in the Los Angeles CMP and is considered a highway in the Orange County CMP. The roadway extends south

from SR 101 in Leggett, California, along the Pacific Coast over 650 miles before terminating at Interstate 5 in Dana Point, California. The City of Seal Beach designates PCH as an official truck route through the city.

- **Garden Grove Freeway (SR 22)** is classified as a State Freeway in the Los Angeles CMP. The roadway begins at SR 55 and ends at PCH in Long Beach. The City of Seal Beach designates SR 22 as an official truck route through the city.
- **SR 19** is classified as a north–south State Highway in the Los Angeles CMP and begins at the Long Beach Traffic Circle, where PCH heads west and southeast, and Los Coyotes Diagonal heads northeast. SR 19 extends north and connects with I-405.

3.14.2.2 Program Area Setting

City of Seal Beach

Local Circulation System

The South Area is the only portion of the program area that is located within the City of Seal Beach. The Circulation Element of the Seal Beach General Plan separates the city into four planning areas for transportation planning purposes. The South Area is located in Planning Area 2 (City of Seal Beach 2003). In addition to the regional roadways, the following local roadways provide local access to the South Area:

- **Seal Beach Boulevard** is classified as a north–south Major Arterial in the Orange County Master Plan of Arterial Highways (MPAH), which connects with SR 22 and I-405 in the City of Seal Beach (OCTA, 2019b). Seal Beach Boulevard is a six lane divided roadway that provides coastal access within Seal Beach. The City of Seal Beach designates Seal Beach Boulevard as an official truck route through the city. Seal Beach Boulevard runs roughly parallel to the south of the South Area.
- **Westminster Avenue** is classified as an east–west Primary Arterial in the MPAH. The City of Seal Beach designates Westminster Avenue as an official truck route through the city. Westminster Avenue extends just north of the South Area and bound the northern end of the Isthmus Area.
- **Bolsa Avenue** is classified as an east–west Major Arterial in the MPAH. This roadway provides an alternative connection through residential uses between Seal Beach Boulevard and PCH.
- **1st Street** is classified as an east–west Primary roadway in the Seal Beach General Plan. This roadway extends into the South Area from its intersection with PCH.
- **Adolfo Lopez Drive** is a neighborhood street that provides permitted access directly to the South Area via private roadways.
- **Avalon Drive** is a neighborhood street that provides permitted access directly to the South Area via a dirt path that leads to Gum Grove Park.

Public Transportation

Public transportation in the City of Seal Beach consist of bus service throughout the city and surrounding region, which is provided by OCTA. In the vicinity of the program area, specifically the South Area, OCTA operates Route 1 along PCH, Route 42 along Seal Beach Boulevard and PCH, and Route 60 along Westminster Avenue (City of Seal Beach, 2003; OCTA, 2019a). In

addition, OCTA operates three services as part of its Senior Mobility Program, including weekday, daytime transportation to and from the North Seal Beach Community Center; Dial-A-Ride trips for non-emergency medical appointments; and daytime retail/grocery shopping on Thursdays (OCTA, 2019c).

Bicycle and Pedestrian Facilities

The City of Seal Beach General Plan designates three categories of bicycle facilities: Class I, Class II, and Class III. Class I bikeways provide for bicycle travel on a right-of-way completely separated from the roadway. Class II bikeways provide for a striped lane for one-way travel within the street right-of-way. Class III bikeways provides for on-road, signed only bikeways. In the vicinity of the South Area, Class II bikeways are provided along Westminster Avenue, Seal Beach Boulevard, PCH, and Bolsa Avenue (City of Seal Beach 2003). Pedestrian facilities within the immediate vicinity of the South Area consist of sidewalks along segments of the following streets: Seal Beach Boulevard, PCH, and Bolsa Avenue.

The Orange County (OC) Loop is a vision for 66 miles of seamless connections and an opportunity for people to bike, walk, and connect to some of California's most scenic beaches and inland reaches (OCTA, 2019d). About 80 percent of the OC Loop is already in place and is used by thousands of people. Currently, nearly 54 miles use existing off-street trails along the San Gabriel River, Coyote Creek, Santa Ana River, and the Coastal/Beach Trail. The San Gabriel River Bike Trail, located along the southern edge of the Central Area, is part of the OC Loop. The OC Loop proposes to make enhancements to existing bicycle/pedestrian facilities between the San Gabriel River Bike Trail and Sunset Beach via 1st Street, Marina Drive, Electric Avenue, Seal Beach Boulevard, and PCH in the future.

City of Long Beach

Local Circulation System

While the majority of the South Area is located in the City of Seal Beach, the remainder of the program area is located in the City of Long Beach. The following roadways in the City of Long Beach provide local access to the program area:

East 2nd Street is an east–west major roadway that turns into Westminster Avenue going east into the City of Seal Beach. The City of Long Beach General Plan identifies this roadway as one of the City's east/west congested corridors (City of Long Beach 2013). East 2nd Street runs through the northern portion of the program area between the Central and North Areas.

North Studebaker Road is a north–south roadway that runs parallel to the eastern boundary of the North Area of the program area. North Studebaker Road connects with East 2nd Street in the south and SR 22 to the north.

Loynes Drive is an east–west neighborhood roadway that runs just north of the program area between North Studebaker Road and PCH.

East 7th Street is an east–west major roadway that connects with PCH to the west and I-405 and SR 22 to the east just north of the program area. The City of Long Beach General Plan designates this roadway as a truck route throughout the city.

Public Transportation

Public transportation in Long Beach consist of bus service and light rail (i.e., the Blue Line) throughout the city and surrounding region. Bus service is provided by the Orange County Transportation Authority (OCTA), Los Angeles County Metropolitan Authority (Metro), and Long Beach Transit. OCTA operates Route 1 along PCH, Studebaker, and Loynes Drive, and Routes 50, 60, and 560 along SR 22 and 7th Street (OCTA, 2019a). Metro operates Express Route 577 along I-605 and SR 22 in the vicinity of the program area (Metro, 2018). Long Beach Transit operates Routes 121 and 171 along Loynes Drive and PCH in the vicinity of the program area (Metro, 2018).

Bicycle and Pedestrian Facilities

The City of Long Beach Bicycle Master Plan identifies bicycle facilities throughout the city and classifies the facilities into four categories: bike boulevard, Class I bike path/protected lanes, Class II bike lanes, and Class III bike routes/sharrows (City of Long Beach 2013). In the program area, a Class II bike lane runs along 2nd Street and Class I bike path/protected lanes along Loynes Drive and through the Isthmus Area, known as the San Gabriel River Trail, along the eastern boundary of the San Gabriel River (City of Long Beach 2013).

Pedestrian facilities within the immediate vicinity of the South Area consist of sidewalks along segments of the following streets: East 2nd Street and East 7th Street.

3.14.3 Regulatory Framework

The program shall be required to comply with the following laws, statutes, regulations, codes, and policies.

3.14.3.1 Federal

Federal Aviation Administration

All airports and navigable airspace not administered by the United States Department of Defense are under the jurisdiction of the Federal Aviation Administration (FAA). Federal Regulation Title 14 Section 77 establishes the standards and required notification for objects affecting navigable airspace. In general, projects involving features exceeding 200 feet in height above ground level or extending at a ratio greater than 50:1 (horizontal to vertical) from a public or military airport runway less than 3,200 feet long out to a horizontal distance of 20,000 feet are considered potential obstructions, and require notification to the FAA. In addition, the FAA requires a congested area plan (CAP) for operating a helicopter (with external load) near residential dwellings (FAA, 2012).

Transportation of Hazardous Materials

The U.S. Department of Transportation (USDOT) is the administering agency for the following regulations:

- Title 49 Code of Federal Regulations (CFR) Sections 171 through 177 (49 CFR 171–177), which govern the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of transportation vehicles.
- Title 49 CFR 350–399 and Appendices A through G, Federal Motor Carrier Safety Regulations, which address safety considerations for the transport of goods, materials, and substances over public highways.
- Title 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, which directs USDOT to establish criteria and regulations for the safe transportation of hazardous materials.

3.14.3.2 State

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, building, operating, and maintaining California's transportation system. Caltrans sets standards, policies, and strategic plans that aim to do the following: (1) provide the safest transportation system for users and workers; (2) maximize transportation system performance and accessibility; (3) efficiently deliver quality transportation projects and services; (4) preserve and enhance California's resources and assets; and (5) promote quality service. Caltrans has the discretionary authority to issue special permits for the use of State Highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within the State Highway right-of-way. In the program area, Caltrans maintains jurisdictional authority over PCH, I-405, and SR-22.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed program.

California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code Sections 660 through 711. Caltrans encroachment regulations would apply to the transportation of construction crews and construction equipment throughout the program area. Caltrans requires that permits be obtained for transportation of oversized loads, certain materials, and construction-related traffic disturbance.

3.14.3.3 Regional

Southern California Association of Governments

2016–2040 Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the designated Metropolitan Planning Organization for Imperial, Los Angeles, Orange, Riverside, Ventura, and San Bernardino Counties. On April 7, 2016, SCAG adopted its 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS presents the transportation vision for the SCAG region through the year 2040 and provides a long-term investment framework for addressing the region's transportation needs and related challenges. The RTP/SCS focuses on maintaining and improving the transportation system through a balanced approach and considers economic, environmental, public health, improved coordination between land-use decisions and transportation investments, and strategic expansion of the system to accommodate future growth (SCAG, 2016).

Orange County

Orange County Transportation Authority

The Orange County Transportation Authority (OCTA) was formed in 1991 with the responsibility for reducing freeway congestion, improving safety and efficiency on local roads, providing bus service and regional multimodal connections, helping people find ways to leave their cars home, and providing safe, convenient transportation to those with special needs. OCTA funds improvements to all modes of transportation through several programs, including the Transportation Improvement Program, the CMP, and alternative transportation planning, including the Commuter Bikeways Strategic Plan. OCTA operates rail and bus transit services throughout Orange County, including the City of Seal Beach.

Orange County Congestion Management Program

The Orange County CMP was enacted by the state legislature in 1989 to improve traffic congestion in California. The CMP is funded by Proposition 111, passed in 1990, which increased the state gas tax by 9 cents over a 5-year period. The CMP provides cities and counties who are in compliance with the CMP with funds for regional road improvements. The OCTA adopted the most current CMP for Orange County in October 2017; however, it is anticipated that the OCTA will be adopting the next iteration of the plan in fall of 2019. The goals of the Orange County CMP are to support regional mobility objectives by reducing traffic congestion, to provide a mechanism for coordinating land use and development decisions that support the regional economy, and to support gas tax funding eligibility. To meet these goals, the Orange County CMP contains a number of policies designed to monitor and address system performance issues. OCTA developed the policies that makeup the Orange County CMP in coordination with local jurisdictions, the Caltrans, and the South Coast Air Quality Management District (OCTA, 2017).

Los Angeles County

Los Angeles County Metropolitan Transportation Authority

Los Angeles County Metropolitan Transportation Authority (Metro) serves as transportation planner and coordinator, designer, builder, and operator for Los Angeles County. Metro funds improvements to all modes of transportation through several programs, including the Transportation Improvement Program, the Congestion Management Program, and Bicycle Transportation Strategic Plan. Metro operates rail and bus transit services throughout Los Angeles County, including the City of Long Beach.

Los Angeles County Congestion Management Program

In 2010, the County of Los Angeles updated its CMP to assess the overall performance of the highway system, which provides quantitative input for funding improvements and programs. This is the eighth CMP adopted for Los Angeles County since the requirement became effective with the passage of Proposition 111 in 1990. The Los Angeles CMP covers approximately 500 miles of freeway facilities, which are divided into 81 key segment pairs (eastbound/westbound or northbound/ southbound). The traffic operations at each segment are evaluated every 2 years by Caltrans and published in the Los Angeles CMP. The Los Angeles CMP arterial streets in Long Beach consist of PCH, 7th Street, Alamitos Avenue, and Lakewood Boulevard. The Los Angeles CMP freeway segments in Long Beach include I-710, I-605, I-405, and SR-91.

3.14.3.4 Local

City of Seal Beach

General Plan

The Circulation Element of the City of Seal Beach General Plan serves as the City's primary guide for transportation planning, where the main objective is to ensure the ongoing development and maintenance of a comprehensive circulation network that will efficiently move people and goods throughout the city and region. The Circulation Element includes the following applicable circulation goals, objectives, and policies related to the proposed program:

- General Goal: Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City and near open space habitats for wildlife, while minimizing environmental impacts (including air, light, and noise pollution).
  - Objective: Provide adequate capacity for the City's circulation needs while minimizing negative impacts, including environmental impacts needing mitigation.
    - Policy: Develop a circulation system that enhances environmental amenities and scenic areas.
- Coastal Access Goal: Maintain Local Coastal Program standards, including the improvement of public coastal access wherever possible.

Municipal Code

The Seal Beach Municipal Code establishes the City's regulations and requirements. Title 8, Vehicles and Traffic, of the Municipal Code contains the City's traffic requirements, such as

traffic control during construction and operation, bicycle and pedestrian facilities and safety, and establishes the official truck routes that extend through the city.

Local Coastal Program

The City of Seal Beach is in the process of preparing its Local Coastal Program (LCP) and does not currently have a certified LCP at this time. Therefore, the proposed program will not be evaluated for consistency with this plan.

City of Long Beach

General Plan

The City of Long Beach Mobility Element outlines the vision, goals, policies, and implementation measures required to improve and enhance the City's local and regional transportation system. The applicable strategies and policies related to the proposed program include the following:

Strategy No. 2: Reconfigure streets to emphasize their modal priorities

MOP Policy 2-18: Provide adequate sidewalk widths and clear path of travel as determined by street type classification, adjoining land uses, and expected pedestrian usage.

Strategy No. 14: Reduce the air quality impacts of freight transportation and Port-related traffic.

MOG Policy 14-2: Adopt and enforce truck routes to minimize the impacts of truck emissions on the community.

MOG Policy 14-3: Reduce congestion on freeways and designated truck routes.

Municipal Code

The City's Municipal Code includes regulations related to pedestrian, bicycle, and vehicular mobility. Title 10, Vehicles and Traffic, contains the following various chapters that are applicable to the proposed program: Chapter 10.08 (Traffic Control Devices); Chapter 10.58 (Pedestrians); Chapter 10.48 (Bicycles); and Chapter 18.17 (Transportation Improvement Fee).

Local Coastal Program

The City of Long Beach Local Coastal Program includes the following measures and restrictions related to traffic and transportation in the City's coastal zone that apply to the proposed program:

a. In the interest of preserving the character, of the residential area and property values, as well as the requirement for consolidation of oil activities in the coastal zone, access to and egress from all oil operations in the coastal zone be limited to the use of streets specified in permits for operations. Access to oil operations need not impact residential streets. In the SEADIP area, Bellflower Boulevard, Pacific Coast Highway, Loynes westerly extension, and Eliot Street should carry oil trucks involved in oil operations.

b. All driveway access roads shall be of sufficient length to allow all trucks and machinery to enter, depart, and park without impacting public streets.

c. Gates of access roads shall be kept closed and be placed a sufficient distance from the public street so that all entering and departing vehicles and machinery can safely stop to secure such gate without extending onto the shoulder of any public street.

d. Any violation of these mitigating conditions shall carry substantial fines and continued violations shall result in revocation of operating permits.

Adopted Southeast Area Development and Improvement Plan

Development Districts in the City of Long Beach are special districts that have more comprehensive land use regulations than conventional zoning and are intended to achieve a specific outcome in a geographic area, similar to a Specific Plan. Approved in 1977, the SEADIP was the first PD-1 district in the City of Long Beach and also provided zoning for the covered properties. The SEADIP document was intended to guide land use and development in an area that was experiencing a period of rapid growth. The SEADIP does not contain standards relative to traffic/transportation.

Proposed Southeast Area Specific Plan 2060

The City unanimously approved the SEASP 2060 on September 19, 2017, a new specific plan with conventional zoning on a few select parcels. Note that at the time of writing this PEIR, the California Coastal Commission (CCC) has yet to certify the proposed SEASP 2060; however, it is anticipated that the SEASP 2060 will be completed and issued in its final form within the lifetime of the proposed program The SEASP 2060 area consists of 1,472 acres and includes 1,381 acres currently zoned PD-1 (SEADIP), 94 acres of the San Gabriel River and Los Cerritos Channel, and 6 acres along the southeast edge of the current PD-1 (SEADIP) boundary.

The proposed SEASP 2060 guiding principles and development standards related to traffic/transportation include the following:

- Expand multi-modal transportation options through enhanced pedestrian and bicycle connectivity without compromising vehicular traffic flow;
- Provide options to increase public connectivity to open space, including the marina, other waterways, the wetlands, and parks; and

Under the proposed SEASP 2060, a majority of the individual sites have a land use designation of Coastal Habitat, Wetlands, and Recreation (CHWR). In addition, the Los Alamitos Pump Station site and the portion of the Los Alamitos Retarding Basin site within the City of Long Beach have a land use designation of Public. Furthermore, a portion of the Long Beach Property site is designated as Dedicated Right of Way (not built). The CHWR land use designation provides for coastal restoration, access, visitor-serving recreation (boating, public launching, kayaking, paddle boarding, etc.), and biological reserves. Public access to coastal water is encouraged and uses such as interpretive centers and public parking associated with coastal resources are permitted. The Public land use designation provides more public and institutional uses such as elementary schools, museums, and interpretive centers, parking, water tanks and retention basis. Uses in this designation shall comply with provisions of Long Beach Municipal Code Chapter 21.34, Institutional Districts. The Dedicated Right of Way (not built) designation is intended for the extension of Shopkeeper Road which currently dead-ends into the Pumpkin Patch site in the

Central Area. The proposed SEASP 2060 indicates that the ultimate alignment of Shopkeeper Road shall be designed to avoid impacting a delineated wetland.

3.14.4 Significance Thresholds and Methodology

3.14.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on traffic and transportation if it would:

a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
b. Would the project conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b);
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
d. Result in inadequate emergency access.

As detailed in the Initial Study (refer to Appendix A of this PEIR), the proposed program would result in less than significant impacts to threshold "d." No further analysis is provided herein.

3.14.4.2 Methodology

This analysis of potential proposed program impacts to transportation and traffic is based on the review of the applicable transportation and traffic plans, as described above, to determine the proposed program's consistency with these established plans. A significant impact to transportation and traffic would occur if the proposed program was determined to conflict with the standards, regulations, or requirements of the applicable plans.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to transportation were identified.

3.14.5 Program Impacts and Mitigation Measures

Impact TRA-1: The proposed program would result in a significant impact if the proposed program would conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Construction

Construction of the program components would occur intermittently over near-term (within approximately 10 years), mid-term (between approximately 10-20 years), and long-term (20 years or longer) periods throughout the program area, where construction of the various program

components would depend on location, phasing, and timing of funding. A detailed description of program phasing and specific construction activities at each of the individual sites is provided in Chapter 2, *Project Description*. Construction of the proposed program has the potential to affect the transportation system through the hauling of excavated materials and debris, the transport of construction equipment, the delivery of construction materials, and travel by construction workers to and from the program area.[1] Construction trucks and vehicles would use the regional circulation system as well as the local circulation systems of both the cities of Seal Beach and Long Beach. Based on the designated truck routes established in the Seal Beach and Long Beach General Plans, construction trucks would primarily use I-405, I-605, PCH, SR 22, Seal Beach Boulevard, Westminster Avenue, and East 7th Street.

Construction of the program components would add temporary construction-related traffic to nearby roadways over the course of the construction periods of the proposed program. While construction of the program components would temporarily generate additional truck and vehicle trips within the cities of Seal Beach and Long Beach and on the regional circulation system, traffic levels would not substantially increase and would be temporary in nature as traffic levels would return to pre-construction conditions once construction is complete. Moreover, due to typical construction start and finish times (i.e., arrive before 7:00am, depart after 6:00pm), construction trips would occur outside the heavily-congested peak traffic periods and would, therefore, not contribute to delay currently experienced by vehicles traveling through the local and regional circulation systems. Additionally, delivery and hauling of construction materials to and from the program area would be scheduled outside of peak hours to the greatest extent feasible to reduce the effects to the local and regional circulation systems.

To further decrease effects to existing traffic operations, construction trucks accessing the program area would use designated truck routes to the extent feasible, which would keep heavy trucks moving at slower speeds along roadways that have been designed to accommodate these types of vehicles. While local drivers could experience increased travel times if they were traveling behind a heavy truck due to slower movement and turning radii compared to passenger vehicles, these delays would be intermittent throughout the day, where the majority of these trips would occur outside peak hours, and would cease once construction activities are completed. All construction trucks traveling on Caltrans facilities would be required to comply with CVC, division 15, chapters 1 through 5 (Size, Weight, and Load) and California Street and Highway Code Sections 660 through 711, as applicable, to minimize impacts to roadway operations.

In addition, while full or partial roadway closures are not anticipated at this time to be required during construction of the program components, there could be the need for a roadway closure as the design process progresses. If a full or partial roadway is required during construction, a significant impact to roadway operations could occur. In order to reduce impacts to roadway performance during construction activities that could require roadway lane closures, LCWA would be required to implement Mitigation Measure TRA-1, which would require the preparation and implementation of a traffic control plan. The traffic control plan would include, but not be limited to, signage, striping, delineated detours, flagging operations, changeable message signs,

[1] Barges may also be used to transport materials and equipment between sites.

delineators, arrow boards, and K-Rails that would be used during construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation to the satisfaction of the local jurisdictions. Approximately two to four construction workers would be required to implement the traffic control plan during construction. The traffic control plan for the proposed program would be coordinated with Los Angeles and Orange Counties when construction activities affect roadways under their jurisdictions. Therefore, with implementation of Mitigation Measure TRA-1, impacts to the local and regional circulation systems, including bike lanes and pedestrian facilities, from potential roadway closures during construction of the proposed program would be reduced to less than significant levels.

In summary, while construction of the proposed program would temporarily increase traffic volumes on the local and regional circulation systems, roadway operations would return to pre-construction levels once construction is complete. All construction trucks would utilize designated truck routes and comply with all applicable roadway regulations and guidance to minimize effects to roadway operations. In addition, implementation of Mitigation Measure TRA-1 would reduce potentially significant impacts related to roadway closures in the local circulation systems by requiring the preparation and implementation of a traffic control plan. Therefore, for these reasons, the proposed program's effects on the local and regional circulation systems during construction would be less than significant.

Operation

Operation and maintenance of the proposed program consists of maintenance activities associated with the restored wetlands and other habitats, flood management facilities, Seal Beach Visitor Center, and other public access amenities. A detailed description of operation and maintenance associated with the proposed program for each of the individual sites is provided in Chapter 2, *Project Description*. Once construction is complete, operation of the proposed program would include routine maintenance activities as well as operation of the Seal Beach Visitor Center and passive recreational trails. Maintenance activities would be conducted by the Los Angeles County Flood Control District in combination with LCWA, where maintenance workers would drive passenger vehicles to the program area. Operation and maintenance of the restored habitats and flood management facilities would generate minimal operational trips, and the majority of the operational activities would occur infrequently (i.e., not a daily basis).

The other trip-generating component of the proposed program is the Seal Beach Visitor Center, which could be up to 2,000 square feet and provide a maximum of 60 parking spaces for employees and visitors; however, the maximum building envelope was developed as a conservative estimation for CEQA purposes. The Institute of Transportation Engineers (ITE) Trip Generation Manual does not provide a specific trip generation rate for the visitor center land use. However, it does provide a trip generation rate for Public Park (Land Use Code 411) (ITE, 2017). Therefore, the amount of operational trips generated by the proposed program overall was calculated by applying the trip generation rate of the Public Park land use by the total acreage of the program area (503 acres).[2] It should be noted that the Public Park land use provides a

[2] The trip generation rate for the Public Park land use is 0.78 trips per acre for weekdays, 1.96 trips per acre for Saturdays, and 2.19 trips per acre for Sundays.

conservative estimation of the operational trips generated as that land use is a more intense land use than the proposed land use under the proposed program.

Based on that calculation, the proposed program is anticipated to generate approximately 393 trips on weekdays, 986 trips on Saturdays, and 1,102 trips on Sundays. Based on knowledge of operations at similar, nearby visitor centers such as the San Joaquin Marsh in Irvine, the Back Bay in Newport Beach, and the Bolsa Chica State Park in Huntington Beach, the majority of these trips are not anticipated to occur during the peak traffic hours and would be spread out throughout the day.

The amount of trips generated by operation and maintenance of the proposed program would not result in a substantial increase to existing traffic volumes and would vary throughout the week as well as the year due mainly to the daily and seasonal variability of visitors. The proposed program would not alter the local roadway configuration or permanently disrupt bus stops or bike lanes once operational, and therefore would be consistent with all applicable transportation and traffic plans. Furthermore, the proposed program could install new sidewalks around the perimeter of the program area where there are currently none and a crosswalk at the intersection of Shopkeeper Road and 2nd Street to improve public access between the North Area, Long Beach Visitor Center, and Central Area. These components would increase connectivity and safety for pedestrians and bicyclists. Thus, operation of the proposed program would not affect the performance of the local or regional circulation systems. Operational impacts would be less than significant.

Mitigation Measure

Mitigation Measure TRA-1: Prior to the start of construction of the program component(s) that require a full or partial roadway closure, LCWA shall require the construction contractor(s) to prepare a traffic control plan. The traffic control plan will show all signage, striping, delineated detours, flagging operations and any other devices that will be used during construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation to the satisfaction of the cities of Seal Beach and Long Beach and Orange and Los Angeles Counties, as applicable. The traffic control plan shall be prepared in accordance with the applicable jurisdiction's traffic control guidelines and will be prepared to ensure that access will be maintained to individual properties, and that emergency access will not be restricted. Additionally, the traffic control plan will ensure that congestion and traffic delays are not substantially increased as a result of the construction activities. Furthermore, the traffic control plan will include detours or alternative routes for bicyclists using on-street bicycle lanes as well as for pedestrians using adjacent sidewalks. LCWA shall provide written notice at least two weeks prior to the start of construction to owners/occupants along streets to be affected during construction.

During construction, LCWA will maintain continuous vehicular and pedestrian access to any effected residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, LCWA shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure. The traffic control plan shall include provisions to ensure that the construction of the

proposed program does not interfere unnecessarily with the work of other agencies such as mail delivery, school buses, and municipal waste services.

LCWA shall also notify local emergency responders of any planned partial or full lane closures or blocked access to roadways or driveways required for program construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the program area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.

Significance after Mitigation

Less than Significant with Mitigation

Impact TRA-2: The proposed program would result in a significant impact if the proposed program would conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b).

In accordance with Senate Bill (SB) 743, the new *CEQA Guidelines* Section 15064.3, subdivision (b), was adopted in December 2018 by the California Natural Resources Agency. These revisions to the *CEQA Guidelines* criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas, and shifts the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person. The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. The cities of Seal Beach and Long Beach as well as the Counties of Los Angeles and Orange have not yet formally adopted their updated transportation significance thresholds or their updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the Cities or Counties, a qualitative traffic analysis was used in this PEIR to determine significance of transportation impacts (see Impact TRA-1 discussion, above).

In addition, Section 15064.3 of the *CEQA Guidelines* suggests that the analysis of VMT impacts applies mainly to land use (i.e., residential, commercial, industrial) and transportation projects. Per this guidance, since the proposed program is neither a land use nor a transportation project, it can be assumed to have a less than significant impact with respect to VMT. It should be noted that while *CEQA Guidelines* Section 15064.3, subdivision (b), is not applicable to the proposed program at this time, the proposed program does have the potential to generate operational trips associated with people visiting the Seal Beach Visitor Center and utilizing the proposed recreational trails and other public access amenities throughout the program area. However, it is anticipated that local residents and visitors staying in the area would travel to the program area, with trips originating from the surrounding communities, resulting in low vehicle miles traveled to get to and from the program area. As such, the proposed program is anticipated to result in a less than significant impact with respect to VMT.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact TRA-3: The proposed program would result in a significant impact if the proposed program would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Construction

Construction of the proposed program would include the use of heavy trucks to bring construction materials to and from the program area. Construction trucks accessing the program area would use designated truck routes to the extent feasible, which would keep heavy trucks moving at slower speeds along roadways that have been designed to accommodate these types of vehicles. While local drivers could experience increased travel times if they were traveling behind a heavy truck due to slower movement and turning radii compared to passenger vehicles, these delays would be intermittent throughout the day, where the majority of the trips would occur outside of peak hours, and would cease once construction activities are complete. Furthermore, heavy trucks are typical of construction activities and are not considered a roadway hazard. Construction of the program components could require full or partial road closures, which could result in hazardous driving conditions. However, implementation of Mitigation Measure TRA-1 would require the preparation and implementation of a traffic control plan to minimize the effects on roadway safety. Therefore, construction of the proposed program would not result in a hazardous design feature within the program area. Impacts during construction would be less than significant with mitigation.

Operation

Once construction is complete, operation of the proposed program would include routine maintenance activities as well as operation of the Seal Beach Visitor Center and passive recreational trails. Maintenance activities would be conducted by the Los Angeles County Flood Control District in combination with LCWA, where maintenance workers would drive passenger vehicles to the program area. Operation of the proposed program would not require heavy equipment nor does it include a change to existing roadway configurations and as such, would not impact existing intersections or roadways. Access to the individual sites of the program area would likely be provided via existing driveways; however, if an existing driveway were to be reconstructed as part of the proposed program, it would be designed and constructed to comply with all relevant City standards to ensure that facilities operate safely and efficiently. Compliance with these established design standards would ensure that operation of the proposed program would result in a less-than-significant impact with regard to hazards and incompatible uses.

Mitigation Measure

Mitigation Measure TRA-1.

Significance after Mitigation

Less than Significant with Mitigation

3.14.6 Cumulative Impacts

The geographic scope for potential cumulative impacts to traffic and transportation is the regional and local roadways within the cities of Seal Beach and Long Beach and the surrounding portions of Orange and Los Angeles counties. Additionally, a network of bicycle lanes extends throughout the geographic scope and provide travel corridors for alternative transportation and pedestrians. Similar to the proposed program, cumulative projects, which are identified in Table 3-1, *List of Cumulative Projects*, would also have the capability to generate additional truck and vehicle trips on the regional and local circulation systems within the geographic scope. The amount of traffic which could be generated depends on the type and size of the project. Residential projects would consistently contribute very large amounts of additional vehicles to the regional and local circulation systems while smaller commercial projects would generate high amounts of traffic during peak times during the day and on weekends. Given the different types and size of the projects included in the cumulative scenario, it is reasonable to assume that when considering the amounts of additional truck and vehicle trips generated by all of the cumulative projects during construction and operation, a potentially significant cumulative impact could occur to the local and regional circulation systems.

In addition, with the contribution of additional trips added by each cumulative project, existing transit routes could experience increased congestion and slower overall travel times. Furthermore, some of the cumulative projects could also require partial or full lane closures. In combination, projects that involve lane closures could also result in a significant cumulative impact if multiple projects required simultaneous lane closures, which would adversely affect traffic volume levels resulting in increased congestion, and could restrict or block emergency responders, transit routes, and bicycle lanes within the program area. As a result, the combined effects from the construction or operation of projects within the geographic scope related to traffic and transportation would be considered cumulatively significant.

When added to the cumulative scenario described above, construction and operation of the proposed program would not substantially increase traffic volumes within the geographic scope. While the proposed program would temporarily generate additional truck and vehicle trips within the regional and local circulation systems during construction, traffic levels would not substantially increase and would be temporary in nature as traffic levels would return to pre-construction conditions once construction is complete. Although operational activities would generate additional trips on the surrounding local and regional circulation system, the number of peak hour trips would be minimal while the remainder of trips would be spread throughout the day. The amount of trips generated by operation and maintenance of the proposed program would

not result in a substantial increase to existing traffic volumes and would vary throughout the week as well as the year depending on seasons. The proposed program would not alter the local roadway configuration or permanently disrupt bus stops or bike lanes once operational, and therefore would be consistent with all applicable transportation and traffic plans.

Additionally, the proposed program would be required to implement Mitigation Measure TRA-1 that requires the preparation and implementation of a traffic control plan in the event of necessary lane closures, which would reduce all effects to the regional and local circulation system, including existing transit routes, bicycle lanes, and emergency response access, to a less than significant level. Therefore, the proposed program's contribution to cumulative impacts to traffic and transportation would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measure

Mitigation Measure TRA-1.

Significance after Mitigation

Less than Significant with Mitigation

3.14.7 References

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SECTION 3.15
Tribal Cultural Resources

3.15.1 Introduction

This section evaluates the potential for the proposed program to result in adverse tribal cultural resources impacts. The analysis is based on a Sacred Lands File (SLF) search through the Native American Heritage Commission (NAHC) and consultation with California Native American Tribes. This section identifies the potential for both program-level and cumulative environmental impacts to occur, as well as feasible mitigation measures that would minimize or avoid the proposed program's impacts on tribal cultural resources.

Information sources for the analysis presented in this section include the following:

Native American Heritage Commission Sacred Lands File Search (Quinn, 2019)

Staff Report: Coastal Development Permit for the Los Cerritos Wetland Oil Consolidation and Restoration Project (California Coastal Commission [CCC], 2018)

All information sources used are included as citations within the text; sources are listed in Section 3.15.7, *References*.

3.15.2 Environmental Setting

3.15.2.1 Tribal Cultural Resources Definition

Tribal cultural resources, as defined in Public Resources Code (PRC) Section 21074, include "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (California Register) or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. A cultural landscape that meets these criteria is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria.

3.15.2.2 Ethnographic Setting

The program area is located in a region traditionally occupied by the Gabrielino and Juaneño. Each group is described below.

Gabrielino

The term "Gabrielino" is a general term that refers to those Native Americans who were sent by the Spanish to the Mission San Gabriel Arcángel. Prior to European colonization, the Gabrielino occupied a diverse area that included: the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers; the Los Angeles basin; and the islands of San Clemente, San Nicolas, and Santa Catalina (Bean and Smith, 1978). Their neighbors included the Chumash and Tataviam to the north, the Juañeno to the south, and the Serrano and Cahuilla to the east. The Gabrielino are reported to have been second only to the Chumash in terms of population size and regional influence (Bean and Smith, 1978). The Gabrielino language was part of the Takic branch of the Uto-Aztecan language family.

The Gabrielino Indians were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply. Subsistence consisted of hunting, fishing, and gathering. Small terrestrial game was hunted with deadfalls, rabbit drives, and by burning undergrowth, while larger game such as deer were hunted using bows and arrows. Fish were taken by hook and line, nets, traps, spears, and poison (Bean and Smith, 1978). The primary plant resources were the acorn, gathered in the fall and processed in mortars and pestles, and various seeds that were harvested in late spring and summer and ground with manos and metates. The seeds included chia and other sages, various grasses, and islay or holly-leafed cherry. Community populations generally ranged from 50 to 100 inhabitants, although larger settlements may have existed. The Gabrielino are estimated to have had a population numbering around 5,000 in the pre-contact period (Kroeber, 1925).

The Late Prehistoric period, spanning from approximately 1,500 years B.P. to the mission era, is the period associated with the florescence of the Gabrielino (Wallace, 1955). Coming ashore near Malibu Lagoon or Mugu Lagoon in October of 1542, Juan Rodriguez Cabrillo was the first European to make contact with the Gabrielino Indians.

Maps produced by early explorers indicate that at least 26 Gabrielino villages were within proximity to known Los Angeles River courses, while an additional 18 villages were reasonably close to the river (Gumprecht, 2001). The closest village to the program area was the village of *Puvungna*, located approximately 0.75 miles north of the program area (McCawley, 1996). The Kirkman-Harriman Pictorial and Historical Map of Los Angeles County (Los Angeles Public Library, 1938) depicts two unnamed villages located approximately 2 miles northwest and 5 miles southeast of the program area.

Puvungna is reported to be the birthplace of *Chingichngish*, the primary deity of a protohistoric and early historic belief system and ceremonial complex that spread throughout the Los Angeles basin, Orange County, western Riverside County, and northern San Diego County. Most ethnohistoric data suggest that the main village of *Puvungna* was located on Alamitos Mesa at Bixby Ranch. However, as villages often covered large areas and could move to meet changing needs, *Puvungna* may refer to the entire rim of Alamitos Bay (Cleland et al., 2007).

Juañeno

The Juaneño spoke a language belonging to the Cupan group of the Takic subfamily of the Uto-Aztecan language family. The Juaneño people were so called because of their association with Mission San Juan Capistrano, although some contemporary Juaneño identify themselves by the indigenous term *Acjachemen*. The Juaneño were linguistically and culturally related to the neighboring Luiseño (with whom they are often grouped; see Bean and Shipek, 1978), Cahuilla, and Cupeño. Juaneño territory extended from just above Aliso Creek in the north to San Onofre Canyon in the south and inland from the Pacific Ocean to Santiago Peak and the ridges above Lake Elsinore (Bean and Shipek, 1978).

The Juaneño lived in sedentary autonomous villages located in diverse ecological zones. Each settlement claimed specific fishing and collecting regions. Typically, villages were located in valley bottoms, along coastal strands and streams, and near mountain foothills. Villages were usually sheltered in coves or canyons, on the side of slopes near water and in good defensive spots. There are no reported ethnographic Juaneño villages in the vicinity of the program area; the closest village sites are more than 20 miles south of the program area (O'Neil and Evans, 1980).

Trails, hunting sites, temporary hunting camps, quarry sites, and ceremonial and gaming locations were communally owned, while houses, gardens, tools, ritual equipment, and ornamentation were owned by individuals or families. Most groups had fishing and gathering sites along the coast that they visited annually from January to March when inland supplies were scarce. October to November was acorn-gathering time, when most of the village would settle in the mountain oak groves. Houses were conical in form, partially subterranean, covered with thatch, reeds, brush, or bark. Sweathouses were round and earth covered. Each village was enclosed with a circular fence and had a communal ceremonial structure at the center (Bean and Shipek, 1978).

3.15.2.3 Identification of Tribal Cultural Resources

Sacred Lands File Search

The NAHC maintains a confidential file which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on March 12, 2019, to request a search of the SLF. The NAHC responded to the request in a letter dated March 21, 2019, indicating that the SLF search was positive. The letter did not provide details on the resource(s) identified, but recommended that Native American groups be contacted for additional information regarding the resource(s). LCWA conducted tribal consultation pursuant to AB 52, the results of which are described below.

AB 52 Consultation

On June 17, 2019, LCWA notified the designated contact of, or a tribal representative of, a total of 26 California Native American Tribes pursuant to PRC Section 21080.3.1 inviting them to engage in government-to-government consultation with LCWA regarding the proposed program.

Letters were sent via email and included a description of the proposed program, a map depicting the program area, and contact information for LCWA. Recipients were requested to respond within

30 days of receipt of the letter if they wished to engage in consultation. **Table 3.15-1**, *California Native American Tribes Notified Pursuant to AB 52*, lists the Tribes, contacts, and responses.

TABLE 3.15-1
CALIFORNIA NATIVE AMERICAN TRIBES NOTIFIED PURSUANT TO AB 52

Tribe	Contact	Title	Response
Agua Caliente Band of Cahuilla Indians	Garcia-Plotkin, Patricia	Director	Declined consultation on 06/26/19
Fernandeño Tataviam Band of Mission Indians	Ortega, Rudy Jr.	—	Declined consultation on 06/18/19
Gabrieleño Band of Mission Indians - Kizh Nation	Salas, Andrew	Chairperson	Requested consultation on 07/11/19
Gabrielino Tongva Indians of California Tribal Council	Dorame, Robert	Chairperson	Requested consultation on 08/08/19
Gabrielino/Tongva Nation	Goad, Sandonne	Chairperson	No response
Gabrieleno-Tongva San Gabriel Band of Mission Indians	Morales, Anthony	Chairperson	Requested consultation on 07/10/19
Gabrielino-Tongva Tribe	Candelaria, Linda	Chairperson	Requested consultation on 07/15/19
Juañeno Band of Mission Indians	Johnston, Sonia	Chairperson	Requested consultation on 06/20/19
Juañeno Band of Mission Indians Acjachemen Nation	Belardes, Matias	Chairperson	Requested consultation on 06/20/19
Kern Valley Indian Community	Robinson, Robert	—	No response
Kitanemuk & Yowlumne Tejon Indians	Dominguez, Delia	—	No response
LA City/County Native American Indian Commission	Andrade, Ron	—	No response
Pala Band of Mission Indians	Gaughen, Shasta	Tribal Historic Preservation Officer	Declined consultation on 06/25/19
Pauma Band of Luiseño Indians	Aguilar, Temet	Chairperson	No response
Pechanga Band of Luiseño Indians	Macarro, Mark	Chairperson	No response
Rincon Band of Luiseño Indians	Mazzetti, Bo	Chairperson	No response
San Fernando Band of Mission Indians	Yocum, Donna	Chairperson	No response
San Luis Rey Band of Mission Indians	Tribal Council	—	No response
San Manuel Band of Mission Indians	Clauss, Lee	—	Declined consultation on 06/20/19
Santa Ynez Band of Chumash Indians	Kahn, Kenneth A.	Chairperson	Declined consultation on 06/17/19
Soboba Band of Luiseño Indians	Cozart, Scott	Chairperson	Declined consultation on 07/08/19
Ti'At Society/Inter-Tribal Council of Pimu	Alvitre, Cindi	—	No response
Tongva Ancestral Territorial Tribal Nation	Rosas, Johntommy	—	No response
Tubatulabals of Kern Valley	Gomez, Robert Jr.	Chairperson	No response
Twenty-Nine Palms Band of Mission Indians	Darrell, Mike	Chairperson	No response
Viejas Band of Mission Indians of the Viejas Reservation	Welch, Robert Jr.	Chairperson	No response

Six of the California Native American Tribes who were notified requested consultation. **Table 3.15-2**, *Summary of Tribes Consulted*, identifies the tribes who requested consultation and the dates consultation meetings were held, and provides a brief summary of the meetings. Confidential information has been withheld in accordance with PRC Code Section 21082.3(c) and consistent with subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations. No tribal cultural resources as defined in PRC Section 21074 were identified within the program area as a result of consultation.

TABLE 3.15-2
SUMMARY OF TRIBES CONSULTED

Tribe and Representative Attending Meeting	Meeting Date	Meeting Summary	Notes
Gabrieleño Band of Mission Indians – Kizh Nation (Andrew Salas)	08/28/19	No tribal cultural resources identified. The Tribe expressed that that they would like the wetlands to be preserved and protected and that even artifacts that lack context (are not in-situ) have value to the Tribe. The Tribe requested input on the proposed program's ecological design, to review the cultural resources and tribal cultural resources sections of the PEIR to ensure confidential information is not disclosed, and to remain informed of the proposed program.	Additional information requested by the Tribe during the consultation meeting was sent via email on 09/03/19.
Gabrielino Tongva Indians of California Tribal Council (Robert Dorame)	08/15/19	No tribal cultural resources identified. The Tribe expressed concerns about potential impacts to human remains, archaeological resources (village sites), and biological resources. The Tribe requested to participate in surveys and monitoring, and in selection of plants/native plants. The Tribe asked that the land be treated with dignity and respect, and to remain informed of the proposed program.	—
Gabrieleno-Tongva San Gabriel Band of Mission Indians (Julia Bogany)	07/29/19	No tribal cultural resources identified. The Tribe asked about trails and interpretive signage. The Tribe expressed that it is our responsibility to communicate the history and cultural connection of the program area for generations to come. The Tribe expressed support for the restoration. The Tribe asked to remain informed of the proposed program.	LCWA indicated Tribe would be contacted during creation of content for signage.
Gabrielino-Tongva Tribe (Sam Dunlap)	07/29/19	No tribal cultural resources identified. The Tribe provided background information about the Tribe. The Tribe discussed *Puvungna*. The Tribe expressed that the program area is important to many peoples. The Tribe expressed support for restoration goals. The Tribe asked about Native American monitoring, depth of excavations, and length of proposed program.	A follow-up email was received on 09/16/19 asking to make sure that the Tribe's comments and concerns were fully documented to include their specific concerns about tribal cultural resources in the program area. Additional information was sent to the Tribe on 09/17/19 regarding cultural resources in the program area and vicinity and offering to answer any questions. On 09/27/19, the Tribe requested an additional meeting, which took place on 10/11/19.
	10/11/19	No tribal cultural resources identified. The Tribe provided additional background information about the Tribe. The Tribe expressed concerns about encountering human remains and indicated that it's better to leave burials alone and not do any unnecessary testing. The Tribe expressed interest in providing Native American monitoring.	

TABLE 3.15-2
SUMMARY OF TRIBES CONSULTED

Tribe and Representative Attending Meeting	Meeting Date	Meeting Summary	Notes
Juañeno Band of Mission Indians, Acjachemen Nation – Romero (N/A)	N/A	Several attempts were made via email and phone to schedule a meeting, but no responses were received.	Date emails sent: 07/08/19 07/15/19 07/29/19 08/14/19 08/22/19 Date phone calls placed: 08/14/19 08/22/19
Juañeno Band of Mission Indians, Acjachemen Nation – Belardes (Joyce Perry)	08/26/19	No tribal cultural resources identified. The Tribe provided background information on the Juañeno and ethnographic accounts. The Tribe requested Native American and archaeological monitoring of ground disturbance and to remain informed of the proposed program.	Additional information requested by the Tribe during the consultation meeting was sent via email on 09/04/19 and 09/13/19.

California Native American Tribes who consulted with LCWA pursuant to AB 52 generally indicated that the program area is culturally sensitive and important, and expressed support for the restoration of the wetlands. Tribal members specifically made the following requests to mitigate potential impacts to resources important to the Native American community and LCWA has incorporated this input into mitigation measures outlined in Section 3.4, *Cultural Resources*:

Input on the proposed program's ecological design and the selection of plants/native plants (see Mitigation Measure CUL-16)

Remaining informed of the proposed program as it progresses (see Mitigation Measures CUL-12 and CUL-16)

Participation in surveys (see Mitigation Measure CUL-12)

Native American monitoring (see Mitigation Measure CUL-13)

Communicating the history and cultural connection of the program area for generations to come (see Mitigation Measure CUL-16)

Tribal Cultural Landscape

In 2018, the CCC conducted consultation with the Gabrieleño Band of Mission Indians - Kizh Nation (Kizh Nation), Gabrieleno-Tongva San Gabriel Band of Mission Indians (Gabrieleno-Tongva), and a member of the Acjachemen Tribe. Consultation was conducted in support of a Coastal Development Permit for the Los Cerritos Wetland Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083), whose boundary includes the entirety of the North Area (North and South Synergy Oil Field sites), Long Beach City Property site, and Pumpkin Patch site[1], which are all within the program area. The CCC report states that representatives of the Kizh Nation "described the tribe's view that the Los Cerritos Wetlands area

[1] Only the eastern portion of the Pumpkin Patch site is within the program area.

is a sacred land, just as all land, water and animals are sacred" (CCC, 2018: 125). The CCC report also states that representatives of the Gabrieleno-Tongva and Acjachemen Tribe "described the project site as Sacred Lands that are part of a larger area of connected tribal sites that constitute a Tribal Cultural Landscape that may eligible for listing by the National Register as a Tribal Cultural Property" and that "this Tribal Cultural Landscape includes several significant tribal sites and resources in close proximity to the project site, including the site of *Puvungna*, Rancho Los Alamitos (Long Beach Area), and the Hellman Ranch property" (CCC, 2018: 125). During AB 52 consultation conducted as part of the proposed program, some tribal members expressed that they agree that there is a Tribal Cultural Landscape present. The following discussion of the tribal cultural landscape is summarized from the Coastal Development Permit (CCC, 2018). It should be noted that the tribal cultural landscape was not and has not since been formally documented or evaluated for listing in the National Register or California Register.

Tribal representatives described the Los Cerritos Wetlands and its surroundings as sacred lands that encompass a larger area of connected tribal sites. Tribal representatives indicated that the Hellman Ranch area was an extension of *Puvungna* and was connected to a network of villages surrounding the area. They noted that during development of the Hellman Ranch property in the 2000s, approximately 35 prehistoric burials and numerous artifacts were discovered. Tribes believe these resources to be associated with a Gabrieleno-Tongva settlement in Seal Beach, known as *Motuucheyngna* (sometimes referred to as *Puvungna East*). Since the Los Cerritos Wetlands are located in between *Puvungna* and *Motuucheyngna*, the wetlands are thus considered by tribes to be part of the larger cultural landscape of *Puvungna* and the surrounding villages.

In addition to being culturally connected, the wetlands and surrounding area are connected biologically. These connections occur through the waterways and the plants and animals present. All the tribal members that were part of the CCC's consultation effort agreed that these biological resources are sacred to tribal people as an integral component of tribal resources.

Prehistoric Archaeological Resources

A records search conducted at the SCCIC on May 15, 2019 by ESA staff resulted in the identification of 12 prehistoric archaeological resources within or immediately adjacent to (within 150 feet of) the program area (**Table 3.15-3**, *Prehistoric Archaeological Resources with or Adjacent to the Program Area*). These resources consist of shell middens and shell scatters. Only two resources (CA-ORA-261 and -262) have been previously evaluated as eligible for listing in the California Register. The remaining 10 resources have not been evaluated.

A reconnaissance-level site visit of the program area was conducted on June 13, 2019 by ESA archaeologist Candace Ehringer, M.A., RPA. During the site visit, staff documented the general cultural resources context and noted key features and resources that might warrant discussion in the existing conditions context of the PEIR. No resources were formally documented during the survey, but resources were noted on field maps, photographed, and assigned temporary field designations for ease of reference. Previously recorded resources were not visually inspected during the site visit. No prehistoric archaeological resources were noted, but a systematic survey was not conducted at the time.

TABLE 3.15-3
PREHISTORIC ARCHAEOLOGICAL RESOURCES WITHIN OR ADJACENT TO THE PROGRAM AREA

Primary Number (P-)	Permanent Trinomial (CA-)	Description	Eligibility Status	Site
30-000256	ORA-000256	Prehistoric archaeological site: shell midden	Not evaluated	South LCWA
30-000257	ORA-000257	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA
30-000258	ORA-000258	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA
30-000259	ORA-000259	Prehistoric archaeological site: shell midden	Not evaluated	Adj. South LCWA
30-000261	ORA-000261	Prehistoric archaeological site: shell midden	Eligible for CR	South LCWA
30-000262	ORA-000262	Prehistoric archaeological site: shell midden	Eligible for CR	Adj. South LCWA
30-000850	ORA-000850	Prehistoric archaeological site: shell midden	Not evaluated	Adj. Hellman Retained
30-000851	ORA-000851	Prehistoric archaeological site: shell midden	Not evaluated	Hellman Retained
30-001473	ORA-001473	Prehistoric archaeological site: shell midden	Not evaluated	South LCWA
30-001542	ORA-001542/H	Multicomponent archaeological site: prehistoric shell scatter and historic-period refuse scatter	Not evaluated	Adj. Los Alamitos Retarding Basin
30-001544	ORA-001544	Prehistoric archaeological site: shell scatter	Not evaluated	Adj. Los Alamitos Retarding Basin
19-001821	LAN-001821	Prehistoric archaeological site: shell midden	Not evaluated	Long Beach City Property

SOURCE: SCCIC, 2019.

3.15.3 Regulatory Framework

3.15.3.1 State

Assembly Bill 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the *CEQA Guidelines*, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

California Government Code Sections 6254(r) and 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

3.15.4 Significance Thresholds and Methodology

3.15.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on tribal cultural resources if it would:

Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.15.4.2 Methodology

According to the PRC Section 21084.2, a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. While what constitutes a "substantial adverse change" to a tribal cultural resource is not defined in the section, guidance on what constitutes a substantial adverse change under CEQA can be drawn from *CEQA Guidelines* Section 15064.5(b). Although applicable specifically to historical resources (as defined in Section 15064.5(a)), an analogy can be drawn when assessing if there has been a substantial adverse change to a tribal cultural resource. *CEQA Guidelines* Section 15064.5(b)(1) defines a substantial adverse change as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings, resulting in material impairment of the historical resource. According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project:

> 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; or
>
> 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
>
> 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.

In drawing an analogy, a substantial adverse change to a tribal cultural resource could be considered to be the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings, resulting in material impairment of the tribal cultural resource. Similarly, material impairment could include:

> Demolition or material alteration in an adverse manner to those characteristics of a tribal cultural resource that convey its significance and that justify its inclusion in or eligibility for listing in the California Register, or in a local register of historical resources as defined in PRC section 5020.1(k); or
>
> Demolition or material alteration in an adverse manner to those characteristics of a tribal cultural resource that convey its significance and that justify its eligibility for inclusion in the California Register pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, as determined by a lead agency in its discretion and supported by substantial evidence for purposes of CEQA.

PRC Section 21084.3 provides guidance on addressing impacts to tribal cultural resources and states that:

(a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

(b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

  (1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

  (2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

    (A) Protecting the cultural character and integrity of the resource.

    (B) Protecting the traditional use of the resource.

    (C) Protecting the confidentiality of the resource.

  (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

  (4) Protecting the resource.

CEQA Guidelines Section 15370 provides additional guidance on the types of mitigation that may be considered, and includes: avoiding impacts altogether; minimizing impacts; rectifying impacts through repair, rehabilitation, or restoration; reducing impacts through preservation; and compensating for impacts by providing substitute resources.

PRC Section 21082.3(b) indicates that if a project may have a significant impact on a tribal cultural resource, the agency's environmental document shall discuss whether the proposed project has a significant impact on an identified tribal cultural resource and whether feasible

alternatives or mitigation measures avoid or substantially lessen the impact on the identified tribal cultural resource.

PRC Section 21080.3.2 indicates that as part of the consultation pursuant to Section 21080.3.1, California Native American Tribes may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. Also, the lead agency may incorporate changes or additions to a project even if not legally required to do so.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. Issues related to tribal cultural resources were identified.

3.15.5 Program Impacts and Mitigation Measures

Impact TRI-1: The proposed program would result in a significant impact if the proposed program would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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 Public Resources Code section 5020.1(k).

Construction

The Los Cerritos Wetlands were identified as part of a tribal cultural landscape by some tribal representatives during consultation with the CCC that occurred in connection with the Los Cerritos Wetland Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) (CCC, 2018). This tribal cultural landscape has not been formally documented, geographically defined, nor has it been evaluated for listing in the California Register or for listing in a local register of historical resources. As such, no impacts would occur.

Operation

The Los Cerritos Wetlands were identified as part of a tribal cultural landscape by some tribal representatives during consultation with the CCC that occurred in connection with the Los Cerritos Wetland Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) (CCC, 2018). This tribal cultural landscape has not been formally documented, geographically defined, nor has it been evaluated for listing in the California Register or for listing in a local register of historical resources. As such, no impacts would occur.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact TRI-2: The proposed program would result in a significant impact if the proposed program would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Construction

The Los Cerritos Wetlands is part of a tribal cultural landscape identified by some tribal representatives during consultation with the CCC on the Los Cerritos Wetland Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083). Based on the information provided in the CCC Staff Report for the Coastal Development Permit for the Los Cerritos Wetland Oil Consolidation and Restoration Project (State Clearinghouse Number 2016041083) (CCC, 2018), the tribal cultural landscape appears to be a cultural landscape with cultural value to some California Native American Tribes. Therefore, LCWA has determined, in its discretion and as supported by substantial evidence presented in the CCC Staff Report, that the tribal cultural landscape is significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 for the purposes of this PEIR. LCWA has considered the significance of the resource to California Native American Tribes in making this discretionary determination. As discussed in Section 3.4, *Cultural Resources*, the tribal cultural landscape includes the village sites of *Puvungna* and *Motuucheyngna* (represented by prehistoric archaeological sites in the California State University – Long Beach and the Hellman Ranch areas, respectively), Native American or prehistoric archaeological sites within or near the Los Cerritos Wetlands, as well as the waterways, plants, and animals that are present in the area

Actions that have the potential to result in a substantial adverse change in the significance of a tribal cultural resource include:

> Demolition or material alteration in an adverse manner to those characteristics of the tribal cultural landscape that convey its significance and that justify its eligibility for inclusion in the California Register pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1

Potential impacts from the proposed program on the tribal cultural landscape could occur if the proposed program resulted in the demolition or material alteration to the essential physical characteristics that convey its significance, such as the village sites of *Puvungna* and *Motuucheyngna*, Native American or prehistoric archaeological sites within or near the Los Cerritos Wetlands, waterways, plants, or animals.

With regards to potential impacts to *Puvungna* and *Motuucheyngna*, the archaeological manifestations of these two village sites that contribute to the landscape's significance would not be impacted. *Puvungna* is located about 0.75 miles to the north of the proposed program area, in the area of California State University – Long Beach and its vicinity. *Motuucheyngna* is on a portion of the former Hellman Ranch property that has since been developed as a residential subdivision. No impacts to the archaeological sites associated with these two villages are anticipated as a result of the proposed program.

With regards to potential impacts to other Native American or prehistoric archaeological sites within the Los Cerritos Wetlands, there are 12 prehistoric archaeological sites within or immediately adjacent to (within 150 feet of) the program area. These include five archaeological sites that are within or partially overlap the program boundary (CA-LAN-1821 and CA-ORA-256, -261, -851, and -1473). Of these five sites, only one site (CA-LAN-1821) is entirely within the program area. The remaining sites are on the fringes of the program boundary and some appear to only slightly overlap with the program area. There are also seven archaeological sites that are within 150 feet of the program boundary (CA-ORA-257, -258, -259, -262, -850, -1542, and -1544). Of the 12 prehistoric sites, only two (CA-ORA-261 and-262) have been previously evaluated as eligible for listing in the California Register, and as such they would likely contribute to the significance of the landscape, however, these sites were reportedly destroyed by construction of Heron Pointe. The remaining sites have not been subject to formal evaluations, but they are considered potential contributors to the significance of the landscape.[2] In addition, there could be as yet unidentified prehistoric archaeological sites on the surface or subsurface within the program area that could contribute to the significance of the landscape. Therefore, the proposed program could result in the demolition or material alteration to Native American or prehistoric archaeological sites within the Los Cerritos Wetlands that convey the significance of the tribal cultural landscape. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape:

> Mitigation Measures CUL-1, CUL-4 through CUL-6, and CUL-8 require that qualified cultural resources personnel conduct future project-specific studies to identify archaeological resources and develop appropriate treatment for resources that contribute to the significance of the tribal cultural landscape.
>
> Mitigation Measure CUL-7 requires consideration of avoidance and preservation in place of archaeological resources, including those that contribute to the landscape's significance, to ensure that destructive treatment measures are a last resort.
>
> Mitigation Measures CUL-9 through CUL-11, CUL-14, and CUL-15 require establishment of a plan and procedures for avoidance and discoveries measures during construction, training construction personnel on the significance of the area and procedures to follow in the event of discoveries, monitoring of ground disturbance by archaeologists, and proper curation/disposition of recovered archaeological materials. These measures would ensure the protection, identification, and appropriate handling and treatment of archaeological resources that contribute to the landscape's significance.

[2] As noted in Section 3.4, *Cultural Resources*, of this PEIR, sites CA-ORA-256, -257, -258, and -259 were impacted by modern development, although remnants of the sites may still be present.

Mitigation Measures CUL-12 and CUL-13 require that LCWA consult with Native American representatives during the preparation of all cultural resources-related documents and that Native American groups are included in monitoring of ground disturbance. These measures would ensure that tribal values are considered in identification, evaluation, and treatment of archaeological resources that contribute to the landscape's significance.

Even with implementation of these measures, the destruction or material alteration of an archaeological resource that contributes to the landscape's significance would constitute a substantial adverse change since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level.

With regards to potential impacts to the waterways, plants, and animals, the purpose of the proposed program is to restore the natural waterways and habitat of the Los Cerritos Wetlands. These actions would have a beneficial effect on the waterways, plants, and animals. As noted in Chapter 2, *Project Description*, of this PEIR, the proposed program would restore the tidal wetland process by providing a more natural connection between the wetlands and surrounding water sources. This would increase estuarine habitat with a mix of tidal channels, mudflat, salt marsh, and brackish/ freshwater marsh and ponds. The existing waterways within the wetlands are human-made and not natural, with the exception of Steamshovel Slough, and do not resemble the historical or pre-contact appearance of the Los Cerritos Wetlands. The proposed program would develop channels that resemble more natural waterways, such as the meandering channels to be excavated off of the Hellman Channel, and would breach the San Gabriel levee. This would result in a more natural tidal influence between the saltwater/freshwater sources and the wetlands. As discussed in Section 3.3, *Biological Resources*, the result would be a net increase in jurisdictional wetlands.

Also as noted in Chapter 2, *Project Description*, of this PEIR, the proposed program would restore and maintain native habitat and maximize wildlife corridors. As discussed in Section 3.3, *Biological Resources*, the creation of suitable habitat would have a net benefit on several special-status species (e.g., monarch butterfly, estuary sea-blite, black skimmer, California least tern, and others). Historically the wetlands provided natural resources to surrounding Native American village sites. The plants, animals, fish, and shellfish once present within the wetlands were gathered, hunted, and fished to provide sustenance, tools, ceremonial objects, and other materials for native populations. Restoration of native habitat would attract wildlife back to the area and would allow for a variety of species to again flourish within the wetlands, creating an ecosystem more closely resembling the one that existed historically and in pre-contact times.

The proposed program also includes several mitigation measures that would lessen potential construction-related impacts to plants and animals that are considered part of the tribal cultural landscape. Mitigation Measures BIO-1 through BIO-9 in Section 3.3, *Biological Resources*, would require: avoidance of special-status plants or restoration of affected special-status plants; environmental awareness training for construction personnel and biological monitoring; restoration of affected breeding habitat for the Belding's savannah sparrow, nesting bird and raptor avoidance; pre-construction surveys for burrowing owl and creation of a management plan

to minimize or avoid impacts to burrowing owls; pre-construction surveys for bat roosting habitat and creation of an exclusion plan to minimize or avoid impacts to breeding bats; focused surveys for special-status wildlife species and creation of an avoidance plan to minimize or avoid impacts to occupied habitat; and revegetation of sensitive natural communities. Implementation of these measures would ensure that any potential construction-related impacts to plants and animals are less than significant.

Potential impacts to the tribal cultural landscape would be further reduced by considering Native American tribal values ascribed to the Los Cerritos Wetlands throughout the course of development and construction of the proposed program. Mitigation Measure CUL-16, presented in Section 3.4, *Cultural Resources*, would require that LCWA seek input from California Native American Tribes regarding development of project-level designs, planting selections/palettes, and educational/interpretive signage. This would ensure that tribal values ascribed to the Los Cerritos Wetlands as part of the tribal cultural landscape are considered as part of the design, restoration, and educational elements of the proposed program. Also, as part of its future obligations pursuant to AB 52, LCWA will continue to consult with California Native American Tribes and seek their input on project-level CEQA documents in accordance with applicable PRC sections.

In summary, some of the essential physical features of the tribal cultural landscape would not be impacted (village sites of *Puvungna* and *Motuucheyngna*), or could be enhanced by the restoration elements of the proposed program (jurisdictional wetlands, plant and animal habitats). However, since the proposed program includes ground disturbing activities that have the potential to result in a substantial adverse change to Native American or prehistoric archaeological resources within the Los Cerritos Wetlands and since these types of resources contribute to the significance of the tribal cultural landscape, the proposed program could materially impair the landscape's ability to convey its significance even with the implementation of mitigation. Therefore, impacts to tribal cultural resources would be significant and unavoidable at the program level.

Operation

Operation of the proposed program would include ongoing inspection and maintenance of the perimeter levees and berms, flood walls and water-control structures; removal of non-native vegetation in restored habitat and stormwater management features; trash removal within the restored wetlands; and operation of the visitor center and associated parking lot. Operation of the proposed program would include increased public access to the program area, and could potentially result in the vandalism of or disturbances to potential tribal cultural resources. As discussed above, no impacts to the archaeological sites associated with *Puvungna* and *Motuucheyngna* are anticipated as a result of the proposed program. Any ground disturbance associated with operational activities would occur within soils that have already been subject to ground disturbance and archaeological/Native American monitoring, and they are unlikely to unearth Native American or prehistoric archaeological resources associated with the landscape. As discussed in Section 3.3, *Biological Resources*, operational impacts to plants and animals would be minimal or would be lessened by implementation of Mitigation Measures BIO-1, BIO-6, and BIO-8 though BIO-11, which require restoration of affected special-status plants; preparation of a lighting plan and requiring that nighttime lighting is shielded downward to

minimize spillage onto adjacent area; preparation of a Mitigation, Maintenance and Monitoring Program to ensure successful revegetation of sensitive natural communities; and a functional assessment of the wetland areas that will be restored in the program area. Also, resulting modification to existing waterways or creation of new waterways would result in a net increase in jurisdictional wetlands, and with implementation of BIO-10, operational impacts on the wetlands would be assessed. With implementation of these mitigation measures, impacts to the tribal cultural resources from operation of the proposed program would be less than significant.

Mitigation Measures

Mitigation Measures BIO-1 through BIO-11 as provided in Section 3.3, *Biological Resources*, and Mitigation Measures CUL-1, and CUL-4 through CUL-16, as provided in Section 3.4, *Cultural Resources*.

Significance after Mitigation

Significant and Unavoidable

3.15.6 Cumulative Impacts

This analysis of cumulative impacts takes into consideration impacts on tribal cultural resources from implementation of the proposed program. The geographic area of analysis for tribal cultural resources typically covers the region within which similar types of tribal cultural resources occur. The geographic scope of analysis for tribal cultural resources encompasses the broadly defined coastal zone of Orange and Los Angeles Counties, from roughly Santa Monica in the north to Newport Beach in the south. Prehistoric groups occupying this area focused to a large degree on littoral and immediately inland areas, particularly those associated with the estuaries and marshes at the mouths of the coastal drainages. This geographic scope of analysis is appropriate for tribal cultural resources because the types of resources within this area are expected to be similar to those that occur within the program area.

3.15.6.1 Construction

Multiple projects, mostly development within urban settings, are proposed throughout the geographic scope of analysis. Cumulative impacts to tribal cultural resources could occur if any of these projects, in conjunction with the proposed program, would have impacts on resources that, when considered together, would be significant.

As described above, one tribal cultural resource was identified within the program area – a tribal cultural landscape related to the village sites of *Puvungna* and *Motuucheyngna*. Potential impacts from the proposed program on the tribal cultural landscape are considered significant and unavoidable. While some of the essential physical characteristics of the landscape (*Puvungna* and *Motuucheyngna*) would not be impacted and others (waterways, plants, and animals) would receive a beneficial effect or a less than significant impact with mitigation, some of the essential physical characteristics of the landscape (Native American or prehistoric archaeological sites

within the Los Cerritos Wetlands) could be impacted by the proposed program and there is no feasible mitigation to lessen this impact to a level of less than significant.

As discussed in Section 3.15.5, *Program Impacts and Mitigation Measures*, above, the archaeological manifestations of the two village sites that contribute to the landscape's significance, *Puvungna* and *Motuucheyngna*, would not be impacted by the proposed program. *Puvungna* is located about 0.75 miles to the north of the proposed program area, in the area of California State University, Long Beach and its vicinity. *Motuucheyngna* is on a portion of the former Hellman Ranch property that has since been developed as a residential subdivision. No impacts to the archaeological sites associated with these two villages are anticipated as a result of the proposed program.

Also as discussed in Section 3.15.5, *Program Impacts and Mitigation Measures*, above, the proposed program would either result in a beneficial effect to waterways, plants, and animals or require mitigation to lessen construction-related impacts. The proposed program would result in a net increase or benefit to jurisdictional wetlands and several special-status species. Temporary impacts resulting from construction would be mitigated to less-than-significant level by implementation of Mitigation Measures BIO-1 through BIO-9, outlined in Section 3.3, *Biological Resources*. These measures require: avoidance of special-status plants or restoration of affected special-status plants; environmental awareness training for construction personnel and biological monitoring; restoration of affected breeding habitat for the Belding's savannah sparrow, nesting bird and raptor avoidance; pre-construction surveys for burrowing owl and creation of a management plan to minimize or avoid impacts to burrowing owls; pre-construction surveys for bat roosting habitat and creation of an exclusion plan to minimize or avoid impacts to breeding bats; focused surveys for special-status wildlife species and creation of an avoidance plan to minimize or avoid impacts to occupied habitat; and revegetation of sensitive natural communities.

Potential impacts to the tribal cultural landscape would be further reduced by considering Native American tribal values ascribed to the Los Cerritos Wetlands throughout the course of development and construction of the proposed program. Mitigation Measure CUL-16 would require that LCWA seek input from California Native American Tribes regarding development of project-level designs, planting selections/palettes, and educational/interpretive signage. This would ensure that tribal values ascribed to the Los Cerritos Wetlands as part of the tribal cultural landscape are considered as part of the design, restoration, and educational elements of the program.

However, as noted in Section 3.15.5, *Program Impacts and Mitigation Measures*, above, there are known Native American or prehistoric archaeological resources within the program area that could contribute to the significance of the landscape and that may be impacted by the proposed program. Additionally, there is a potential for as yet unidentified prehistoric archaeological sites on the surface or subsurface within the program area that could contribute to the significance of the landscape and that may also be impacted by the proposed program. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape. However, even with implementation of these measures, the destruction or material alteration of a resource that contributes to the landscape would constitute a substantial adverse change since it

would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level. Therefore, the proposed program's residual impact on the tribal cultural landscape, which has been discretionarily determined by LCWA to be a tribal cultural resource for the purposes of this PEIR, is significant and unavoidable.

The cumulative projects proposed throughout the geographic scope of this analysis also have the potential to result in a substantial adverse change in the significance of the tribal cultural landscape as some of these projects are also within or in the vicinity of the tribal cultural landscape. Past, present, and foreseeable projects have resulted in or could result in the demolition or material alteration to some aspects of the tribal cultural landscape that convey its significance. Past projects in the proposed program's vicinity, such as the construction of California State University – Long Beach, United States Veterans Administration Hospital, Rancho Los Alamitos/Bixby Hill, and Heron Pointe, resulted in the demolition or material alteration of archaeological sites associated with the villages of *Puvungna* and *Motuucheyngna*. Additionally, other past projects have encroached upon the wetlands leading to habitat degradation and loss, resulting in the material alteration of waterways, and plant habitat, and animal habitat. Future projects could also materially alter the tribal cultural landscape through the introduction of development that is incompatible with the landscape's setting or through ground disturbance within archaeological sites that contribute to the significance of the landscape. When taken together, past, present, and foreseeable projects result in a significant cumulative impact to the tribal cultural landscape.

The purpose of the proposed program is to restore the wetlands and the proposed program would result in an overall benefit to several of the essential physical characteristics of the landscape, such as the waterways, plants, and animals. Other projects have in the past resulted in greater impacts to the landscape than the proposed program, including impacts to archaeological sites associated with the villages of *Puvungna* and *Motuucheyngna*, as well as other Native American or prehistoric archaeological resources that may have contributed to the significance of the landscape, and impacts to waterways (including wetlands), plant habitat, and animal habitat. The incremental effects of the proposed program are not considered significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Therefore, the incremental contribution of the proposed program on impacts to the tribal cultural landscape as a tribal cultural resource would not be cumulatively considerable.

Mitigation Measure

Mitigation Measures BIO-1 through BIO-9 as provided in Section 3.3, *Biological Resources*, and Mitigation Measures CUL-1, and CUL-4 through CUL-16, as provided in Section 3.4, *Cultural Resources*.

Significance after Mitigation

Less than Significant with Mitigation

3.15.6.2 Operation

Operational impacts to the tribal cultural landscape would be mitigated to a less-than-significant level by implementation of BIO-1, BIO-6, and BIO-8 though BIO-11, which require restoration of affected special-status plants; preparation of a lighting plan and requiring that nighttime lighting is shielded downward to minimize spillage onto adjacent area; preparation of a Mitigation, Maintenance and Monitoring Program to ensure successful revegetation of sensitive natural communities; and a functional assessment of the wetland areas that will be restored in the program area. Therefore, cumulative impacts to tribal cultural resources during operations would not be cumulatively considerable.

Mitigation Measure

Mitigation Measures BIO-1, BIO-6, and BIO-8 through BIO-11, as provided in Section 3.3, *Biological Resources*.

Significance after Mitigation

Less than Significant with Mitigation

3.15.7 References

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SECTION 3.16
Utilities and Service Systems

3.16.1 Introduction

This section evaluates whether implementation of the proposed program has the potential to result in adverse impacts to utilities and service systems. Utilities and service systems include water supply and distribution systems, wastewater (sewage) conveyance and treatment, and solid waste collection and disposal. This analysis is based on review of the existing infrastructure and levels of service, the relevant regulatory requirements, a discussion of the methodology and thresholds used to determine whether the proposed program would result in significant impacts, and identifies any improvements necessary to accommodate the proposed program. This section identifies the potential for both program-level and cumulative environmental impacts, as well as feasible mitigation measures that could reduce or avoid the identified impacts. Impacts to hydrology (e.g., flooding), storm drainage systems, and water quality can be found in Section 3.8, *Hydrology and Water Quality*.

Information sources for the analysis presented in this section include reference documents regarding water use (City of Long Beach 2016; LBWD 2016; City of Seal Beach 2018a), wastewater (LACSD 2017a; LBWD 2016, City of Seal Beach 2018b), stormwater (City of Long Beach 2008), and solid waste (CalRecycle 2008, 2009, 2014; County of Los Angeles 2016; County of Orange 2017a, 2017b; LACSD 2017a, 2017b, 2017c, 2017d, 2017e). All information sources used are included as citations within the text; sources are listed in Section 3.16.7, *References*, below.

3.16.2 Environmental Setting

3.16.2.1 Water Supply

City of Seal Beach

The City of Seal Beach provides water to a population of 25,561 throughout its service area. The City of Seal Beach receives its water from two main sources: (1) the Orange County Groundwater basin, which is managed by the Orange County Water District (OCWD) and (2) imported water from the Municipal Water District of Orange County (MWDOC). Groundwater is pumped from four active wells located throughout the City of Seal Beach, and imported water is treated at the Diemer Filtration Plant and delivered to the City of Seal Beach via imported water connections. The City of Seal Beach's Water Division of the Department of Public Works maintains 66 miles of pipeline, four active groundwater wells, an active service connection with Metropolitan Water District of Southern California (MWD), emergency interconnections with other utilities, two

reservoirs with a total storage capacity of 7 million gallons (MG), two booster stations that constantly maintain water at approximately 60 pounds per square inch (psi), four disinfection sites, approximately 680 hydrants and approximately 5,500 service connections.

The City of Seal Beach's existing and projected water supply for 2020 through 2040 is quantified in **Table 3.16-1**, *Seal Beach Existing and Projected Water Supplies (in acre-feet)*. The volumes show the City of Seal Beach's projected annual groundwater extraction rights. The City of Seal Beach's 2015 Urban Water Management Plan anticipates purchasing additional rights to extract water from the Orange County Groundwater basin (i.e., increasing its allowable pumping allocation), over the next 25 years, if and when cost-effective opportunities to do so become available (City of Seal Beach 2018a).

TABLE 3.16-1
SEAL BEACH EXISTING AND PROJECTED WATER SUPPLIES (IN ACRE-FEET)

Water Supply	2015	2020	2025	2030	2035	2040
Groundwater	2,734	2,442	2,621	2.639	2,638	2,642
Imported	787	1,046	1,123	1,131	1,131	1,132
Total	**3,521**	**3,488**	**3,744**	**3,770**	**3,769**	**3,774**

SOURCE: City of Seal Beach 2018a.

The City of Seal Beach projects that water supplies would be sufficient to meet all demands through the year 2040 during normal, single dry year, and multiple dry year hydrologic conditions (City of Seal Beach 2018a). Historical precedent has consistently shown that water demands decrease in dry years due to voluntary and mandatory water use restrictions and a general increase in public awareness of the need for water conservation; however, future water demand projections take a conservative approach to planning, by assuming that water demand will remain steady rather than decrease during dry years. The projected City of Seal Beach water supply and demand are compared in **Table 3.16-2**, *Seal Beach Existing and Projected Water Supplies, Demand, and Surplus (in acre-feet)*, which quantifies the projected water supply surplus through 2040. Seal Beach water supplies are projected to meet demand through 2040 even in future dry years, as in recent droughts (City of Seal Beach 2018a).

TABLE 3.16-2
SEAL BEACH EXISTING AND PROJECTED WATER SUPPLIES, DEMAND, AND SURPLUS (IN ACRE-FEET)

	2020	2025	2030	2035	2040
Total Supplies	3,488	3,744	3,770	3,769	3,774
Total Demands	3,488	3,744	3,770	3,769	3,774
Surplus	**0**	**0**	**0**	**0**	**0**

SOURCE: City of Seal Beach 2018a.

City of Long Beach

The Long Beach Water Department (LBWD) provides water service to the City of Long Beach (LBWD 2016). The LBWD service area is located in the southwest corner of the County of Los Angeles, and essentially overlays the boundaries of the City of Long Beach. LBWD owns, operates, and maintains 29 active groundwater wells, 907 miles of water mains, 6,501 fire hydrants, and 750 miles of sanitary sewer lines.

LBWD primarily relies on groundwater extracted locally to meet customer water demands. LBWD then purchases imported water from the Metropolitan Water District of Southern California (MWD) to make up the difference between demand and groundwater supplies. LBWD also provides recycled water to an increasing number of customers to replace the use of potable water for watering landscaping at golf courses, parks, and medians on City of Long Beach-owned property.

The LBWD existing and projected water supply for 2015 through 2040 is quantified in **Table 3.16-3**, *Long Beach Existing and Projected Water Supplies (in acre-feet)*. The volumes show the projected LBWD annual groundwater extraction rights. LBWD anticipates purchasing additional rights to extract water from the Orange County Groundwater basin (i.e., increasing its allowable pumping allocation), over the next 25 years, if and when cost-effective opportunities to do so become available.

TABLE 3.16-3
LONG BEACH EXISTING AND PROJECTED WATER SUPPLIES (IN ACRE-FEET)

Water Supply	2015	2020	2025	2030	2035	2040
Groundwater	32,693	33,001	33,501	34,001	34,501	35,001
Imported	35,100	35,100	35,100	35,100	35,100	35,100
Recycled	9,190	9,190	9,190	9,190	9,190	9,190
Total	**76,983**	**77,291**	**77,791**	**78,291**	**78,791**	**79,291**

SOURCE: LBWD, 2016.

LBWD projects that water supplies would be sufficient to meet all demands through the year 2040 during normal, single dry year, and multiple dry year hydrologic conditions (LBWD 2016). Historical precedent has consistently shown that water demands decrease in dry years due to voluntary and mandatory water use restrictions and a general increase in public awareness of the need for water conservation; however, future water demand projections take a conservative approach to planning, by assuming that water demand will remain steady rather than decrease during dry years. The projected LBWD water supply and demand are compared in **Table 3.16-4**, *Long Beach Existing and Projected Water Supplies, Demand, and Surplus (in acre-feet)*, which quantifies the projected water supply surplus through 2040. LBWD water supplies are projected to exceed demand through 2040 even in future dry years, as in recent droughts (LBWD 2016).

TABLE 3.16-4
LONG BEACH EXISTING AND PROJECTED WATER SUPPLIES, DEMAND, AND SURPLUS (IN ACRE-FEET)

	2020	2025	2030	2035	2040
Total Supplies	77,291	77,791	78,291	78,791	79,291
Total Demands	63,643	63,410	63,454	63,609	64,137
Surplus	**13,648**	**14,381**	**14,837**	**15,182**	**15,154**

SOURCE: LBWD, 2016.

3.16.2.2 Wastewater

City of Seal Beach

Portions of the program area that are within the jurisdiction of the City of Seal Beach would discharge all wastewater into the local sewer main and conveyed for treatment at the Orange County Sanitation Districts (OCSDs) reclamation plants. The City of Seal Beach relies on OCSD for collection and treatment at their plants located in the cities of Huntington Beach and Fountain Valley.

OCSD's Plant No. 1 in Fountain Valley has a capacity of 320 million gallons per day (mgd) and Plant No. 2 in Huntington Beach has a capacity of 312 mgd. OCSD's Plant No. 1 in Fountain Valley received an average daily flow of wastewater of 114 mgd in 2018 and OCSD's Plant No. 2 in Huntington Beach received an average daily flow of wastewater of 74 mgd in 2018 (OCSD 2018). The City of Seal Beach's 2015 Urban Water Management Plan states that the City produced approximately 2,289 acre-feet of wastewater, collected by OCSD's plants No. 1 and No. 2, in 2015 (City of Seal Beach 2018).

The Seal Beach Public Works Division provides wastewater collection service to approximately 5,000 customers in the northeast and south west portions of the City and Sunset Aquatic Park, including the program area. The existing wastewater systems consists of approximately 181,00 feet of gravity sewers, 780 man holes, and six existing sewer pump stations.

As discussed in the Sewer Master Plan 2018, hydraulic analysis was conducted for the gravity sewer system. Based on the hydraulic modeling results, there were no pipe capacity deficiencies identified.

The closest pump station to the program area is the Adolfo Lopez pump station. As discussed in the Sewer Master Plan 2018, existing flow to this pump station is 15 gallons per minute (gpm), 36 gpm, and 49 gpm on an average dry, peak dry, and peak wet weather conditions (City of Seal Beach 2018b). Hydraulic modeling provided in the Sewer Master Plan 2018 revealed that this pump station could accept an ultimate peak dry weather flow of 87 gpm and peak wet weather flow of 120 gpm. The Adolfo Lopez pump station has a firm capacity of 200 gpm, which is double than the ultimate peak dry weather flow (City of Seal Beach, 2018b). In addition, as discussed therein, it was determined that this station would provide many years of reliable

service, with proper maintenance.[1] The mechanical and electrical equipment were determined to reach the end of their useful lives around 2025. Improvements would be made that that time to replace pumps, replace discharge equipment, and construction site improvements.

City of Long Beach

Portions of the program area that are within the jurisdiction of the City of Long Beach would utilize the sewer services from LBWD. LBWD is responsible for operating and maintaining the sanitary sewer lines in the City of Long Beach. Through these sanitary sewer lines, the LBWD delivers wastewater to two of the Los Angeles County Sanitation District (LACSD) facilities (LACSD 2017a). The LACSD currently provides wastewater services for the program area, including the current practice of accepting produced water from oil extraction on the program area.[2] LACSD is a public agency created under state law to manage wastewater and solid waste on a regional scale and consists of 24 independent special districts serving approximately 5.5 million people in Los Angeles County, including the City of Long Beach.

The LBWD delivers over 40 mgd of wastewater to LACSD facilities. A portion of the wastewater is delivered to the LACSD Joint Water Pollution Control Plant (JWPCP) in Carson and the remainder of the wastewater is delivered to the Long Beach Water Reclamation Plant (LBWRP) (LBWD 2016). The JWPCP treats approximately 260 mgd and has a total permitted design capacity of 400 mgd (LACSD 2017f). The LBWRP treatment capacity is approximately 25 mgd (LBWD 2016; LACSD 2017g). The LBWRP is expected to reach full capacity sometime during the next 25 years (at least by 2040) and LACSD is not expected to increase the capacity because there is no open space at the site to accommodate an expansion; however, the influent streams to LACSD facilities are interconnected such that influent can be diverted from one LACSD facility to another.

3.16.2.3 Stormwater Drainage

City of Seal Beach

Within the City of Seal Beach, regularly scheduled street cleaning, annual inspections, as well as catch basins assist in reducing potential impacts of stormwater runoff. In addition, the City requires water quality management plans for all projects located under the City's jurisdiction. Much of Seal Beach's run-off drains into the Naval Weapons Base with the remainder split between the Pacific Ocean, Coyote Creek, and the San Gabriel River (City of Seal Beach, 2019).

As described in Chapter 2, *Project Description*, stormwater originating from the developed portions of the program area in the City of Seal Beach would drain into the existing curb-and-gutter system to the storm drains operated by the City. Stormwater from portions of the program area in Seal Beach that are not paved would infiltrate into the subsurface. For additional

[1] As discussed in the Sewer Master Plan 2018, the City of Seal Beach is currently evaluating whether the Adolfo Lopez pump station sewershed as the capacity to accept wastewater flow from nearby oil and gas operations. The Sewer Master Plan 2018 recommends that the Adolfo Lopez pump station sewershed is monitored closely as conditions change to ensure that sufficient capacity remains available in the sewershed (City of Seal Beach 2018b).

[2] Over 95 percent of the fluid pumped from the Synergy Oil Field site and City Property site oil wells is saline water.

information regarding stormwater drainage for the program area, please see Section 3.8, *Hydrology and Water Quality*, of this PEIR.

City of Long Beach

Within the City of Long Beach, there are approximately 383 miles of active stormwater carriers, including pipes, open channels, ditches, culverts, connector pipes, and drains (City of Long Beach 2008). In addition, the City of Long Beach owns 3,872 catch basins and 23 pump stations, all of which are cleaned repeatedly throughout the year.

As described in Chapter 2, *Project Description*, stormwater originating from the developed portions of the program area in the City of Long Beach would drain into the existing curb-and-gutter system to the storm drains operated by the City. Stormwater from portions of the program area in Long Beach that are not paved would infiltrate into the subsurface. For additional information regarding stormwater drainage for the program area, please see Section 3.8, *Hydrology and Water Quality*, of this PEIR.

3.16.2.4 Solid Waste Services

City of Seal Beach

The City of Seal Beach is not included in an Integrated Waste Management Plan. Consolidated Disposal Services, LLC (Republic Services) provides exclusive waste and recycling collection services for residential and commercial uses in the City of Seal Beach. Republic Services currently operates three landfills in the Los Angeles/Orange County area in Long Beach, Gardena, and Anaheim. Republic Services also has recycling operations at their Anaheim facility, as well as at their BFI Falcon transfer station in Wilmington. Republic Services landfills currently have sufficient capacity to serve the City of Seal Beach now and into the future (Republic Services, 2019).

City of Long Beach

The City of Long Beach is included in the most recent *County of Los Angeles, Countywide Integrated Waste Management Plan, 2017 Annual Report*, and disposed 498,239 tons of solid waste in 2017 (County of Los Angeles 2019). A majority of the City of Long Beach's solid waste is sent to the Southeast Resource Recovery Facility (SERRF), a transfer facility located in Long Beach about 8 miles from the program area. In 2017, approximately 196,840 tons, or 56 percent of the solid waste generated by Long Beach residents and businesses were sent to the SERRF for processing.

Materials that can be recycled are segregated out of the waste stream, combustible materials are burned to generate electricity, and solid waste that cannot be processed at the SERRF is taken to landfills. The landfills that are closer to the program area, as well as the SERRF, include the Olinda Alpha Landfill, Frank R. Bowerman, the El Sobrante Landfill, Azusa Land Reclamation, and the Waste Management Simi Landfill. The distances from the program area, maximum permitted daily capacities, remaining available capacities, and expected closure dates are listed in **Table 3.16-5**, *Landfills in the Program Region*. Hazardous waste (Class I waste) is not accepted by SERRF or the listed landfills and would be sent to the Kettleman Landfill, as discussed in Section 3.7, *Hazards and Hazardous Materials*.

TABLE 3.16-5
LANDFILLS IN THE PROGRAM REGION

Landfill	Address	Distance from Program Area	Maximum Permitted Daily Tons	Average Remaining Capacity (tons)	Expected Closure Date
Olinda Alpha Landfill	1942 Valencia Ave., Brea, CA	19.4 miles	8,000	51,300,000	2030
Frank R. Bowerman	11002 Bee Canyon Access Rd., Irvine, CA	24.6 miles	11,500	307,500,000	2053
El Sobrante Landfill	10910 Dawson Canyon Rd., Corona, CA	36 miles	16,000	145,530,000	2045
Waste Management Simi Landfill	2801 North Madera Rd., Simi Valley, CA	68 miles	8,750	306,250	2052
Azusa Land Reclamation	1211 West Gladstone, Azusa, CA	33 miles	6,000	120,000	2037
Totals			**50,250**	**504,756,250**	

SOURCES: CalRecycle, 2008, 2009, 2014; County of Orange, 2017a, 2017b; Waste Management, 2017.

3.16.3 Regulatory Framework

3.16.3.1 Federal

Resource Conservation and Recovery Act (42 USC 6901 et seq.)/ Toxic Substances Control Act (15 USC 2605)/Hazardous and Solid Waste Act

The combination of the Resource Conservation and Recovery Act (RCRA) of 1976 and the Toxic Substances Control Act of 1976 authorized the USEPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous waste and non-hazardous waste, and underground storage tanks. Solid waste consists of solids, liquids and gases, including garbage, also known as municipal solid waste (e.g., milk cartons and coffee grounds); refuse (e.g., metal scrap, wall board, and empty containers); sludges from waste treatment plants, water supply treatment plants, or pollution control facilities (e.g., scrubber slags); industrial wastes (e.g., manufacturing process wastewaters and non-wastewater sludges and solids); and other discarded materials, including solid, semisolid, liquid, or contained gaseous materials resulting from industrial, commercial, mining, agricultural, and community activities (e.g., boiler slag). Currently, all 50 states and territories have been granted authority to implement RCRA. State RCRA programs must be at least as stringent as the federal requirements, but states can adopt more stringent requirements as well. California has implemented additional requirements, as discussed further below.

The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. Contractors would be required to comply with state regulations including the Hazardous Materials Release Response Plans and Inventory Act, Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, License to Transport Hazardous Materials, and Hazardous Materials Storage

and Handling, which would make the proposed action consistent with the Toxic Substances Control Act.

3.16.3.2 State

Senate Bill 610 (Water Code Sections 10910 et seq.)

Senate Bill (SB) 610 requires the preparation of a water supply assessment for certain types of projects. As discussed in Section 3.8.3, Regulatory Framework, in Section 3.8, *Hydrology and Water Quality*, the proposed program does not include development of any of the specified categories, nor does the proposed program generate a water demand equal to or greater than the demand generated by a 500-dwelling-unit project (i.e., approximately 125 acre-feet per year). Therefore, a water supply assessment is not required for the proposed program.

Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 (SGMA) requires the creation of a Groundwater Sustainability Agency that would develop and implement a Groundwater Sustainability Plan that would manage and use groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. Relative to Utilities and Public Services, preventing undesirable results would include a significant and unreasonable depletion of water supply. SGMA is noted but discussed in Section 3.8.3, *Regulatory Framework*, in Section 3.8, *Hydrology and Water Quality*.

Statewide Water Reductions (Executive Orders B-29-15, B-36-15, and B-37-16)

These state executive orders were implemented by Governor Brown in response to the drought. The required actions are focused on reducing potable water use, reducing waste, and improving water supplies provided by water supply agencies. The orders direct urban water suppliers (e.g., the LBWD) to develop new water use targets. Actions for the proposed program that would be consistent with these orders would include storing and recycling hydrostatic testing water to reduce overall potable water use and injecting produced water back into the production zones to prevent subsidence that could adversely affect aquifers that could supply usable groundwater.

California Integrated Waste Management Act of 1989 and Assembly Bill 341

The California Integrated Waste Management Board (CIWMB) oversees, manages, and tracks waste generated in California. The authority and responsibilities of the CIWMB were promulgated in Assembly Bill (AB) 939 and SB 1322, which were signed into law as the California Integrated Waste Management Act of 1989 (Public Resources Code [PRC], Division 30). The California Integrated Waste Management Act, as modified by subsequent legislation, mandated all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (PRC Section 41780). In January 2010, the CIWMB changed its name to the California Department of Resources, Recycling, and Recovery (CalRecycle).

AB 341, which amends the Integrated Waste Management Act of 1989 and was adopted by the California legislature in October 2011, directs CalRecycle to adopt a state policy that actively seeks to achieve a goal of diverting 75 percent of solid waste from landfills by 2020. The new legislation focuses largely on commercial waste generators, as this sector was identified as the most in need of improved waste management. AB 341 does not alter the 50 percent diversion mandate; rather, it is a "legislative declaration of policy" to guide CalRecycle's administration of the California Integrated Waste Management Act.

A jurisdiction's diversion rate is the percentage of total generated waste it diverts from disposal through source reduction, reuse, and recycling programs. The state determines compliance with the 50 percent diversion mandate through a complex formula. Use of the formula requires cities and counties to conduct empirical studies to establish a base-year waste generation rate against which future diversion is measured. The diversion rate in subsequent years is determined through deduction instead of direct measurement. Rather than counting the amount of material recycled and composted, the city or county tracks the amount of material disposed of at landfills and then subtracts that amount from the base-year amount; the difference is assumed to be diverted (PRC Section 41780.2).

3.16.3.3 Regional

Los Angeles County Integrated Waste Management Plan

The California Integrated Waste Management Act of 1989 (AB 939) requires that the responsibility for solid waste management be shared between state and local governments. The state has directed the County to prepare and implement a local integrated waste management plan in accordance with AB 939. The Los Angeles County Integrated Waste Management Plan Executive Summary presents the County-wide goals and objectives for integrated solid waste management and describes the County's system of governmental solid waste management infrastructure and the current system of solid waste management in the cities and unincorporated areas of the County. This document also summarizes the types of programs planned for individual jurisdictions and describes countywide programs that could be consolidated.

The Los Angeles County Integrated Waste Management Plan, *2017 Annual Report on the Countywide Summary Plan and Countywide Siting Element*, describes the County's approach to dealing with a broad range of solid waste issues, including processing capacity; markets for recovered materials; waste reduction mandates; waste disposed at Class I (i.e., hazardous waste–only landfills) and Class II (i.e., landfills that accept specified hazardous waste and non-hazardous wastes) disposal facilities; allocation of "orphan" waste (waste that comes from an unknown origin); the accuracy of the state Disposal Reporting System (DRS); and the CIWMB enforcement policy. This document also includes the Los Angeles County Integrated Waste Management strategies to maintain adequate solid waste disposal capacity through 2032. The proposed program would be subject to the Los Angeles County Integrated Waste Management Plan (County of Los Angeles 2019).

Orange County Construction and Demolition (C&D) Debris Reuse and Recycling Program

Orange County requires the preparation of a C&D Program Application Packet and Final Compliance Report for various construction and demolition projects. The C&D program's goal is to ensure a minimum of 65 percent diversion of construction building materials and demolition debris from landfills. Projects can achieve diversion through reuse, recycling, and/or composting of construction and demolition materials at County-approved facilities or use of a County Franchised Waste Hauler. Information provided in the Application and Compliance Report includes hauler identification and anticipated material wastes type and quantity (County of Orange, 2019c).

3.16.3.4 Local

Orange County Drainage Area Management Plan (DAMP) and Orange County MS4 Permit

The City of Seal Beach is covered under the Seal Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City; Order No. R8-2009-0030 NPDES No. CAS618030, as amended by Order No. R8-2010-0062. The Seal Beach MS4 is noted and discussed in Section 3.5.3, *Regulatory Framework*, in Section 3.5, *Geology, Soils, and Paleontological Resources*.

Los Angeles County Sanitation District

As briefly described above the LACSD provides wastewater treatment services for the program area. LACSD is a public agency created under state law to manage wastewater and solid waste on a regional scale and consists of 24 independent special districts serving approximately 5.5 million people in Los Angeles County, including the City of Long Beach.

Capital improvements to the LACSD water reclamation plants are funded by connection fees charged to new developments, redevelopments, and expansions of existing land uses. The connection fee is a capital facilities fee used to provide additional conveyance, treatment, and disposal facilities (capital facilities) required by new users connecting to the LACSD's sewerage system or by existing users who significantly increase the quantity or strength of their wastewater discharge. The Connection Fee Program ensures that all users pay their fair share for any necessary expansion of the system. Estimated wastewater generation factors used in determining connection fees in LACSD's member districts are set forth in the Connection Fee Ordinance for each respective district available on LACSD's website. Most of the City of Long Beach, including the program area, is in District 3 of the LACSD (LACSD 2017a).

Long Beach Water Department 2015 Urban Water Management Plan

Urban Water Management Plans (UWMP) are comprehensive planning documents that project water supplies and water demands 25 years into the future. These plans also describe efforts to promote the efficient use and management of limited water resources. The current version for the City is the 2015 UWMP. The projected public water supply available to the proposed program is based on the 2015 UWMP, as analyzed below in Impact UTL-2.

Long Beach Water Department 2016 Water Conservation and Water Supply Shortage Plan

The Water Conservation and Water Supply Shortage Plan for the LBWD is described in Resolution WD-1354, adopted June 2, 2016. This plan has the objectives of preventing water supply shortages through water management programs such as conjunctive use, water conservation, water education, and the use of reclaimed water. The plan prohibits excessive use, loss through leaks and breaks, landscape irrigation between 4 p.m. and 9 a.m. or during rainfall, or allowing unreasonable runoff or waste. The control of runoff and limits on irrigation would apply to the proposed program. The plan also describes emergency procedures in the event of a water supply shortage, which could limit the use of water for the proposed program.

Long Beach MS4 Permit

The City of Long Beach is covered under the Long Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City; Order No. R4-2014-0024. The Long Beach MS4 is noted and discussed in Section 3.5.3, *Regulatory Framework*, in Section 3.5, *Geology, Soils, and Paleontological Resources*.

Adopted Southeast Area Development and Improvement Plan

The Southeast Area Development and Improvement Plan (SEADIP) was a planning document for the Long Beach portions of the program area, including re-designating land uses for the program area (City of Long Beach 2016). The provisions relevant to utilities and service systems are provided below.

> **Provision 3.** Prior to issuance of a building permit, all infrastructure, including street improvements, fire hydrants, water lines, storm drains, and sanitary sewers shall be construction on a block basis in accordance with the approved plans. Such improvements, including engineering plans, shall be financed by subdivider(s) or by an assessment district or both.
>
> **Provision 15.** All utility lines shall be placed underground and utility easements shall be provided as required unless waived by the Commission on the advice of the Director of Public Works.
>
> **Provision 16.** Developers shall construct, in accordance with plans approved by the Director of Public Works, all necessary sanitary sewers to connect with existing public sewers, and shall provide easements to permit continued maintenance of these sewers by the City were the City accepts responsibility for such maintenance.
>
> **Provision 19.** Developers shall make provision for the continued private maintenance of all common areas that are not to be dedicated and accepted by the City, and of all ways not to be dedicated and accepted by the City, including maintenance of street lighting, walks, curbs, storm drainage, water lines, fire hydrants, and street trees. Such provisions shall be perpetuated by their inclusion in the covenants, conditions, and restrictions of the property owners.

Proposed Southeast Area Specific Plan 2060

However, the City unanimously approved the SEASP 2060, a new specific plan with conventional zoning on a few select parcels, which replaced the previously adopted SEADIP. The portions relevant to utilities and service systems are provided below.

Chapter 8, Infrastructure, Section 8.1.2, Storm Drains

Any new projects in the SEASP area will comply with the MS4 Permit for the City and include stormwater LID Best Management Practices (BMPs). Application of LID BMPs would ensure any increases in runoff from proposed land use changes will be sustainably managed and that the 85th percentile, 24-hour storm event would be treated through a variety of LID features. The 85th percentile storm event is measured by rainfall depth; for example, if the 85th percentile storm event equals 0.5 inch, then 85 percent of all rainfall events would be equal to 0.5 inch or less of precipitation.

As required by the MS4 permit, the use of LID features shall be consistent with the prescribed hierarchy of treatment provided in the permit: infiltration, evapotranspiration, harvest/reuse, and biotreatment. For areas of the site where LID features are not feasible or that do not meet the feasibility criteria, treatment control BMPs with biotreatment enhancement design features must be used.

Typical water quality BMPs for new development in mixed-use areas include stormwater planters (raised or at grade), cisterns and reuse distribution systems (primarily for landscaping), proprietary detention/biotreatment flow-through systems, and subterranean infiltration systems. Since increased density is anticipated in mixed-use areas, the majority of the proposed features should be located within the landscaping along the perimeter of the proposed program, adjacent to the buildings, or in some cases, within the buildings themselves.

3.16.4 Significance Thresholds and Methodology

3.16.4.1 Significance Thresholds

For the purposes of this Program Environmental Impact Report (PEIR) and consistency with Appendix G of the *CEQA Guidelines*, the proposed program would have a significant impact on utilities and service systems if it would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.16.4.2 Methodology

The analysis related to wastewater treatment requirements identifies the types of wastewater that are anticipated to be generated by implementation of the proposed program and regulations related to wastewater. The analysis of sewer infrastructure capacity focuses on the changes in the nature and volume, if any, of wastewater and wastewater treatment from the proposed program over the 20+ planning period.

The analysis of water supply is focused on the change in levels of water use from implementation of the proposed program. The primary resources used for this analysis include information from the City of Seal Beach and City of Long Beach's 2015 UWMP. The projected increase in water demand over the 20-year planning period of the proposed program is compared to future available supplies. The demand generated by the proposed program compared to water supplies available determines whether an impact from implementation of proposed program would occur.

The analysis of the proposed program's impact on stormwater drainage facilities identifies the general increase or decrease in stormwater runoff that is anticipated to occur from implementation of the proposed program, and identifies the existing drainage infrastructure that serves the program area.

The analysis of the proposed program's impact on landfill facilities identifies solid waste that is anticipated to be generated during both construction and operation of the proposed program. The analysis identifies the anticipated amount of non-hazardous construction debris and operational solid waste that would be generated from implementation of the proposed program and the amount that would be disposed of in landfills after compliance with recycling/diversion requirements. The results (i.e., solid waste after recycling/diversion) are compared with the available capacity of the landfill serving the program areas to assess the significance of the proposed program's solid waste generation during construction and during operation. The analysis of the proposed program's impact related to solid waste regulations identifies the non-hazardous solid waste that is anticipated to be generated during both construction and operation of the proposed program, and how the proposed program would implement the regulations related to disposal of that solid waste. Hazardous waste is analyzed in Section 3.7, *Hazards and Hazardous Materials*; however, the capacity of the nearest landfill permitted to accept hazardous waste is analyzed herein.

As stated in Chapter 1, *Introduction*, on March 8, 2019, the Los Cerritos Wetlands Authority sent a Notice of Preparation to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the proposed program to identify the relevant environmental issues that should be addressed in the PEIR. No issues related to utilities were identified.

3.16.5 Program Impacts and Mitigation Measures

Impact UTL-1: The proposed program would result in a significant impact if the proposed program would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Water Infrastructure—Construction and Operation

The proposed program would be constructed and implemented in three phases over a 20-year period. In the South Area, the existing road (1st Street) through the marsh would be raised on a berm to move it out of the restored marsh floodplain in the near-term. The City of Seal Beach is planning to reline the existing water line within the road, which could be done at any time. In the long-term, 1st Street would be removed to allow for restoration of the berm and the water line would be relocated off site. However, the design and installation of the new water line would be required to meet applicable City standards. Construction impacts associated with the installation would primarily involve trenching in order to place the water distribution lines below grade and reconnect existing domestic and fire water services for the affected surrounding properties. Prior to ground disturbance, contractors would coordinate with OCWD and LBWD to identify the locations and depth of all lines and send notices in advance of proposed ground disturbance activities to avoid water lines and disruption of water service. As discussed in Section 3.14, *Transportation*, in accordance with Mitigation Measure TRA-1, the proposed program would implement a Construction Management Plan to reduce temporary pedestrian and traffic impacts during construction, including construction of water distribution lines and connections to the public main.

Additional water infrastructure needed for the Seal Beach Visitor Center and irrigation would likely come from existing domestic water mains surrounding the program boundary that are maintained by the cities of Seal Beach and Long Beach. As previously discussed in Section 3.16.2, *Environmental Setting*, above, water for the proposed program would be provided by the OCWD and LBWD. As described in Chapter 2, *Project Description*, of this PEIR, the existing domestic water mains surrounding the program boundary, which are owned by the cities of Seal Beach and Long Beach, are relatively large for irrigation use and available for new water meter services. Construction impacts would be limited to the one to two days required for each meter and lateral installation. In addition to water meters installed by utility providers, existing fire hydrants can provide domestic water service to the program area. A temporary utility company provided meter would be attached onto one of the hydrant outlets for access to potable water. If the hydrants are on the side of the street opposite the program boundary, either a temporary pipeline crossing of the street or filling of water trucks at the meter and transfer by vehicle would be required. For operation of the proposed program, as the design of the visitor center is unknown at this time, the proposed program would implement Mitigation Measure UTL-1, which would require obtaining a will serve letter prior to operation of the visitor center to verify that surrounding water mains surrounding the program boundary have capacity to provide service to the visitor center. No other new infrastructure or modifications to utilities are proposed for the proposed program.

While the proposed program does include relocation of a water line in the South Area and new line connections, they would not result in any physical environmental effects beyond those identified in this PEIR. Therefore, with implementation of existing regulations and Mitigation Measure TRA-1, impacts would be reduced to a less than significant level.

Mitigation Measure

Mitigation Measure TRA-1, as provided in Section 3.14, *Transportation*.

> **Mitigation Measure UTL-1: Water Will Serve Letter.** Prior to issuance of a certificate of occupancy of the visitor center, a will serve letter will be obtained to verify that the water mains surrounding the program boundary have the capacity to serve the visitor center.

Significance after Mitigation

Less than Significant with Mitigation.

Wastewater Infrastructure—Construction and Operation

All wastewater generated during construction, including water from washing down trucks, equipment, and concrete construction pads, would be stored on site within temporary storage tanks. These tanks would store all wastewater and would be periodically hauled off site by vacuum trucks. Construction workers would use portable sanitary units during construction activities for the proposed program. Wastewater generated during construction of the proposed program would be minimal and would not require the construction of new wastewater treatment facilities. After settling out the solids, the waste water would be sent to the OCSD and LACSD treatment facilities for treatment and disposal. Because construction of new or expanded facilities is not required to accommodate the construction of the proposed program, there would be no construction impacts associated with the provision of these facilities to serve the proposed program.

Sanitary wastewater generated by the Seal Beach Visitor Center would be met using existing sewer lines. Because of the comparatively large reduction in wastewater generated from oil production, there would be no requirement for the construction of new or expanded wastewater treatment facilities to serve the proposed program. In addition, the existing sewer lines are sized to accommodate the volume of wastewater produced from the proposed program. Furthermore, as discussed above in Section 3.16.2, *Environmental Setting*, above, and in the Sewer Master Plan 2018 for the City of Seal Beach, there were no sewer pipe capacity deficiencies identified and sufficient capacity was determined at the Adolfo Lopez pump station, the closest pump station to the program area. Furthermore, as the design of the visitor center is unknown at this time, the proposed program would implement Mitigation Measure UTL-2, which would require obtaining a sewer capacity study prior to operation of the visitor center to verify that sewer lines surrounding the program boundary have capacity to provide service to the visitor center. Because construction of new or expanded facilities is not required to accommodate the proposed program and the overall volume of wastewater would decrease, there would be no operational impacts associated with the provision of these facilities to serve the proposed program.

Mitigation Measure

Mitigation Measure UTL-2: Sewer Capacity Study. Prior to issuance of a certificate of occupancy of the visitor center, a sewer capacity study will be performed to verify that the sewer lines surrounding the program boundary have the capacity to serve the visitor center.

Significance after Mitigation

Less than Significant with Mitigation.

Stormwater Infrastructure—Construction and Operation

As described in Chapter 2, *Project Description*, of this PEIR, improving connection of wetlands to tidal flows to allow for habitat restoration would require changes to existing flood risk and stormwater management elements, and construction of new flood risk and stormwater management elements. The proposed program would include modifications to Los Angeles County Drainage Area project structures within the program area by modifying the existing levee along the San Gabriel River, constructing new flood risk management structures (e.g., earthen levees and berms, or flood walls), restoring the wetland floodplain, constructing new water-control structures that allow for increased tidal connections, and constructing new stormwater management features (e.g., bioswales).

Specifically, the proposed program would construct new stormwater basin or bioswales in the South Area to function as a water quality treatment measure for the stormwater runoff from the new Seal Beach Visitor Center and associated parking. In the Central Area, the construction of the proposed levees would eliminate the storage volume for the excess overflow drainage from the roads. Replacement stormwater storage volume would be provided by creating low areas (e.g., basins or swales) between the roads and the proposed levee or flood wall. These storage basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas. In the North Area, storage for the overflow of stormwater draining from the roads would be reduced with the construction of the proposed berm or flood wall. Room for stormwater storage between the road and berm or flood wall would be provided by creating low areas (basins or swales) between the roads and the proposed levee. These storage basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas. No change to the flood risk or stormwater management is anticipated for the Isthmus Area. During operations, maintenance of bioswales is expected to be limited to non-native vegetation removal. Non-native plant removal would include work with hand tools such as shovels, rakes, hatchets, wheelbarrows, and small trucks for hauling of equipment and spoils. It is expected that these efforts would occur once a year for the lifespan of the proposed program.

The construction of the on-site stormwater drainage facilities would be designed in accordance with all applicable stormwater requirements and permits and would revise the United States. Army Corps of Engineers' OMRR&R Manual to reflect changes made to the existing Los

Angeles County Drainage Area project structures and facilities within the program area. The proposed program would also implement BMPs as defined by a Stormwater Management Plan, such as stormwater basins. Compliance with applicable regulatory requirements and implementation of BMPs would ensure impacts related to the need to construct or expand stormwater drainage facilities would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Electric Infrastructure—Construction and Operation

Infrastructure and utility modifications include relocation of electric lines. As part of the proposed program, the existing road (1st Street) through the marsh would be raised on a berm to move it out of the restored marsh floodplain within the South Area in the short-term. The utility poles supporting the electric lines along the road would likely need to be improved (e.g., relocated, heightened) as part of the raising of the road. Preferably the electric lines could be replaced underground. In the long-term, 1st Street would be removed to allow for restoration of the berm. The electric lines would be relocated off site. Additional electrical infrastructure needed for the Seal Beach Visitor Center would likely would tie into existing off-site facilities surrounding the program boundary.

In addition, electrical lines are located along the Central LCWA site and Central Bryant site. As part of the proposed program, an earthen levee would be constructed within the Central LCWA site and Central Bryant site during the interim to protect the Long Beach City Property site, and a perimeter levee would be constructed along 2nd Street within the Central Bryant site. As part of this effort, utility poles supporting the electric lines, similar to those existing along 1st Street, would likely need to be improved (e.g., relocated, heightened) as part of the proposed program's efforts to construction the interim and perimeter levees. Preferably the electric lines could be replaced underground.

During construction, installation of the new electrical infrastructure would create a temporary environmental disturbance. Program design features and mitigation measures identified throughout this PEIR where appropriate to further reduce impacts associated with proposed program construction activities would be in place for these installation activities. In addition, the electrical electric lines would be placed underground for the duration of operation and maintenance. As such, construction and operation of the proposed program is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity and would not result in the construction of new electric power facilities or expansion of existing facilities, which could cause significant environmental effects the impact would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Natural Gas—Construction and Operation

As discussed in Section 3.6, *Greenhouse Gas Emissions and Energy*, of this PEIR, no natural gas consumption would be required during construction of the proposed program. However, construction of the visitor center would involve installation of new natural gas connections to serve the visitor center, creating a temporary environmental disturbance. Since the area surrounding the visitor center is located in an area already served by existing natural gas infrastructure, it is anticipated that extensive off-site infrastructure improvements would not be needed to serve the program area. Program design features and mitigation measures identified throughout this PEIR where appropriate to further reduce impacts associated with proposed program construction activities would be in place for these installation activities.

Natural gas would be required for operation of the visitor center. As discussed in Section 3.6, *Greenhouse Gas Emissions and Energy*, of this PEIR, the proposed program was estimated to generate 0.02 million British thermal units (kBtu), which is 0.000002 percent of SoCalGas' Natural Gas Sales in 2017. As such, operation of the proposed program would use a minimal amount of energy, not increase the need for new energy infrastructure, and not cause a wasteful, inefficient, and unnecessary consumption of energy.

Based on the above, construction and operation of the proposed program is not anticipated to adversely affect the natural gas infrastructure serving the surrounding uses or utility system capacity and would not result in the construction of new natural gas facilities or expansion of existing facilities, which could cause significant environmental effects the impact would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Telecommunication Infrastructure—Construction and Operation

No existing major telecommunication facilities are located on site. Construction activities typically do not involve the construction of telecommunication facilities. During construction, wireless telecommunication systems may be used for internet and telephone systems. Uses on the proposed program that may require telecommunication infrastructure include the visitor centers

proposed on the South Area and North Area. However, as telecommunication providers already deliver their services to a large number of homes in in the vicinity of the program area, it is anticipated that existing telecommunications facilities would be sufficient to support the proposed program's needs for telecommunication services. As such, no upgrades to off-site telecommunications facilities are anticipated during construction or operation. Therefore, the proposed program would not require or result in the relocation or construction of new or expanded telecommunication facilities. Impacts would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact UTL-2: The proposed program would result in a significant impact if the proposed program would not have sufficient water supplies available to serve the proposed program and reasonably foreseeable future development during normal, dry and multiple dry years.

Construction

The proposed program would have typical water uses during construction. The construction of the Seal Beach Visitor Center would require water for mixing with cement. In addition, relatively minor amounts of water would be used as necessary for the cleaning of equipment and dust suppression. The proposed program's long term objectives include phasing out the oil wells and associated oil production infrastructure on the Hellman Retained site, which would require water for mixing with bentonite clay and cement to plug the wells in the South Area. Overall, water usage during construction would be minimal.

As previously discussed in Section 3.16.2, *Environmental Setting*, the OCWD and LBWD have sufficient water supplies to meet all demands through the year 2040 during normal, single dry year, and multiple dry year hydrologic conditions. Given the proposed program's minimal water usage and phasing, the proposed program is expected to have sufficient water supply available during construction. Therefore, impacts would be less than significant.

Operation

During operations, drinking water and other potable water use would be nominal at the Seal Beach Visitor Center in the South Area. Water would also be required for restoration and irrigation to ensure vegetation is established. Water sources for restoration and irrigation would include the public water system. Given the proposed program's minimal water usage, the proposed program is expected to have sufficient water supply available during operation. Mitigation Measure UTL-1 would be require obtaining a will serve letter prior to operation of the visitor center to verify that surrounding water mains surrounding the program boundary have capacity to provide service to the visitor center. Therefore, impacts would be less than significant.

Mitigation Measure

Mitigation Measure UTL-1.

Significance after Mitigation

Less than Significant with Mitigation

Impact UTL-3: The proposed program would result in a significant impact if the proposed program would result in a determination by the wastewater treatment provider which serves or may serve the proposed program that it has adequate capacity to serve the proposed program's projected demand in addition to the provider's existing commitments.

Construction

All wastewater generated during construction, including water from washing down trucks, equipment, and concrete construction pads, would be stored on site within temporary storage tanks. These tanks would store all wastewater and would be periodically hauled off site by vacuum trucks. Construction workers would use portable sanitary units during construction activities for the proposed program. Wastewater generated during construction of the proposed program would be minimal and would not require the construction of new wastewater treatment facilities. After settling out the solids, the wastewater would be sent to the OCSD and LACSD treatment facilities for treatment and disposal. All wastewater generated in portable toilets would be collected by a permitted portable toilet waste hauler and appropriately disposed of at one of the County identified liquid waste disposal stations. Because construction of new or expanded facilities is not required to accommodate the construction of the proposed program, there would be no construction impacts associated with the provision of these facilities to serve the proposed program.

Operation

Operation of the proposed Seal Beach Visitor Center has the potential to result in a nominal increase of the amount of sanitary wastewater generated. Sanitary wastewater generated by the visitor center would be treated at the existing OCSD treatment facilities. Waste discharge requirements (WDRs) for the proposed program are based on all applicable federal and state regulations, policies, and guidance. Wastewater generated from on-site employees and recreational visitor to the Seal Beach Visitor Center would be nominal compared to the 632 mgd capacity of the combined treatment facilities and no new or expanded facilities would be needed. Although the volume of wastewater would nominally increase, the nature of wastewater disposed to the sanitary sewer system would remain unchanged and would, therefore, still be acceptable under the existing site discharge requirements. The proposed program would continue to be served by existing sewer systems located within public streets and rights-of-way and the OCSD treatment facilities. As noted under Impact UTL-1, above, no sewer pipe capacity deficiencies were identified within the City of Seal Beach's Sewer Master Plan 2018 and sufficient capacity was determined at the Adolfo Lopez pump station, the closest pump station to the program area. Furthermore, as the design of the visitor center is unknown at this time, the proposed program would implement Mitigation Measure UTL-2, which would require obtaining a sewer capacity study prior to operation of the visitor center to verify that sewer lines surrounding the program

boundary have capacity to provide service to the visitor center. Therefore, the impact of the additional wastewater from the Seal Beach Visitor Center would be less than significant.

Mitigation Measure

Mitigation Measure UTL-2.

Significance after Mitigation

Less than Significant with Mitigation

Impact UTL-4: The proposed program would result in a significant impact if the proposed program would generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

Construction

The proposed program's construction activities would generate solid waste primarily from excavated soil that would be exported from the program area. As described in Chapter 2, *Project Description*, of this PEIR, there are three options for off-site soil export and disposal:

1. Export via trucks with disposal at local landfills, the most likely of which could include Scholl Canyon Landfill in the City of Glendale, Frank R Bowerman Landfill in Irvine, and/or Olinda Alpha Landfill in Brea;
2. Export via barge to the Port of Long Beach or Port of Los Angeles, transfer to trucks for upland disposal at local landfills; or
3. Export via barge to an off-shore disposal location, potentially including the Los Angeles ocean disposal site off the coast from San Pedro (LA-2) or the Newport Bay ocean disposal site off the coast from Newport Beach (LA-3), each of which is managed by the United States Environmental Protection Agency (USEPA).

The proposed program would also demolish existing pipelines on the Central LCWA site. The pipelines would be removed in compliance with applicable standards required by the California Geologic Energy Management Division (formerly California Department of Conservation Department of Oil, Gas, and Geothermal Resources) and Department of Toxic Substances Control (DTSC). The solid waste from pipeline removal would include metals, concrete, asphalt, wood, cardboard, glass, plastics, soil, and other materials. The metals portion of the solid waste would consist of sections of pipelines, cut-up pieces of storage tanks, and other metallic waste. The majority of the metals waste would be recycled at local metals recyclers. Some other solid waste may also be recycled such as asphalt, concrete, and the boxes and crates used in the shipment of materials, depending on the nature of the material. For example, asphalt plants would be unlikely to accept asphalt mixed with soil. Consequently, it is anticipated that some of the listed demolition and construction waste may not be acceptable for recycling.

As discussed above, the five landfills that can serve the proposed program have a combined remaining capacity of 504,756,250 tons and a combined daily maximum acceptance rate of

50,250 tons. These five landfills are projected to remain open until about 2030, 2053, 2045, 2052, and 2037, respectively. Based on the available capacity, these landfills would have the capacity to accept all of the solid waste. Therefore, construction and demolition activities of the proposed program would not result in the need to expand the existing landfill facilities or construct a new landfill facility. Contaminated soil would be segregated and disposed of at the Kettleman Landfill, which is permitted to accept hazardous waste. The Kettleman Landfill is in the process of expanding its hazardous waste unit capacity by an additional 4.9 million cubic yards, which is anticipated to provide an additional 8 to 9 years based on the typical rate of hazardous waste disposal (DTSC 2014). As a result, construction activities would result in less-than-significant impacts related to landfill facilities.

Operation

Operation and maintenance of the proposed program would result in minimal trash generation, mainly personal waste generated by employees and visitor at the Seal Beach Visitor Center. The visitor center would recycle waste such as pallets, cardboard and paper boxes, paper, plastics, scrap steel, scrap aluminum, and scrap wire. Other office-type trash and rubbish would be collected in waste bins and disposed of by Seal Beach waste haulers. Therefore, solid waste is expected to be negligible.

As discussed above, the five landfills have 504,756,250 tons and a combined daily maximum acceptance rate of 50,250 tons, therefore the amount of trash generated by the proposed program would not adversely impact the capacity of these landfills. The proposed program would not result in the need to expand the existing landfill facilities or construct a new landfill facility. As a result, operational activities would result in less-than-significant impacts related to landfill facilities.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

Impact UTL-5: The proposed program would result in a significant impact if the proposed program would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Construction

As previously discussed, the proposed program would generate solid waste. A majority of this solid waste would consist of non-hazardous materials that would be acceptable at the five previously discussed landfills under the waste acceptance criteria in their current operating permits. There are two sources of solid waste that may require disposal as a hazardous waste at a disposal facility permitted to accept hazardous waste. Any contaminated soil would be segregated and disposed of at the Kettleman Landfill, which is permitted to accept hazardous waste.

As discussed in Section 3.7, *Hazards and Hazardous Materials*, metal pipelines that have carried crude oil for extended periods of time have the potential to retain naturally occurring radioactive materials. All pipeline segments would be tested for radioactivity once demolished. Those that exceed action levels would be segregated from other materials for handling, disposed as low-level radioactive waste, and hauled to a facility designed to accept these wastes, likely the landfill in McKittrick, California.

For all remaining solid waste, the proposed program would comply with all City and County construction and demolition requirements during construction of the proposed facilities as described above in Section 3.16.3, *Regulatory Framework*, above. All non-hazardous solid waste would be hauled off site by truck to one or more of the previously listed solid waste landfills. As previously discussed, the three landfills that can serve the proposed program have the daily and total available capacity to accept the solid waste that would be generated from operation of the proposed program. The proposed program would comply with all federal, State, and local statues related to solid waste disposal. Therefore, the proposed program would result in less-than-significant construction solid waste impacts.

Operation

Republic Services provides franchised waste and recycling collection services for residential and commercial uses in the City of Seal Beach. During operations, any recyclable materials would be segregated and sent to recycling facilities permitted to recycle the materials. Materials that cannot be recycled would be sent to disposal facilities licensed to accept the solid waste. Therefore, the proposed program impacts related to potential noncompliance with solid waste statutes and regulations would be less than significant.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.6 Cumulative Impacts

The cumulative projects are listed in Table 3-1, *List of Cumulative Projects*, and the locations shown on Figure 3-1, *Approximate Locations of Cumulative Projects*. The cumulative projects within the vicinity of the proposed program would consist of residential, commercial, redevelopment projects, and infrastructure project such as road repaving and other improvements.

3.16.6.1 New or Expanded Facilities

Water

Cumulative water infrastructure impacts are considered on a system-wide basis and are associated with the capacity of existing and planned infrastructure. The cumulative system evaluated

includes the City of Seal Beach and LBWD infrastructure systems that are serving the program area and adjacent land uses in the City of Seal Beach and City of Long Beach.

Cumulative projects in the program area could result in the need for new or upgraded water infrastructure. The construction activities associated with new or upgraded water facilities, if needed in by future cumulative projects, could result in significant environmental impacts. Those facilities, if required by other cumulative projects, would be analyzed at such time discretionary approvals for those projects are considered. As described above, Mitigation Measure UTL-1 would be require obtaining a will serve letter prior to operation of the visitor center to verify that surrounding water mains surrounding the program boundary have capacity to provide service to the visitor center. Cumulative projects would similarly obtain will serve letters, as needed. Given the proposed program's minimal water usage, the proposed program is expected to have sufficient water supply available during operation of the proposed program and would not have a cumulatively considerable contribution to potential significant cumulative impacts associated with water infrastructure.

Wastewater

Cumulative wastewater infrastructure impacts are considered on a system-wide basis and are associated with the capacity of existing and planned infrastructure. As previously discussed, the proposed program would reduce the volume of wastewater sent to the sewer system due to the large reduction in wastewater generated from oil production. In addition, as the design of the visitor center is unknown at this time, the proposed program would implement Mitigation Measure UTL-2, which would require obtaining a sewer capacity study prior to operation of the visitor center to verify that sewer lines surrounding the program boundary have capacity to provide service to the visitor center. Therefore, the proposed program would not have a cumulatively considerable contribution to potential significant cumulative impacts during construction or operation of the proposed program associated with wastewater infrastructure.

Storm Water Drainage

The geographic scope for cumulative impacts on stormwater drainage includes the existing stormwater infrastructure that serves the program area, which is based on the regional drainage area. These facilities include pipelines and culverts that are owned and maintained by the Los Angeles County Flood Control District. Because the cumulative area is urban, developed, and is generally covered with impervious surfaces, development of cumulative projects would not result in a substantial increase in impervious surfaces in the area or substantially increase stormwater and runoff flows through the stormwater drainage system. In accordance with state and regional MS4, LID, and County SUSMP regulations, projects are required to maintain pre-project hydrology, such that no net increase of off-site stormwater flows would occur. State and the County MS4 Permit conditions require a hydrology/drainage study for projects over 1 acre to demonstrate that all runoff would be appropriately conveyed and not leave the program area at rates exceeding pre-project conditions, prior to receipt of necessary permits. As a result, increases of runoff from cumulative projects that could cumulatively combine to impact stormwater drainage capacity would be less than cumulatively significant.

Areas surrounding the program area are generally covered with impervious surfaces and development of cumulative projects would not substantially increase the amount of impervious surfaces and runoff, such that existing storm drains would be overwhelmed because all development projects would be required to comply with the same SUSMP, LID, and RWQCB permit requirements to retain the difference between the volume pre- and post-construction runoff volume. In addition, implementation of the proposed program would include modification the existing levee along the San Gabriel River, construction of new flood risk management structures (e.g., earthen levees and berms, or flood walls), restoration the wetland floodplain, construction of new water-control structures that allow for increased tidal connections, and construction of new stormwater management features (e.g., bioswales). The drainage facilities would help to capture, retain, and utilize some surface water runoff, which would reduce the amount of surface runoff in the storm drains. Overall, with implementation of new BMPs and compliance with applicable regulatory requirements, the proposed program's contribution to cumulative impacts during construction and operation of the proposed program related to stormwater drainage capacity would be less than cumulatively considerable.

Electric Power

Cumulative electricity infrastructure impacts are considered on a system-wide basis and are associated with the capacity of existing and planned infrastructure. As previously discussed, while additional electrical infrastructure is needed for the proposed program, it would likely tie into existing off-site facilities surrounding the program boundary. Construction and operation of the proposed program is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity and would not result in the construction of new electric power facilities or expansion of existing facilities. Therefore, the proposed program would not have a cumulatively considerable contribution to potential significant cumulative impacts associated with electric power infrastructure.

Natural Gas

Cumulative natural gas infrastructure impacts are considered on a system-wide basis and are associated with the capacity of existing and planned infrastructure. As previously discussed, while additional natural gas infrastructure is needed for the proposed program, it would likely connect into existing off-site facilities surrounding the program boundary. Construction and operation of the proposed program is not anticipated to adversely affect the natural gas infrastructure serving the surrounding uses or utility system capacity and would not result in the construction of new natural gas facilities or expansion of existing facilities. Therefore, the proposed program would not have a cumulatively considerable contribution to potential significant cumulative impacts associated with natural gas infrastructure.

Telecommunication

Expansion of telecommunication infrastructure, including internet and telephone services, is typically at the discretion of the service providers and would occur as needed. It is expected that the telecommunication service providers would expand off-site telecommunications systems, if necessary, to meet demand increases within their service area. Projects may require the installation of new underground telecommunication lines to serve the project. Installation of new

telecommunications infrastructure for the cumulative projects are anticipated to be limited to on-site telecommunications distribution and minor off-site work associated with connections to the public system. Installation would be short term in duration and would cease to occur when installation is complete. Therefore, the proposed program would not have a cumulatively considerable contribution to potential significant cumulative impacts during construction and operation of the proposed program associated with telecommunication infrastructure.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.6.2 Water Supply

Cumulative water supply impacts are considered on a purveyor service area basis and are associated with the adequacy of the primary sources of water.

As previously discussed in Section 3.16.2, *Environmental Setting*, the City of Seal Beach, as provided in the City of Seal Beach's 2015 Urban Water Management Plan, and the LBWD, as provided in the LBWD's 2015 Urban Water Management Plan, expect water supplies would be sufficient to meet all demands through the year 2040 during normal, single dry year, and multiple dry year hydrologic conditions. Given the proposed program's minimal water usage and phasing during construction and minimal water usage and recycle water usage during operation, the proposed program is expected to have sufficient water supply available during construction and operation.

Every water purveyor provides projections for water supply and demand through 2040 that includes imported water and recycled water sources. By using SCAG growth projections, each water supply agency within the program area should adequately be able to monitor supplies and plan accordingly. As a result, cumulative development would result in less-than-significant cumulative impacts to water supply.

Because the proposed program as well as cumulative projects would result in less-than-significant impacts, the implementation of the proposed program would not result in cumulatively considerable impacts to water supply.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.6.3 Wastewater Treatment Capacity

Cumulative wastewater treatment capacity impacts are considered on a system-wide basis and are associated with the operation of the wastewater disposal at the OCSD, for the portion of the proposed program within the City of Seal Beach, and LACSD, for the portion of the proposed program within the City of Long Beach. As previously discussed, wastewater generated during construction of the proposed program would be minimal and would not require the construction of new wastewater treatment facilities. Cumulative developments within the urban and developed areas of the City of Seal Beach and City of Long Beach that are served by the OCSD and LACSD would consist of residential, commercial, redevelopment projects, and infrastructure project such as road repaving and other improvements. Similar to the proposed program, cumulative projects would similarly implement discharge requirements (WDRs) based on all applicable State and federal regulations, policies, and guidance. Therefore, the proposed program would continue to be served by existing sewer systems located within public streets and rights-of-way and the OCSD and LACSD treatment facilities, and these facilities would have adequate capacity to serve the proposed program, existing commitments, and cumulative projects. Thus, the proposed program would not have a cumulatively considerable contribution to potential significant cumulative impacts associated with wastewater treatment capacity.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.6.4 Landfill Capacity

The geographic scope of cumulative analysis for landfill capacity is the service area for the Olinda Alpha Landfill, Frank R. Bowerman Landfill, El Sobrante Landfill, Waste Management Simi Landfill, Azusa Land Reclamation, and Kettleman Landfill, which serve the program area. The projections of future landfill capacities are based on the projected waste stream going to these landfills. These five landfills are projected to remain open until about 2030 to up to 2053. The lifespan of these landfills includes the existing and projected solid waste that is anticipated from the growth in the County. As a result, impacts from future growth on landfill capacity would be less than cumulatively significant. Although the proposed program would contribute solid waste to the landfills, the increase would not substantially impact the permitted capacity of the landfills. Therefore, the increase in solid waste from operation of the proposed program in combination with planned growth within the County would not require construction of a new landfill or expansion of the existing landfill to meet capacity needs. As a result, the proposed program's contribution to cumulative impacts on the capacities of the landfill facilities would be less than cumulatively considerable.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.6.5 Solid Waste Regulations

The geographic scope of cumulative analysis for compliance related to solid waste regulations is the service area for the landfills that serve the Los Angeles County and Orange County region. Disposal of solid waste generated by cumulative development would be subject to the requirements set forth in AB 939, AB 341, and the policies within the Los Angeles County Integrated Waste Management Plan and Orange County Construction and Demolition (C&D) Debris Reuse and Recycling Program. Therefore, cumulative development would comply with all solid waste statutes and regulations, and cumulative development would result in no impacts.

Because disposal of solid waste generated by the proposed program would comply with all solid waste statutes and regulations, the proposed program would not contribute impacts related to conflicts with solid waste regulations. Therefore, the proposed program would not contribute to cumulative impacts associated with compliance with solid waste statutes and regulations.

Mitigation Measure

No mitigation is required.

Significance after Mitigation

Less than Significant

3.16.7 References

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CHAPTER 4
Other CEQA Considerations

4.1 Introduction

Consistent with *CEQA Guidelines* Section 15126.2, this section summarizes the significant and unavoidable environmental impacts, growth-inducing impacts, and significant irreversible environmental changes associated with development of the proposed program. Cumulative impacts are separately discussed in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*.

4.2 Significant and Unavoidable Impacts

CEQA Guidelines Section 15126.2(b) requires that an EIR describe any significant environmental impacts that cannot be avoided, including those effects that can be mitigated, but not reduced to a less-than-significant level. As evaluated in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, and summarized below, implementation of the proposed program would result in a significant and unavoidable impact related to air quality, cultural resources, and tribal cultural resources.

4.2.1 Air Quality

As discussed in Section 3.2, *Air Quality*, if all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year), maximum daily emissions from construction activities would exceed the SCAQMD regional threshold for NO_X. With implementation of mitigation measures, regional impacts would be mitigated to a less than significant level. However, as discussed in Section 3.2, *Air Quality*, of this PEIR, localized impacts to sensitive receptors at the program-level would be considered potentially significant even after incorporation of mitigation. Therefore, localized impacts from program construction pertaining to NO_X emissions would be significant and unavoidable (Impact AQ-3), if all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year). In addition, as the proposed program would have a localized impact from NO_X emissions, the proposed program would also conflict with Criterion 1 for determining the proposed program's consistency with the AQMP (Impact AQ-1 and Impact AQ-3).

4.2.2 Cultural Resources

As discussed in Section 3.4, *Cultural Resources*, there are 22 potential historical resources within or immediately adjacent to the program area, including 14 archaeological resources and 8 historical architectural resources. In addition, the Los Cerritos Wetlands is part of a potential

tribal cultural landscape identified by some tribal representatives during consultation with the CCC. Furthermore, given that the entire program area was not systematically surveyed as part of this assessment, there could be additional as-yet unidentified archaeological and historical architectural resources within the program area. As such, the proposed program would implement Mitigation Measure CUL-1 through CUL-16 to reduce impacts to historical resources by requiring qualified cultural resources personnel to conduct future project-specific studies; development of appropriate treatment for significant resources; and archaeological and Native American monitoring of ground disturbance (see Section 3.4, *Cultural Resources*, of this PEIR). However, even with implementation of these mitigation measures, impacts to historical resources and archaeological resources would be significant and unavoidable at the program level during construction of the proposed program (Impact CUL-1 and Impact CUL-2). Once specific projects are designed, additional cultural resources studies would be completed as necessary and impacts resulting from specific projects would be considered. It is possible that project-level impacts to historical and archaeological resources may be mitigated to a less than significant level. Project-level impacts would be analyzed as part of future CEQA analysis.

4.2.3 Tribal Cultural Resources

As described in Section 3.15, *Tribal Cultural Resources*, no tribal cultural resources were identified in the program area by Public Resources Code Section 21074 as either a site, feature, place, cultural landscape, or object with cultural value. However, the program area was identified as a potential tribal cultural landscape by some tribal representatives during consultation with the CCC that occurred in connection with the Los Cerritos Wetlands Oil Consolidation and Restoration Project. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape. Even with implementation of these measures, the destruction or material alteration of an archaeological resource that contributes to the landscape's significance would constitute a substantial adverse change since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level (Impact TRI-2). Once specific projects are designed, additional tribal consultation would be conducted as necessary and impacts resulting from specific projects would be considered. It is possible that project-level impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape may be mitigated to a less than significant level. Project-level impacts would be analyzed as part of future CEQA analysis.

4.3 Growth-Inducing Impacts

CEQA Guidelines Section 15126(d) requires that an EIR include a discussion of whether a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Projects that remove obstacles to population growth (for example, a major expansion of a wastewater treatment plant that may allow for more construction in its service area, or a new freeway that may allow growth at freeway exits) and/or cause an influx of workers from outside the region are also considered

growth inducing. *CEQA Guidelines* Section 15126.2(d) also requires a discussion of the characteristics of projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. Finally, the *CEQA Guidelines* also state that it must not be assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment (Section 15126(d)).

As described in Chapter 2, *Project Description*, the proposed program would restore wetland, transition, and upland habitats throughout the program area. This would involve remediation of contaminated soil and groundwater, grading, revegetation, construction of new public access opportunities (including trails, visitor centers, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. Operation of the proposed program would include vegetation maintenance, irrigation, and weeding; trash removal, as needed; inspection of perimeter levees and berms; monitoring, condition assessment, and maintenance of flood walls; operation and maintenance of existing culverts; and maintenance of bioswales.

As discussed in more detail in the Initial Study, provided in Appendix A of this Draft PEIR, the proposed program would not result in the construction of any residential uses (or any other types of uses) that could directly induce population growth in the City of Seal Beach, City of Long Beach, or the surrounding vicinity.

The proposed program would provide temporary new employment to the area during the construction activities for remediation of contaminated soil and groundwater, extensive grading, revegetation, construction of new public access opportunities (including trails, visitor centers, parking lots, and viewpoints), construction of flood management facilities (including earthen levees and berms, and walls), and modification of existing infrastructure and utilities. Construction jobs are anticipated to be filled by residents in the local area or by commuters within the larger Los Angeles Metropolitan Area.

Employment opportunities during operation of the proposed program would be mainly maintenance workers and operation of the visitors' centers and volunteers; these are not anticipated to directly increase the population or housing in the area, as positions are anticipated to be filled by local residents or regional commuters. No expansion of municipal infrastructure or public services would be required to accommodate the proposed program.

Indirect growth from extension of roads and infrastructure would not be anticipated, as the proposed program would not add any new roadways and would be served by existing infrastructure with minor proposed upgrades and connections to accommodate the proposed program.

Based on the above, construction and operation of the proposed program would not induce substantial population growth, and impacts would be less than significant.

4.4 Significant Irreversible Environmental Changes

CEQA Guidelines Sections 15126(c) and 15126.2(c) require that an EIR address any significant irreversible environmental changes that would occur should the proposed program be implemented. Resources irreversibly or irretrievably committed to a proposed action are those used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal, certain types of wood, fossil fuels, aggregate, and other non-renewable natural resources. These resources are considered irretrievable in that they would be used for a proposed action when they could have been conserved or used for other purposes. Another irreversible or irretrievable commitment of resources is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

The proposed program would require the consumption of non-renewable resources during the construction phase. Program development would include the following commitment of resources: fossil fuels, building materials, fuel and operational materials/resources, and transportation of goods and people to the program site. Several non-renewable resources, or renewable resources may renew so slowly as to be considered non-renewable, would be required during program construction; aggregate materials contained in concrete and asphalt including sand, gravel and stone; metals such as steel, cooper, and lead; and petrochemical construction materials such as plastics. Additionally, non-renewable fossil fuels such as gasoline and oil would also be consumed in the use of construction vehicles and equipment, as well as the transportation of goods and people to and from the program area.

Because the proposed program would result in a small addition of permanent workers as discussed above, program operation would increase the amount of nonrenewable resources that are currently consumed within the City of Seal Beach and City of Long Beach. These resources would include fossil fuels, such as natural gas and petroleum, energy use for visitors and employees, and petroleum-based fuel for vehicle trips to and from the site. Fossil fuels would be considered the primary energy source associated with both construction and ongoing operation of the proposed program, and the existing, finite supplies of these natural resources would be incrementally reduced.

As discussed in Section 3.6, *Greenhouse Gas Emissions and Energy*, of this Draft PEIR, the proposed program would utilize construction contractors that would be in compliance with regulations including the USEPA Heavy Duty Vehicle Greenhouse Gas Regulation and the CARB ACTM that limits heavy-duty diesel motor vehicle idling. While the goal of these measures is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

With regard to operation of the proposed program, the amount of energy used from transportation-related energy associated with vehicles traveling to and from the program area would not represent a substantial fraction of the available energy supply in terms of transportation fuels. The program area is surrounded by urban developed uses such that visitors to the program area would not need to travel long distances thus minimizing vehicle miles travelled. In addition,

while the proposed program is not a transportation project or a residential, commercial, or mixed-use project that would generate substantial numbers of vehicle trips, the program would provide improved public access to the wetlands both on foot and by bicycle within a populated urban area in the City of Seal Beach and City of Long Beach that would be accessible to local area residents, employees, and visitors. These recreational opportunities for City of Seal Beach and City of Long Beach residents, employees, and visitors would reduce transportation-related fuel demand by providing nearby recreational amenities, including visitor centers and trails. Furthermore, continued use of non-renewable resources during proposed program construction and operation on a relatively small scale would be consistent with regional and local growth forecasts in the area, as well as state and local goals for reductions in the consumption of such resources.

4.5 Effects Not Found to Be Significant

Section 15128 of the *CEQA Guidelines* states that an EIR shall contain a brief statement indicating reasons that various possible significant effects of a project were determined not to be significant and not discussed in detail in the Draft EIR. Pursuant to Section 1512, such a statement may be contained in an attached copy of an Initial Study. An Initial Study was prepared for the proposed program and is included in Appendix A of this PEIR. The Initial Study provides a detailed discussion of the potential environmental impact areas and the reasons that each topical area is or is not analyzed further in the PEIR. The Initial Study determined that the proposed program would result in less than significant or no impacts related to agricultural resources; conflicting with provisions of an adopted local, regional, or state habitat conservation plan; rupture of a known earthquake; strong seismic ground shaking; seismic-related ground failure; landslides; unstable unit; soils incapable of adequately supporting the use of septic tanks; airstrips or airport proximity; an adopted emergency response plan or emergency evacuation plan; physically dividing and established community; population and housing; schools; other public facilities; substantial physical deterioration of recreational facilities; and, emergency access. For further discussion of these issues and more-detailed evaluation of potential impacts, refer to the Initial Study, provided in Appendix A of this PEIR.

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CHAPTER 5
Alternatives

5.1 CEQA Requirements

The identification and analysis of alternatives to a project is a fundamental aspect of the environmental review process under the California Environmental Quality Act (CEQA). The Public Resources Code (PRC) Section 21002 establishes the need to address feasible alternatives in an EIR. The *CEQA Guidelines* provides direction regarding the consideration and discussion of project alternatives in an EIR in Section 15126.6 as follows:

> *An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible.*

The *CEQA Guidelines* emphasize that the selection of project alternatives be based primarily on the ability to avoid or substantially lessen significant impacts relative to a project, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." The *CEQA Guidelines* further directs that the range of alternatives be guided by a "rule of reason," such that only those alternatives necessary to permit a reasoned choice are addressed. In selecting project alternatives for analysis, potential alternatives must be feasible. *CEQA Guidelines* Section 15126.6(f)(1) states that:

> *Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries … and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.*

Beyond these factors, *CEQA Guidelines* Section 15126.6(e) requires the analysis of a "no project" alternative. Based on the alternatives analysis, an environmentally superior alternative is to be identified. If the environmentally superior alternative is the No Project (No Build) Alternative, then the EIR is required to identify an environmentally superior alternative among the other alternatives.

5.2 Proposed Program Alternatives Background

5.2.1 Final Conceptual Restoration Plan (CRP)

The Los Cerritos Wetlands Final Conceptual Restoration Plan (CRP) (Moffatt & Nichol, 2015) developed three restoration design alternatives for habitat enhancement and improved public access for the Los Cerritos Wetlands Complex. The alternatives (minimum alteration, moderate alteration, and maximum alteration) include varying degrees of alterations to existing site conditions under a range of sea-level rise scenarios.

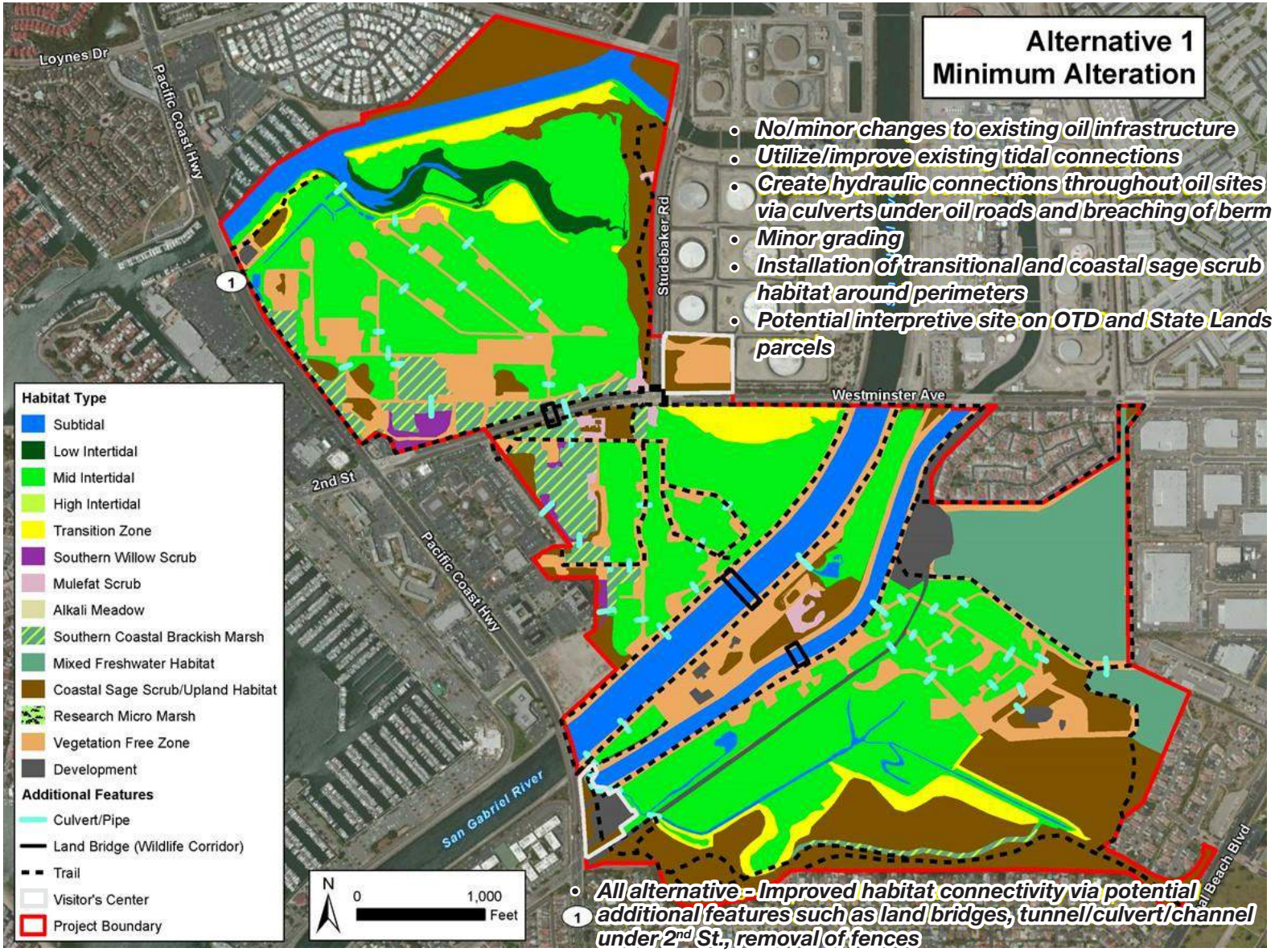
5.2.1.1 CRP Alternatives

Alternative 1 (Minimum Alteration)

The vision for Final Alternative 1 was to enhance habitat diversity through the preservation of existing wetlands habitats and the conversion of upland and unvegetated areas to wetlands and wetlands-associated habitats (**Figure 5-1**, *CRP Alternative 1 – Minimum Alteration*). Existing ground elevations would be utilized as much as possible to maintain existing wetlands habitats and expand coastal salt marsh habitat. Tidal exchange would be improved, but this would be done through the enhancement of existing channels/pipes and the addition of small channels and pipes where needed to provide hydraulic connectivity. For the most part, oil infrastructure would be maintained throughout the site with restoration work planned around the existing infrastructure. From a temporal standpoint, this alternative would seek to provide a wide range of wetland and associated upland habitats in the near-term with a decreased range of habitats remaining in the future based on current projections of sea-level rise. Transitional and upland habitats would be provided along the perimeters. Potential interpretive sites would be provided on the parcel at the northeast corner of Westminster Avenue and Studebaker Road and/or the State Lands Commission parcel (Moffatt & Nichol, 2015).

Alternative 2 (Moderate Alteration)

The vision for Final Alternative 2 would be to enhance habitat diversity through the preservation of existing wetlands habitats and the conversion of upland and unvegetated areas to wetlands and wetlands-associated habitats (**Figure 5-2**, *CRP Alternative 2 – Moderate Alteration*). Existing ground elevations would be utilized to maintain a large amount of the existing wetlands habitats and to expand coastal salt marsh habitat, but moderate levels of earthwork would also be conducted to expand coastal salt marsh under current sea levels. Tidal exchange would be improved primarily through the construction of small to moderate subtidal channels. The oil infrastructure would be consolidated throughout the site to allow more extensive areal restoration of coastal salt marsh. From a temporal standpoint, this alternative would seek to provide a limited range of wetland (coastal salt marsh) and associated upland habitats in the near-term with a decreased range of wetlands habitats (converting to low intertidal, mudflat, and subtidal) remaining in the future based on current projections of sea-level rise. Transitional and upland habitats would be provided along the perimeters. Potential interpretive sites would be provided on the parcel at the northeast corner of Westminster Avenue and Studebaker Road and/or the State Lands Commission parcels (Moffatt & Nichol, 2015).



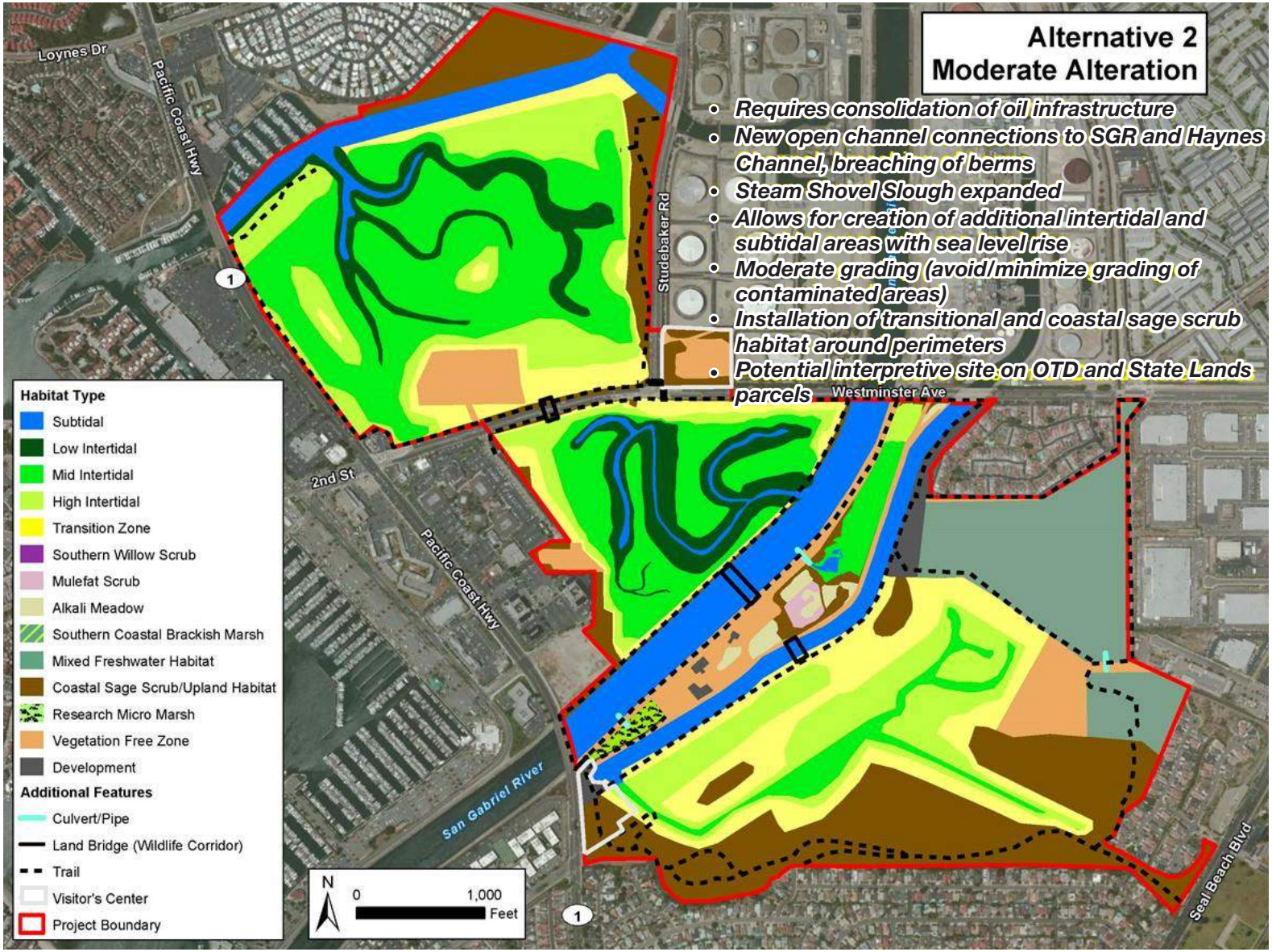
SOURCE: Moffatt & Nichol, 2015

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 5-1
CRP Alternative 1 – Minimum Alteration

ESA

LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator



LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: Moffatt & Nichol, 2019
NOTE: Figure 5-2: Habitat types listed include all those proposed for Alternatives 1-3. Alternative 2 does not include the restoration of Southern Coastal Brackish Marsh.

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 5-2
CRP Alternative 2 – Moderate Alteration

ESA

Alternative 3 (Maximum Alteration)

The vision for Final Alternative 3 would be to enhance wetland habitat diversity through widespread conversion to coastal salt marsh habitat under current sea levels, thereby replicating the historical mix of wetland habitats found on the site in the late 1800s (**Figure 5-3**, *CRP Alternative 3 – Maximum Alteration*). Extensive grading would be conducted to maximize the areal coverage of coastal salt marsh habitats. Tidal exchange would be improved through the construction of moderate to large subtidal channels. The oil infrastructure would be consolidated throughout the site and flood protection would be maintained at existing levels throughout the site. From a temporal standpoint, this alternative would seek to provide a limited range of wetland (coastal salt marsh) and associated upland habitats in the near-term with a decreased range of habitats (conversion of high and mid marsh habitats to low marsh, mudflat, and subtidal habitats) remaining in the future based on current projections of sea-level rise. Transitional and upland habitats would be provided along some of the perimeter areas. A potential interpretive site would be provided on the parcel at the northeast corner of Westminster Avenue and Studebaker Road (Moffatt & Nichol, 2015).

5.2.1.2 Restoration Planning Process

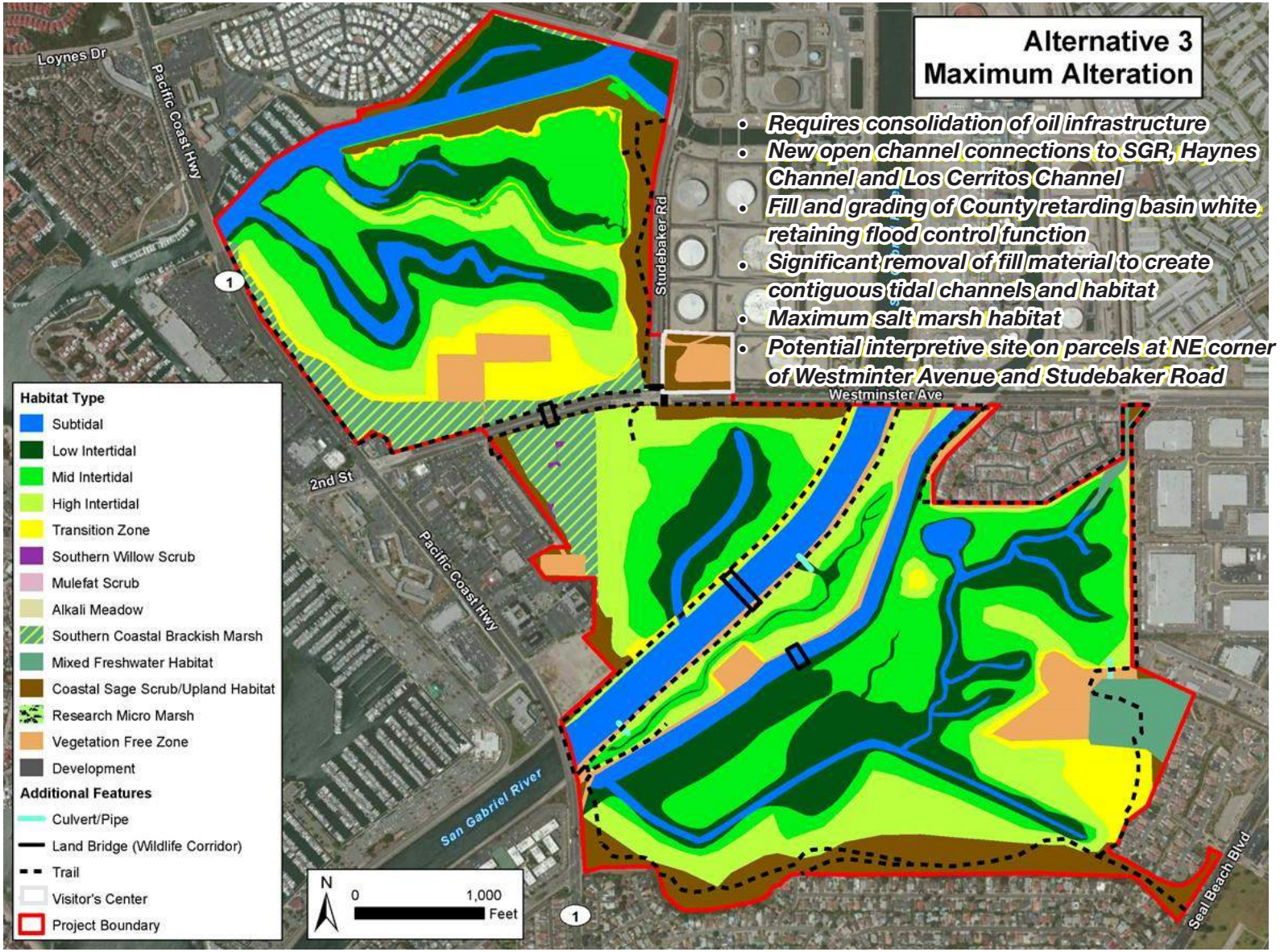
The CRP was adopted by the LCWA Board of Directors in August 2015. The report was prepared with input by the LCWA Steering Committee (made up of staff representing agencies of the LCWA joint powers authority), a Technical Advisory Committee (representatives of 20 resource and permitting agencies, and research groups covering federal, state, regional, and local jurisdictions), and the public (based on input during 6 community workshops). The plan is supported by 8 technical reports that provide baseline information for numerous topics including hydrology and hydraulics, soils, watersheds, and habitat. The CRP identified the next step in the restoration design process:

> *Further concept development of a hybrid alternative may occur at some point in the future to maximize benefits and minimize impacts of restoration. This work may include "mixing" and "matching" certain footprints of particular alternatives with those of different alternatives to create more alternatives that may provide more overall benefit than any of these individual concepts (pg 7).*

As a result, the following alternatives were developed as hybrids of the CRP alternatives.

5.2.2 Los Cerritos Wetlands Optimized Restoration Plan

In 2017, LCWA received funding to further the design of the alternatives identified in the CRP (Section 5.2.1) with the development of an optimized restoration design, to prepare a PEIR, and to prepare a Los Cerritos Wetlands Optimized Restoration Plan (expected to be completed in 2020). The optimized restoration design process involved input from the LCWA Steering Committee (made up of staff representing agencies of the LCWA joint powers authority), a Technical Advisory Committee (representatives of 20 resource and permitting agencies, and research groups covering federal, state, regional, and local jurisdictions), and the public (based on input during 2 additional community workshops, beyond the 6 workshops conducted as part of the CRP).



LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: Moffatt & Nichol, 2019
NOTE: Figure 5-3: Habitat types listed include all those proposed for Alternatives 1-3. Alternative 3 does not include the restoration of Research Micro Marsh or Mulefat Scrub.

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 5-3
CRP Alternative 3 – Maximum Alteration

ESA

5.2.2.1 Alternatives Developed for the South Area

The following sections describe the alternatives for the South Area that were discussed and either carried forward or not carried forward.

Full Tidal Connection from the Haynes Cooling Channel to the South Area

This alternative would remove the flap gate on the existing culvert that connects the San Gabriel River to the Southern Area to increase the tidal influence in the near-term. Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations along the southern and eastern borders of the South Area. Existing tidal salt marsh habitat would be avoided as much as possible. A new earthen berm or flood wall (with a height approximately 4 feet above the marshplain) would be constructed along the Hellman Retained site boundary on the South LCWA site to protect the Hellman Retained site from flooding. In the mid-term, the South LCWA site would be connected to the Haynes Cooling Channel, in addition to the existing culvert to the San Gabriel River, to increase the tide range at the site (Figure 2-13 in Chapter 2, *Project Description*). ***This alternative was chosen as part of the proposed program and is further described in Chapter 2, Project Description.***

Full Tidal Connection from the San Gabriel River to the South Area through an Open Channel

This alternative would excavate an open channel around the west end of the Haynes Cooling Channel to connect the San Gabriel River with the South Area. The existing San Gabriel River levee would be breached to allow for full tidal influence in the South Area. New flood management features would be constructed in the South Area to maintain or reduce the current level of flood risk. Major levees (with a height at least 13 feet above the marshplain) would be constructed around the entire perimeter of the South Area and along the channel from the San Gabriel River to the South Area. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Full Tidal Connection from the San Gabriel River through the Haynes Cooling Channel to the South Area

This alternative would excavate an open channel through the Isthmus Area to the Haynes Cooling Channel to connect the San Gabriel River with the South Area. The existing San Gabriel River levee would be breached to allow for full tidal influence in the Haynes Cooling Channel and in the South Area. New flood management features (e.g., major levees with a height at least 13 feet above the marshplain) would be constructed along the full distance of the Haynes Cooling Channel and the entire perimeter of the South Area to maintain or reduce the current level of flood risk. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Expanded Culvert Connection from the San Gabriel River to the South Area

This alternative would install an expanded culvert system (additional and/or larger culverts) along the existing culvert to increase the tidal connection from the San Gabriel River to the Southern Area. Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations along the southern and eastern borders of the South Area. Existing tidal salt marsh habitat would be avoided as much as possible. A new

earthen berm or flood wall (with a height approximately 4 feet above the marshplain) would be constructed along the Hellman Retained site property boundary on the South LCWA site to protect the Hellman Retained site from flooding. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

5.2.2.2 Alternatives Developed for the Isthmus Area

The following sections describe the alternatives for the Isthmus Area that were discussed and either rejected or carried forward.

Muted Tidal Connection from the Isthmus Area to the San Gabriel River through Existing Culverts

This alternative would enhance existing wetland habitat at the Zedler and Callaway Marsh sites (Figure 2-18 in Chapter 2, *Project Description*). The existing culverts connecting the San Gabriel River to the Zedler and Callaway Marsh sites would be maintained and the flap gate on the culvert to Callaway Marsh would be removed. ***This alternative was chosen as part of the proposed program and is further described in Chapter 2, Project Description.***

5.2.2.3 Alternatives Developed for the Central Area

The following sections describe the alternatives for the Central Area that were discussed and either rejected or carried forward.

Full Breach from the San Gabriel River to the Central Area

This alternative would breach the existing San Gabriel River levee to allow full tidal influence in the Central Area (Figure 2-21 in Chapter 2, *Project Description*). Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations along the northern and western borders of the Central Area. A new earthen levee (approximately 18 feet above the marshplain elevation) would be constructed along 2nd Street and Shopkeeper Road and would tie into the existing levee. The existing wells on the Central LCWA site would be raised to approximately 13 feet above the marshplain elevation to maintain the existing level of flood protection. ***This alternative was chosen as part of the proposed program and is further described in Chapter 2, Project Description.***

Flood Wall Flood Protection in the Central Area

This alternative would either breach the existing San Gabriel River levee or add a set of culverts to allow full or muted tidal influence in the Central Area. Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations along the northern and western borders of the Central Area. This alternative would construct flood walls (approximately 18 feet above the marshplain elevation for the full breach) around the perimeter of the Central Area, rather than build levees (**Figure 5-4**, *Proposed Central Area Long-Term Restoration, Flood Walls Option*). ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Notes:
-Levee boundary in Pumpkin Patch site will be adjusted to meet specifications of the Los Cerritos Wetlands Oil Consolidation and Restoration Project.
-Bioswales (not shown) would be constructed between the road and perimeter flood wall to provide treatment for stormwater flowing off the road. Exact locations TBD in later phases of the design.

Path: U:\GIS\G1S\Projects\17xxxx\D170537_Los_Cerritos_Wetland_Restoration\03_MXDs_Projects\EIR\Fig2-22_CentralLongTermRestoration_Floodwall_V3.mxd, hmiller, 3/30/2019

SOURCE: NOAA, ESA, LCWA

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 5-4

Proposed Central Area Long-Term Restoration, Flood Walls Option

ESA

Culvert Connection from the San Gabriel River to the Central Area

This alternative would involve installing culverts within the northern San Gabriel River levee to connect the river to the Central Area. The goal of using culverts, rather than a full breach connection, would be to potentially reduce the height of the flood protection levees and the levee footprints, in order to reduce impacts to existing wetlands on site. Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations along the northern and western borders of the Central Area. A new earthen levee would be constructed along 2nd Street and Shopkeeper Road and would tie into the existing levee. The existing wells on the Central LCWA site would be raised as high as 13 feet above the marshplain elevation to maintain the existing level of flood protection. Multiple options for culvert sizing and levee elevations and footprints are considered under this alternative and discussed below:

Muted Tidal Connection

This option would size culverts to allow some tidal flow into the Central Area, but restrict high water levels from the San Gabriel River. The tides would be muted, but so would the riverine flood levels. The culverts in this option would be the smallest of the three options. Levees would be constructed around the perimeter of the Central Area and around the existing wells on the Central LCWA site, but the levee crest elevation and levee footprint would be reduced, because the riverine flood levels in the site would be reduced. However, the marsh vegetation would experience a reduced tide range, which would limit the potential function of the marsh. ***This alternative is further described in Section 5.5.2.***

Managed Culvert Connection

This option would size culverts to allow a full tide range into the Central Area, but restrict high water levels from the San Gabriel River using tide gates. The culverts in this option would be larger than the culverts in the muted tidal connection option. Levees would be constructed around the perimeter of the Central Area and around the existing wells on the Central LCWA site, but the levee crest elevation and levee footprint would be reduced, because the riverine flood levels in the site would be reduced. This alternative would involve increased management to maintain the tide gates. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Full Tide Range Culvert Connection

This option would size culverts to allow a full tide range into the Central Area, but restrict high water levels from the San Gabriel River. The culverts in this option would be larger than the culverts in the muted tidal connection option. Levees would be constructed around the perimeter of the Central Area and around the existing wells on the Central LCWA site. The levee crest elevation and levee footprint would likely need to be the same size as proposed in the program to maintain the current level of flood protection. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Tidal Connection from Steamshovel Slough to the Central Area

This alternative would connect Steamshovel Slough to the Central Area through a channel that would go through the North Area and under 2nd Street. Focused marsh and transitional wetland grading would occur to lower the site to wetland elevations transitioning up to upland elevations

along the northern and western borders of the Central Area. A new earthen levee would be constructed along 2nd Street and Shopkeeper Road, but the levee crest elevation and levee footprint would be reduced compared to the proposed program. The existing wells on the Central LCWA site would be raised to maintain the existing level of flood protection. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

Managed Artificial Flooding in the Central Area

This alternative would involve installing a permanent pump system to pump water from the San Gabriel River, over the levee, and into the Central Area. Minimal grading would occur to improve habitat connectivity. A new earthen berm would be constructed along 2nd Street and Shopkeeper Road and would tie into the existing levee. The existing wells on the Central LCWA site would be raised to maintain the existing level of flood protection. ***Section 5.4 discusses the reasons this alternative was not carried forward.***

5.2.2.4 Alternatives Developed for the North Area

Alternatives for the North Area were not developed as part of the program, since a project-level EIR was already prepared for the North Area as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (and alternatives were developed and evaluated as part of that project). The Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083) contains more detail and quantitative analysis of the North Area. The following project characteristics were carried forward as part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project (see also Chapter 2). The alternative would involve removing the existing oil operations and associated facilities and implementing a wetlands habitat restoration project on the Northern and Southern Synergy Oil Field sites. In the near-term, this would include remediating any contaminated areas, constructing a new sheet pile and earthen berm barrier along the southern limits of the Northern Synergy Oil Field site, excavating tidal channels, and removing the existing berm and roads that separate Steamshovel Slough form the non-tidal portions of the Northern Synergy Oil Field site. The first phase of the project would also include work on the Southern Synergy Oil Field site, including relocating the existing office building on-site to house the Long Beach Visitor Center, and construction of a parking lot, trail, overlook, sidewalk enhancements, and bikeway improvements.

In the long-term, all remaining wells would be removed and the Southern Synergy Oil Field site would be restored to tidal salt marsh by breaching or lowering the earthen berm and removing the sheet pile wall.

5.3 Criteria for Selecting Alternatives

Each alternative was evaluated for its ability to attain most of the proposed program's objectives, its ability to reduce and/or eliminate significant impacts associated with the proposed program, and its feasibility. These criteria are described below.

5.3.1 Ability to Achieve Proposed Program Objectives

As described above, *CEQA Guidelines* Section 15126.6(f) states: "The range of alternatives required in an EIR is governed by a 'rule of reason' … [O]f those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." For purposes of the alternative analysis, each alternative assessed in this EIR was evaluated to determine the extent to which it could attain the basic objectives set forth by the program applicant for the proposed program. As described in Chapter 2, *Project Description*, under Section 2.5, *Los Cerritos Wetlands and Restoration Program Goals*, the following goals and objectives have been established for the proposed program and serve as a basis for developing a reasonable range of alternatives to evaluate in the EIR. The goals and objectives of the proposed program presented below are identical to the goals and objectives identified in the CRP.

1) Restore tidal wetland processes and functions to the maximum extent possible.
    a) Increase estuarine habitat with a mix of tidal channels, mudflat, salt marsh, and brackish/ freshwater marsh and ponds.
    b) Provide adequate area for wetland-upland ecotone and upland habitat to support wetlands.
    c) Restore and maintain habitat that supports important life history phases for species of special concern (e.g., federal and state listed species), essential fish habitat, and migratory birds as appropriate.
2) Maximize contiguous habitat areas and maximize the buffer between habitat and sources of human disturbance.
    a) Maximize wildlife corridors within the LCW Complex and between the LCW Complex and adjacent natural areas within the region.
    b) Incorporate native upland vegetation buffers between habitat areas and human development to mitigate urban impacts (e.g., noise, light, unauthorized human encroachment, domestic animals, wastewater runoff) and reduce invasion by non-native organisms.
    c) Design the edges of the LCW Complex to be respectful and compatible with current neighboring land uses.
    d) Create a public access and interpretive program that is practical, protective of sensitive habitat and ongoing oil operations, economically feasible, and will ensure a memorable visitor experience.
    e) Build upon existing beneficial uses.
    f) Minimize public impacts on habitat/wildlife use of the LCW Complex.
    g) Design interpretive concepts that promote environmental stewardship and the connection between the wetlands and the surrounding community.
    h) Solicit and address feedback from members of the surrounding community and other interested parties.

3) Incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available.
    a) Include projects that can be implemented as industrial operations are phased out and other properties are acquired over the near-, mid- and long-term (next 10 years, 10-20 years, and 20+ years).
    b) Investigate opportunities to restore levels of tidal influence that are compatible with current oil leases and neighboring private land holdings.
    c) Remove/realign/consolidate existing infrastructure (roads, pipelines, etc.) and accommodate future potential changes in infrastructure to the maximum extent feasible.
4) Strive for long-term restoration success.
    a) Implement an adaptive management framework that is sustainable.
    b) Restore habitats in appropriate areas to minimize the need for long-term maintenance activities that are extensive and disruptive to wildlife.
    c) Design habitats that will accommodate climate changes, e.g., incorporate topographic and habitat diversity and natural buffers and transition zones to accommodate migration of wetlands with rising sea levels.
    d) Provide economic benefit to the region.
5) Integrate experimental actions and research into the project, where appropriate, to inform restoration and management actions for this project.
    a) Include opportunities for potential experiments and pilot projects to address gaps in information (e.g., effect of warm river water on salt marsh ecosystem) that are protective of sensitive habitat and wildlife and that can be used to adaptively manage the restoration project.
    b) Include areas on the site, where appropriate, that prioritize research opportunities (such as those for adaptive management) over habitat sensitivities.

5.3.2 Elimination/Reduction of Significant and Unavoidable Impacts

As described above, *CEQA Guidelines* Section 15126.6(b) states that "[B]ecause an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (PRC Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." Therefore, the alternatives evaluated in this EIR have been selected because they are anticipated to reduce and/or eliminate one or more significant impacts associated with the proposed program. Potentially significant environmental impacts that would result from the proposed program are evaluated in Sections 3.1 through 3.16 in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, and Chapter 4, *Other CEQA Considerations*. With implementation of the mitigation measures identified for each issue, many of the potentially significant impacts resulting from the proposed program would be reduced to a level considered less than significant. The proposed program impacts listed below would remain significant and unavoidable even after implementation of feasible mitigation measures.

5.3.2.1 Air Quality

If all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year), maximum daily emissions from construction activities would exceed the SCAQMD regional threshold for NO_X. With implementation of mitigation measures, regional impacts would be mitigated to a less than significant level. However, as discussed in Section 3.2, Air Quality, of this PEIR, localized impacts to sensitive receptors at the program-level would be considered potentially significant even after incorporation of mitigation. Therefore, localized impacts from program construction pertaining to NO_X emissions would be significant and unavoidable (Impact AQ-3), if all subphases of construction associated with the near-term phase were to occur concurrently (which was conservatively analyzed in the earliest possible year). In addition, as the proposed program would have a localized impact from NO_X emissions, the proposed program would also conflict with Criterion 1 for determining the proposed program's consistency with the AQMP (Impact AQ-1 and Impact AQ-3).

5.3.2.2 Cultural Resources

As described in Section 3.4, *Cultural Resources*, there are 22 potential historical resources within or immediately adjacent to the program area, including 14 archaeological resources and 8 historical architectural resources. In addition, the Los Cerritos Wetlands is part of a potential tribal cultural landscape identified by some tribal representatives during consultation with the CCC. Furthermore, given that the entire program area was not systematically surveyed as part of this assessment, there could be additional as-yet unidentified archaeological and historical architectural resources within the program area. As such, the proposed program would implement Mitigation Measure CUL-1 through CUL-16 to reduce impacts to historical resources by requiring qualified cultural resources personnel to conduct future project-specific studies; development of appropriate treatment for significant resources; and archaeological and Native American monitoring of ground disturbance (see Section 3.4, *Cultural Resources*, of this PEIR). The proposed program also includes several mitigation measures (see Mitigation Measures BIO-1 through BIO-11 in Section 3.3, *Biological Resources*, of this PEIR) that would lessen potential construction-related impacts to plants and animals that are considered part of the tribal cultural landscape. However, even with implementation of these mitigation measures, impacts to historical resources and archaeological resources would be significant and unavoidable at the program level during construction of the proposed program (Impact CUL-1 and Impact CUL-2).

5.3.2.3 Tribal Cultural Resources

As described in Section 3.15, *Tribal Cultural Resources*, no tribal cultural resources were identified in the program area by Public Resources Code section 21074 as either a site, feature, place, cultural landscape, or object with cultural value. However, the program area was identified as a potential tribal cultural landscape by some tribal representatives during consultation with the CCC that occurred in connection with the Los Cerritos Wetlands Oil Consolidation and Restoration Project. Implementation of Mitigation Measures CUL-1 and CUL-4 through CUL-15 would lessen the impact to archaeological resources that contribute to the significance of the tribal cultural landscape. The proposed program also includes several mitigation measures (see Mitigation Measures BIO-1 through BIO-11 in Section 3.3, *Biological Resources*, of this PEIR) that would lessen potential construction-related impacts to plants and animals that are considered

part of the tribal cultural landscape. Even with implementation of these measures, the destruction or material alteration of an archaeological resource that contributes to the landscape's significance would constitute a substantial adverse change since it would no longer be present on the landscape. Since avoidance and preservation in place of such resources cannot be guaranteed, impacts to Native American or prehistoric archaeological resources that convey the significance of the tribal cultural landscape are considered significant and unavoidable at the program level.

5.3.3 Feasibility

CEQA Guidelines Section 15126.6(f)(1) (14 California Code of Regulations) states the following: "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally-significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; see *Save Our Residential Environment v. City of West Hollywood* (1992) 9 Cal.App.4th 1745, 1753, fn. 1)."

5.4 Alternatives Considered and Withdrawn from Consideration

The *CEQA Guidelines* recommend that an EIR identify any alternatives that were considered by the Lead Agency, but were withdrawn from consideration because they were deemed infeasible, and briefly explain the reasons underlying the Lead Agency's determination. *CEQA Guidelines* Section 15126.6(c) states the following:

> *The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination … Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.*

The analysis of alternatives started with an identification of a number of potential alternatives to the proposed program that would reduce or eliminate the proposed program's significant environmental impacts. Of the alternatives evaluated, six were eliminated from further consideration. The eliminated alternatives are discussed below.

5.4.1 South Area

5.4.1.1 Full Tidal Connection from the San Gabriel River to the South Area through an Open Channel

Would the alternative meet most of the program objectives?

This potential alternative meets most of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would not reduce and/or eliminate significant impacts associated with the proposed program, and instead would cause additional impacts. Creating a full tidal connection from the South Area to the San Gabriel River would require a flood risk management levee, a modified Los Angeles County Drainage Area project feature that would be operated and maintained by LACFCD, around the entire perimeter of the South Area and the channel connecting it to the San Gabriel River. This levee would be almost twice the length of the levee proposed in the Central Area. The levee footprint would impact existing biological and cultural resources beyond the impacts in the proposed program, and it would reduce the restored habitat area. The levee would require more extensive maintenance than would be required for the berm in the proposed program.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Summary

This alternative would meet most of the program objectives and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate significant impacts associated with the proposed program.

5.4.1.2 Full Tidal Connection from the San Gabriel River through the Haynes Cooling Channel to the South Area

Would the alternative meet most of the program objectives?

This potential alternative meets most of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would not reduce and/or eliminate significant impacts associated with the proposed program, and instead would cause additional impacts. Creating a full tidal connection from the South Area to the San Gabriel River through the Isthmus Area and the Haynes Cooling Channel would require a flood risk management levee, a modified Los Angeles County Drainage Area project feature that would be operated and maintained by LACFCD, around the entire perimeter of the South Area, the channel connecting it to the San Gabriel River, and the entire perimeter of the Haynes Cooling Channel. This levee would be substantially longer than the levee proposed in the Central Area. The levee footprint would impact existing biological and cultural resources beyond the impacts in the proposed program, and it would reduce the restored habitat area. The levee would require more extensive maintenance than would be required for the berm in the proposed program.

Would the alternative be feasible?

This alternative would not be feasible for purposes of CEQA because it would not be feasible to acquire all the land that would be needed to maintain the current level of flood protection (CEQA Guidelines Section 15364). The flood risk management levee that would be needed around the Haynes Cooling Channel to maintain the existing level of flood protection would conflict with existing land uses outside the program area. For example, the Island Village neighborhood north of the Los Alamitos Retarding Basin and the Haynes Generating Station would limit the space available for a flood management levee and the program proponent would not be able to reasonably acquire, control, or otherwise have access to these areas, making this alternative infeasible.

Summary

This alternative would meet most of the program objectives. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate significant impacts associated with the proposed program and it would not be feasible under CEQA.

5.4.1.3 Expanded Culvert Connection from the San Gabriel River to the South Area

Would the alternative meet most of the program objectives?

This potential alternative meets most of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would not reduce and/or eliminate significant impacts associated with the proposed program, and instead would cause additional impacts. Installing a new expanded culvert connection from the South Area to the San Gabriel River would involve additional construction impacts west of the Haynes Cooling Channel, compared to the proposed program. The additional culverts, which would be larger compared to the culverts proposed under the proposed program, would require more extensive long-term maintenance than would be required in the proposed program.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Summary

This alternative would meet most of the program objectives and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate significant impacts associated with the proposed program.

5.4.2 Central Area

5.4.2.1 Flood Wall Flood Protection in the Central Area

Would the alternative meet most of the program objectives?

This potential alternative meets some of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers. The footprint of the flood wall would take up less space than the footprint of the levee in the proposed program, which would provide additional space for wetland restoration compared to the proposed program (**Figure 5-5**, *Artistic Renderings of Central Area Perimeter Levee and Flood Wall*). However, the public access trail around the perimeter of the Central Area described in the proposed program would be infeasible on top of the flood wall due to the costs associated with public safety. Therefore, public access in this alternative would be reduced to one or two overlook locations which would not be consistent with program objectives addressing public access. Similarly, an 18-foot-high flood wall along the perimeter of portions of the Central Area is not consistent with program objectives addressing public access and connecting the community to the wetlands.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would likely reduce the significant impacts for air quality associated with the proposed program because a substantially lower amount of fill would be moved on-site as compared to the proposed program. However, modeling would be necessary to confirm this reduction in air quality impacts. The flood wall would be constructed with steel and concrete rather than earth, as is the case of the levee in the proposed program, which would involve fewer truck and tug boat trips. Although not a significant impact, fewer impacts to existing biological resources would occur under this alternative as compared to the proposed program.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

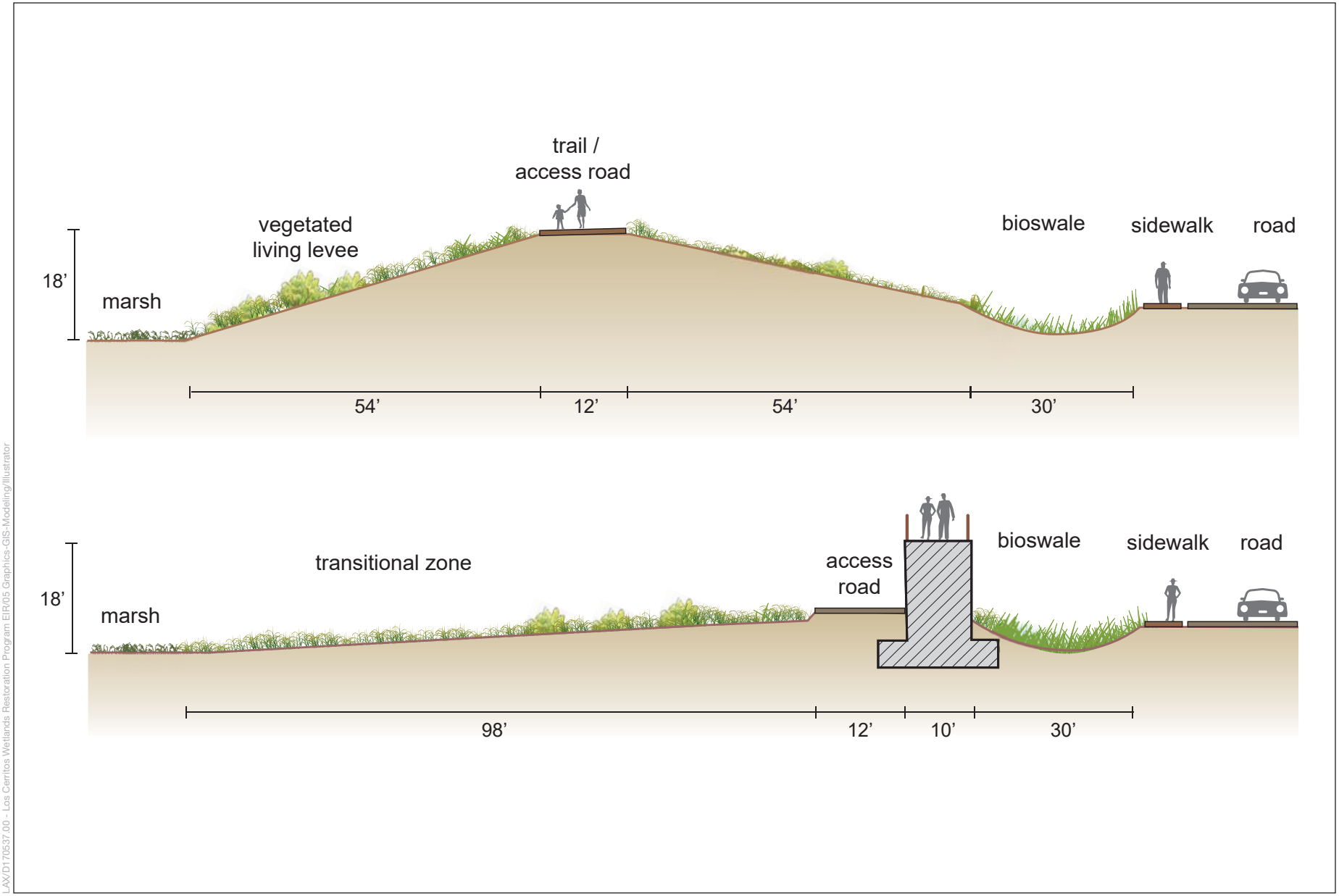
Summary

This alternative would reduce and/or eliminate some significant impacts and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would reduce public access in the Central Area, and not meet all program objectives.

5.4.2.2 Culvert Connection from the San Gabriel River to the Central Area – Managed Culvert Connection

Would the alternative meet most of the program objectives?

This potential alternative meets most of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers.



LAX/D170537.00 - Los Cerritos Wetlands Restoration Program EIR/05 Graphics-GIS-Modeling/Illustrator

SOURCE: ESA, 2019

Los Cerritos Wetlands Restoration Plan Draft Program EIR

Figure 5-5
Artistic Renderings of Central Area Perimeter Levee and Flood Wall

ESA

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would not reduce and/or eliminate significant impacts associated with the proposed program. It is likely that agencies with flood management responsibilities will require that the flood protection levees would need to be sized based on the assumption that the gates could fail during a major storm event, so the benefit of using a culvert system to reduce the height of the levees and increase marsh acreage would not be realized. The hydrodynamic modeling (refer to Appendix H) showed that the tide range using culverts would be reduced (at least slightly, depending on the size of the culverts used) compared to the proposed program, which could be considered an impact to the restored habitats.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Summary

This alternative would meet most of the program objectives and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate significant impacts associated with the proposed program.

5.4.2.3 Culvert Connection from the San Gabriel River to the Central Area – Full Tide Range Culvert Connection

Would the alternative meet most of the program objectives?

This potential alternative meets most of the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would not reduce and/or eliminate significant impacts associated with the proposed program. The hydrodynamic modeling (refer to Appendix H) showed that to achieve a full tide range (or close to a full tide range) in the site, water levels under the 100-year flood event would be similar to water levels under the full breach condition. This result indicates that the flood protection levees would need to be sized similarly to the full breach conditions, so the benefit of using a culvert system to reduce the height of the levees and increase marsh acreage would not be realized. Additionally, the hydrodynamic modeling (refer to Appendix H) showed that the tide range using culverts would be reduced (at least slightly, depending on the size of the culverts used) compared to the proposed program, which could be considered an impact to the restored habitats.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Summary

This alternative would meet most of the program objectives and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate significant impacts associated with the proposed program.

5.4.2.4 Tidal Connection from Steamshovel Slough to the Central Area

Would the alternative meet most of the program objectives?

This potential alternative meets the program objectives because it would restore tidal wetland processes and functions and maximize contiguous habitat areas and buffers. The footprint of the levee for this alternative would take up less space than the footprint of the levee in the proposed program, because the existing flood protection along the Los Cerritos Channel is not as high as the flood protection along the San Gabriel River. The smaller footprint would provide additional space for wetland restoration compared to the proposed program.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative could reduce the significant impact for air quality associated with the proposed program, because a substantially lower amount of fill may be moved on-site as compared to the proposed program. However, modeling would be necessary to confirm this reduction in air quality impacts. Additionally, this alternative would cause new or more impacts compared to the proposed program. Connecting the Central Area to Steamshovel Slough would involve creating a tidal connection under 2nd Street, either through a set of culverts or by building a bridge or causeway over an open channel. This would result in extensive construction and transportation impacts.

Although not a significant impact, fewer impacts to existing biological resources could occur under this alternative as compared to the proposed program.

Would the alternative be feasible?

This alternative would not be feasible for purposes of CEQA because it would not be capable of being accomplished in a successful manner within a reasonable period of time (CEQA Guidelines Section 15364). This alternative could not move forward for at least 20 years until all the oil operations in the North Area and on the Long Beach City Property site are removed through the Los Cerritos Wetlands Oil Consolidation and Restoration Project. If the timing of that project were to change, this alternative could be considered feasible.

Summary

This alternative would meet most of the program objectives. However, this alternative has not been carried forward for more detailed review because it would not reduce nor eliminate

significant impacts associated with the proposed program, it would impact traffic along 2nd Street, and it would not be feasible under CEQA.

5.4.2.5 Managed Artificial Flooding in the Central Area

Would the alternative meet most of the program objectives?

This potential alternative would not meet most of the program objectives because it would not restore tidal wetland processes and functions. Permanently pumping water into the site would create an unnatural hydrologic regime and natural processes such as sedimentation and erosion would be missing from the system. Additionally, the alternative would be inconsistent with the program objectives to minimize the need for long-term maintenance activities as the pump station would need to be regularly maintained and operated.

Would the alternative reduce and/or eliminate significant impacts associated with the proposed program?

This alternative would likely reduce the significant impact for air quality associated with the proposed program. The earthen berm would be substantially smaller than the levees associated with the proposed program, and less earthwork would likely reduce impacts associated with program construction pertaining to NO_X emissions. Additional air quality modeling would be needed to confirm that this alternative would reduce air quality emissions.

Although not a significant impact, the smaller berm footprint would reduce permanent impacts to existing biological resources. However, the enhancement of the wetland would be limited without a tidal connection.

Would the alternative be feasible?

This alternative would be feasible for purposes of CEQA, because it would be capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Summary

This alternative would likely reduce significant air quality impacts associated with the proposed program and would be feasible under CEQA. However, this alternative has not been carried forward for more detailed review because it would not meet most of the program objectives, since tidal wetlands and processes would not be restored.

5.5 Alternatives Considered and Further Evaluated

As described above, the intent of the alternatives analysis in an EIR is to identify a range of reasonable alternatives to the proposed program that would feasibly attain most of the basic project objectives and would avoid or substantially lessen the significant impacts of the proposed program. Based on the significant environmental impacts of the proposed program, the aforementioned objectives established for the proposed program, and the feasibility of the alternatives considered, the following alternatives to the proposed program are evaluated in this section. As some impacts associated with the alternatives analyzed below would be the same or

similar to the proposed program (depending upon the resource area), this chapter should be read in conjunction with the impact analyses contained in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, which provides more detailed information on the individual resource areas and impacts of the proposed program. The Significance Thresholds and the methodology utilized in this chapter are the same as those utilized in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*. Therefore, for additional information regarding methodology, reviewers should reference the individual resource chapters for further details.

5.5.1 Alternative 1: No Program (No Build) Alternative

CEQA Guidelines Section 15126.6(e) requires that an EIR evaluate and analyze the impacts of the "No-Project" Alternative. Under Alternative 1, none of the proposed program components would be constructed and implemented and existing conditions would remain unchanged. This alternative assumes the restoration activities and development covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project would occur. The following would occur under Alternative 1:

- The South Area, which includes the Haynes Cooling Channel site, State Lands Parcel site, South LCWA site, Hellman Retained site, Los Alamitos Pump Station site, and Los Alamitos Retarding Basin site, would continue to exist as under the existing conditions. In particular, the Haynes Cooling Channel would continue to pull water from the Alamitos Bay Marina and discharge water into the San Gabriel River until it is decommissioned as part of the Haynes Generating Station modernization project in 2029. The State Lands Parcel and South LCWA sites would remain as they currently exist. The Hellman Retained site would continue to operate as an active oil field. In addition, the Los Alamitos Retarding Basin would continue to operate as a retention basin as operated by the County of Orange Flood Control District. Furthermore, the Los Alamitos Pump station would continue to operate as a pump station to move the stormwater runoff from the Los Alamitos Retarding Basin into the San Gabriel River. Restricted public access within the South Area would continue to be provided as under existing conditions and the gate on 1st Street would remain as well.
- The Isthmus Area, which includes the Callaway Marsh site, DWP site, Zedler Marsh site, Isthmus LCWA site, and Isthmus Bryant site, would continue to exist as under existing conditions. In particular, the Callaway Marsh site, the Isthmus Bryant site, and DWP site would remain vacant. In addition, the Zedler Marsh site would continue to be enhanced as part of the LCWA Stewardship Program. Furthermore, the Isthmus LCWA site would continue as an active oil field, which would be maintained and operated by the Signal Hill Petroleum Inc., as under existing condition. Existing public access to trails and other public amenities would be maintained as under existing conditions. In addition, the San Gabriel River Trail would be maintained on the south bank of the San Gabriel River.
- The Central Area, which includes a portion of the Pumpkin Patch site, Long Beach City Property site, Central LCWA site, Central Bryant site, and San Gabriel River, would continue to exist as under existing conditions. The Pumpkin Patch site and Long Beach City Property site, in particular, would continue as approved under the Los Cerritos Wetlands Oil Consolidation and Restoration Project EIR (State Clearinghouse Number 2016041083). This would include construction of an aboveground pipeline system from the corner of 2nd Street and Studebaker Road to the Pumpkin Patch site. The Pumpkin Patch site would be remediated and graded, and new oil facilities would be constructed at the site. After 20 years, in the second phase of the project, oil operations would be removed from the Long Beach

City Property site and contaminated areas would be remediated. The Long Beach City Property site would remain vacant. The Central LCWA site would continue to operate as an active oil field and the Central Bryant site would continue to operate as a vacant site. The San Gabriel River levees along the south and north banks of the river would remain intact. Restricted access to the Central LCWA site would be maintained.

- The North Area includes the Northern Synergy Oil Field site, Southern Synergy Oil Field site, and Alamitos Bay Partners site. As part of the Los Cerritos Wetlands Oil Consolidation and Restoration Project, existing oil operations and associated facilities would be consolidated and removed and a wetlands habitat restoration project would be implemented on the Northern and Southern Synergy Oil Field sites. The first phase of the project would be focused on the 76.52-acres Northern Synergy Oil Field site, and provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. The first phase of the project would also include work on the Southern Synergy Oil Field site, including relocating the existing office building on-site to house the Long Beach Visitor Center, and construction of a parking lot, trails, overlook, sidewalk enhancements, and bikeway improvements. After 20 years, in the second phase of the project, all remaining wells would be removed and the 73.07-acres Southern Synergy Oil Field site would be restored to tidal salt marsh by breaching or lowering the earthen berm and removing the sheet pile wall. The Alamitos Bay Partners site would be maintained as an active oil field as with existing conditions.

5.5.2 Alternative 2: Culvert Connection San Gabriel River to the Central Area Alternative

Under Alternative 2, a culvert or set of culverts would be installed within the northern San Gabriel River levee to connect the river to the Central Area rather than breaching the levee as in the proposed program. The following would occur under Alternative 2:

- The South Area, which includes the Haynes Cooling Channel site, State Lands Parcel site, South LCWA site, Hellman Retained site, Los Alamitos Pump Station site, and Los Alamitos Retarding Basin site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.
- The Isthmus Area, which includes the Callaway Marsh site, DWP site, Zedler Marsh site, Isthmus LCWA site, and Isthmus Bryant site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.
- The Central Area, which includes the Pumpkin Patch site, Long Beach City Property site, Central LCWA site, Central Bryant site, and San Gabriel River, would be restored similar to the proposed program, except instead of breaching the San Gabriel River to restore tidal connection to the site, a culvert or set of culverts would be installed in the levee to provide tidal connection to the site. The following sections describe the changes from the proposed program that would be included in this alternative.
- The North Area, which includes the Northern Synergy Oil Field site, Southern Synergy Oil Field site, and Alamitos Bay Partners site, would be restored as described for the proposed program. Public access would be improved as described for the proposed program.

5.5.2.1 Phasing

Ecosystem restoration in the Central Area under Alternative 2 would occur in two phases based on land and oil lease ownership, similar to the proposed program.

The near-term phase of Alternative 2 would be focused on the Central LCWA and Central Bryant sites and would provide the conditions necessary for the reestablishment of coastal salt marsh habitat and associated hydrologic, biogeochemical, and habitat functions. Near-term activities that mirror those in the proposed program would include:

- Relocating or modifying some oil infrastructure and remediation of soils on the Central LCWA site;
- Grading of the sites, including channels, and revegetation of native plants to support a diversity of salt marsh species; and
- Constructing public trails on levees, accessible ramps, and viewpoints, as described in the proposed program.

Near-term activities that would vary from those in the proposed program would include:

- Installing a culvert or set of culverts in the existing levee that currently separates the San Gabriel River from non-tidal portions of the Central LCWA and Central Bryant sites;
- Constructing a new earthen levee (Perimeter Levee) along 2nd Street from the San Gabriel River to the intersection with Studebaker Road to protect areas to the north from flooding, similar to the proposed program, but set to a lower elevation;
- Constructing a new interim earthen levee (Interim Levee) along the western boundary of the Central LCWA site to protect the areas to the west from flooding and to provide continued access to the wells on the Central LCWA site, similar to the proposed program, but set to a lower elevation; and
- Providing protection for the existing wells on the Central LCWA site by either raising the well pads out of the floodplain, similar to the proposed program, but set to a lower elevation, or constructing a berm or flood wall around the wells.

In the long-term, the Long Beach City Property site and the Pumpkin Patch site would be restored to tidal salt marsh as described for the proposed program, including:

- Grading the Long Beach City Property site, including channels, to support a diversity of salt marsh species;
- Removing the northern segment of the Interim Levee on the Central LCWA site to connect the restored habitats on the Central LCWA site to the non-tidal portions of the Long Beach City Property site; and
- Constructing public trails on levees, accessible ramps, stairs, and viewpoints, as described in the proposed program.

Long-term activities that would vary from those in the proposed program would include constructing a new earthen levee (Perimeter Levee) along 2nd Street between the intersection with Studebaker Road to Shopkeeper Road on the Long Beach City Property site and then along Shopkeeper Road to the existing San Gabriel River levee on the Long Beach City Property and Pumpkin Patch sites. The Perimeter Levee would be used to protect areas to the north and west from flooding, similar to the proposed program, but set to a lower elevation.

5.5.2.2 Ecosystem Restoration

Restored Habitats

Alternative 2 would restore connectivity of the San Gabriel River with the Central LCWA, Central Bryant, and Long Beach City Property sites by installing a culvert or set of culverts in the existing levees on the north bank of the river, rather than breaching and lowering the levee as in the proposed program. Alternative 2 would include a shorter and smaller footprint Perimeter Levee when compared to the one in the proposed program, allowing for less impact on existing wetlands.

Hydrology and Grading

In Alternative 2, the new tidal channels would be excavated between the San Gabriel River culvert(s) and the Interim Levee to create a sinuous and branching network of tidal channels through the wetlands. The culvert(s) would be set at an elevation around 0 to 2 feet NAVD.

The hydrodynamic modeling (refer to Appendix H) showed that one 4-foot-diameter culvert would allow an annual tide range of 2.4 feet into the site. This is 1.6 feet less than the modeled proposed program tide range (4.0 feet). The modeling results also showed that six 4-foot-diameter culverts would result in an annual tide range of 3.1 feet, which would only be 0.9 feet less than the proposed program.

As described under the proposed program, Alternative 2 would raise the upland perimeter around the restored wetlands to function as a flood risk management levee, but it would be set to a lower elevation, since the culvert(s) would limit the water elevations in the site. Less fill would be needed to construct the Perimeter and Interim Levees, compared to the proposed program. This would increase the volume of excess material in the near-term (see Table 2-14 in Chapter 2, *Project Description*), which could increase the amount of fill that would need to be stockpiled until the long-term.

Alternative 2 would maintain flood protection for well pads and access roads to existing levels, as discussed in the proposed program, but set to a lower elevation.

5.5.2.3 Flood Risk and Stormwater Management

In Alternative 2, the culvert(s) connecting the San Gabriel River to the Central LCWA site would restrict water levels in the Central Area during large riverine events. During the 100-year event, the hydrodynamic modeling showed water levels would reach 7.7 feet NAVD with one 4-foot-diameter culvert, compared to 14.4 feet NAVD under the proposed program (refer to Appendix H). Six 4-foot-diameter culverts would result in a 100-year water level of 11.0 feet NAVD in the site, according to the model results (refer to Appendix H). Gates could be added to the culvert(s) for maintenance purposes.

The new Perimeter Levee could be set approximately 6.7 feet lower than the proposed program under Alternative 2 with one 4-foot-diameter culvert, or 3.4 feet lower than the proposed program with six 4-foot-diameter culverts. The Perimeter Levee would have a slope of approximately 3:1 horizontal: vertical (H:V) down to restored salt marsh at approximately 6 feet MLLW and the

same slope down to the road on the back, which would give it a footprint of 2.6 acres less than under the proposed program with one 4-foot-diameter culvert, or 1.3 acres less than under the proposed program with six 4-foot-diameter culverts. The culvert(s) would reduce the potential for erosion along the Perimeter and Interim Levees, so buried soil cement or rock protection of the levee core would not be included.

Well pads and access roads would be protected to match the existing level of flood risk protection provided by the San Gabriel River Levees.

5.5.2.4 Public Access and Visitor Facilities

Under Alternative 2, the installation of a culvert or set of culverts rather than breaching the levee would allow for a loop trail to be constructed along the existing San Gabriel River levee and the Perimeter Levee. The trail would be open to the public from dawn to dusk. The road on top of the Interim Levee (north-south between 2nd Street and the San Gabriel River Levee) would not be open to the public due to the oil operations, but could be restricted to docent-led use only with gates on either end, as described in the proposed program.

5.5.2.5 Implementation and Restoration Process

Implementation of the restoration under Alternative 2 would be similar to implementation under the proposed program. However, instead of breaching the northern San Gabriel River levee, a culvert or set of culverts would be installed through the levee. This would likely be done by, first, using steel sheet pile cofferdams in the vicinity of the culvert locations to limit tidal inundation of the construction work. Then concrete box culverts would be installed with precast reinforced concrete (or steel) foundation piles. The construction work would likely involve track-mounted excavators utilizing pile drivers. Alternatively, trenchless technology could be used to push the culvert(s) through the levee. Construction of the culvert(s) would likely take longer than construction of the levee breach in the proposed program.

5.5.2.6 Operation and Maintenance Activities

The new culvert(s) from the San Gabriel River to the Central Area would require annual maintenance to ensure proper operation, similar to current operation and maintenance of the existing structures. Gates and weirs may be adjusted seasonally for habitat management. Obstructions would be removed when necessary. If sedimentation in the channel limits the functionality of the culvert(s), a low ground pressure excavator would be used to remove the sediment. A temporary access route, 35-feet wide, would be created using mats to provide equipment access.

5.6 Analysis Format

In accordance with *CEQA Guidelines* Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less, similar, or greater than the corresponding impacts of the proposed program. Furthermore, each alternative is evaluated to determine whether the proposed program objectives identified in Chapter 2, *Project Description*, would be mostly attained by the alternative. The proposed program's impacts that

form the basis of comparison in the alternatives analysis are those impacts that represent a conservative assessment of proposed program impacts. The evaluation of each of the alternatives follows the process described below:

a) The net environmental impacts of the alternative after implementation of reasonable mitigation measures are determined for each environmental issue area analyzed in this EIR.

b) Post-mitigation significant and non-significant environmental impacts of the alternative and the project are compared for each environmental issue area as follows:

- Less: Where the impact of the alternative after feasible mitigation would be clearly less adverse than the impact of the proposed program, the comparative impact is said to be "less."
- Greater: Where the impact of the alternative after feasible mitigation would be clearly more adverse than the impact of the proposed program, the comparative impact is said to be "greater."
- Similar: Where the impacts of the alternative after feasible mitigation and the proposed program would be roughly equivalent, the comparative impact is said to be "similar."

c) The comparative analysis of the impacts is followed by a general discussion of whether the underlying purpose for the proposed program, as well as the proposed program's basic objectives would be substantially attained by the alternative.

Table 5-1, *Summary of Program and Alternative Impacts*, provides a summary matrix that compares impacts of the proposed program with the impacts of each of the alternatives analyzed. It is important to note that none of the program alternatives reduces the significant unavoidable impacts associated with air quality, historic architectural resources, archaeological resources, and tribal cultural resources.

TABLE 5-1
SUMMARY OF PROGRAM AND ALTERNATIVE IMPACTS

Environmental Issue	Program Impact	Alternative 1: No Program (No Build)	Alternative 2: Culvert Connection to San Gabriel River with Perimeter Levee
Aesthetics			
Impact AES-1: Scenic Vistas	LTS	LTS (Greater)	LTS (Similar)
Impact AES-2: Scenic Resources	LTS	NI (Less)	LTS (Similar)
Impact AES-3: Regulations Governing Scenic Quality	LTS	NI (Less)	LTS (Similar)
Impact AES-4: Light and Glare	LTS with MM	NI (Less)	LTS with MM (Similar)
Air Quality			
Impact AQ-1: Air Quality Plan	SU for construction; LTS for operation	NI for construction and operation (Less)	SU for construction (Similar); LTS for operation (Similar)
Impact AQ-2: Cumulative Considerable Net Increase	LTS with MM for construction; LTS for operation	NI for construction and operation (Less)	LTS with MM for construction (Similar); LTS for operation (Similar)
Impact AQ-3: Sensitive Receptors	SU for construction; LTS for operation	NI for construction and operation (Less)	SU for construction (Similar); LTS for operation (Similar)
Impact AQ-4: Odors	LTS	LTS (Similar)	LTS (Similar)
Biological Resources			
Impact BIO-1: Candidate, Sensitive or Special-Status Species	LTS with MM	NI (Less)	LTS with MM (Less)
Impact BIO-2: Riparian Habitat or Sensitive Natural Community	LTS with MM	NI (Less)	LTS with MM (Less)
Impact BIO-3: State or Federally Protected Wetlands	LTS with MM	NI (Less)	LTS with MM (Less)
Impact BIO-4: Native Resident or Migratory Fish or Wildlife Species	LTS with MM	NI (Less)	LTS with MM (Less)
Impact BIO-5: Biological Resources Protection Policies	LTS	NI (Less)	LTS (Similar)
Cultural Resources			
Impact CUL-1: Historical Resources	SU	NI (Less)	SU (Similar)
Impact CUL-2: Archaeological Resources	SU	NI (Less)	SU (Similar)
Impact CUL-3: Human Remains	LTS with MM	NI (Less)	LTS with MM (Similar)

TABLE 5-1
SUMMARY OF PROGRAM AND ALTERNATIVE IMPACTS

Environmental Issue	Program Impact	Alternative 1: No Program (No Build)	Alternative 2: Culvert Connection to San Gabriel River with Perimeter Levee
Geology, Soils, and Paleontological Resources			
Impact GEO-1a: Fault Rupture	LTS	NI (Less)	LTS (Similar)
Impact GEO-1b: Seismic Ground Shaking	LTS	NI (Less)	LTS (Similar)
Impact GEO-1c: Seismic-Related Ground Failure	LTS	NI (Less)	LTS (Similar)
Impact GEO-2: Soil Erosion and Topsoil Loss	LTS	NI (Less)	LTS (Less)
Impact GEO-3: Geologic Instability	LTS	NI (Less)	LTS (Similar)
Impact GEO-4: Expansive Soil	LTS	NI (Less)	LTS (Similar)
Impact GEO-5: Septic Tanks	NI	NI (Less)	NI (Similar)
Impact GEO-6: Paleontological Resources	LTS with MM	NI (Less)	LTS with MM (Similar)
Greenhouse Gas Emissions and Energy			
Impact GHG-1: GHG Emissions	LTS	LTS (Less)	LTS (Less)
Impact GHG-2: GHG Regulations	LTS	LTS (Similar)	LTS (Similar)
Impact EN-1: Wasteful, Inefficient, or Unnecessary	LTS	NI (Less)	LTS (Less)
Impact EN-2: Conflict or Obstruct State or Local Plan	LTS	LTS (Similar)	LTS (Similar)
Hazards and Hazardous Materials			
Impact HAZ-1: Routine Transport, Use, Or Disposal	LTS	NI (Less)	LTS (Similar)
Impact HAZ-2: Hazardous Materials Near Schools	NI	NI (Similar)	NI (Similar)
Impact HAZ-3: List of Hazardous Materials	LTS with MM	NI (Less)	LTS with MM (Similar)
Impact HAZ-4: Public Airport or Public Use Airport	NI	NI (Similar)	NI (Similar)
Impact HAZ-5: Wildland Fires	NI	NI (Similar)	NI (Similar)
Hydrology and Water Quality			
Impact HYD-1: Water Quality Standards	LTS with MM	NI (Less)	LTS with MM (Similar)
Impact HYD-2: Groundwater Supplies	LTS	NI (Less)	LTS (Similar)
Impact HYD-3a: Drainage Patterns – Erosion or Siltation	LTS with MM	NI (Less)	LTS with MM (Less)
Impact HYD-3b: Drainage Patterns - Flooding	LTS	LTS (Greater)	LTS (Similar)

TABLE 5-1
SUMMARY OF PROGRAM AND ALTERNATIVE IMPACTS

Environmental Issue	Program Impact	Alternative 1: No Program (No Build)	Alternative 2: Culvert Connection to San Gabriel River with Perimeter Levee
Impact HYD-3c: Drainage Patterns – Stormwater Drainage Systems	LTS	NI (Less)	LTS (Similar)
Impact HYD-3d: Drainage Patterns – Flood Flows	LTS	NI (Less)	LTS (Similar)
Impact HYD-4: Flood Hazards, Tsunami, Seiche	LTS	LTS (Similar)	LTS (Similar)
Impact HYD-5: Water Quality Control Plan	LTS	LTS (Greater)	LTS (Similar)
Land Use and Planning			
Impact LU-1: Applicable Land Use Plan, Policy, or Regulation	LTS	LTS (Greater)	LTS (Similar)
Mineral Resources			
Impact MIN-1: Mineral Resource Loss or Locally Important Mineral Resource Recovery Site Loss	NI	NI (Similar)	NI (Similar)
Noise			
Impact NOI-1: Noise Standard Exceedance	LTS	NI (Less)	LTS (Greater)
Impact NOI-2: Groundborne Vibration	LTS	NI (Less)	LTS (Greater)
Public Services			
Impact PS-1a: Fire Protection	LTS with MM	NI (Less)	LTS with MM (Similar)
Impact PS-1b: Police Protection	LTS	NI (Less)	LTS (Similar)
Impact PS-1c: Parks	LTS	NI (Less)	LTS (Similar)
Recreation			
Impact REC-1: Neighborhood and Regional Parks	LTS	NI (Less)	LTS (Similar)
Impact REC-2: Expansion of Recreational Facilities	LTS	NI (Less)	LTS (Similar)
Transportation			
Impact TRA-1: Program Plan, Ordinance, or Policy	LTS with MM	NI (Less)	LTS with MM (Similar)
Impact TRA-2: CEQA Guidelines section 15064.3, subdivision (b)	LTS	NI (Less)	LTS (Similar)
Impact TRA-3: Traffic Hazards	LTS with MM	NI (Less)	LTS with MM (Similar)

TABLE 5-1
SUMMARY OF PROGRAM AND ALTERNATIVE IMPACTS

Environmental Issue	Program Impact	Alternative 1: No Program (No Build)	Alternative 2: Culvert Connection to San Gabriel River with Perimeter Levee
Tribal Cultural Resources			
Impact TRI-1: Listed or Eligible Tribal Cultural Resource	SU	NI (Less)	SU (Similar)
Impact TRI-2: Tribal Cultural Resource Determined by the Lead Agency	SU	NI (Less)	SU (Similar)
Utilities and Service Systems			
Impact UTL-1: Expanded Facilities	LTS with MM	NI (Less)	LTS with MM (Similar)
Impact UTL-2: Sufficient Water Supplies	LTS	NI (Less)	LTS (Similar)
Impact UTL-3: Adequate Wastewater Treatment Capacity	LTS	NI (Less)	LTS (Similar)
Impact UTL-4: Solid Waste Capacity	LTS	NI (Less)	LTS (Similar)
Impact UTL-5: Solid Waste Regulations	LTS	NI (Less)	LTS (Similar)

NI = No Impact
LTS = Less than Significant
LTS with MM = Less than Significant with mitigation measures
SU = Significant and unavoidable impacts

5.7 Impact Analysis

5.7.1 Alternative 1: No Program (No Build)

5.7.1.1 Aesthetics

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. Thus, this alternative would result in fewer impacts to scenic vistas than the proposed program, as it would avoid temporary impacts to scenic vistas from program construction. However, Alternative 1 does not include enhancement and restoration of the Los Cerritos Wetlands complex, which is considered a scenic vista. As such, although construction impacts to a scenic vista would be less than the proposed program, overall operational impacts would be greater since conditions would remain the same. Therefore, as operational impacts, which are not temporary, would be greater under Alternative 1, overall impacts to scenic vistas would be less than significant but greater than the less-than-significant impacts identified for the proposed program.

Similar to the proposed program, this alternative would not result in impacts related to damaging a scenic resource within a state scenic highway, as no state scenic highways are designated within the vicinity of the proposed program. However, without the program, the aesthetic benefits of creating views of natural habitats would not be achieved. While PCH is identified as an eligible state scenic highway, construction would not occur under this alternative and, thus, no scenic resources as viewed from PCH, would be damaged. In addition, as Alternative 1 does not propose any alterations to the program area, it would not conflict with applicable zoning and other regulations governing scenic quality. Given that there would be no construction or new development of a Seal Beach Visitors Center, this alternative would also avoid the temporary impacts to light and glare associated with proposed program during construction and operation. Therefore, there would be no impacts related to damaging a scenic resource within a state scenic highway, consistency with zoning and other regulations governing scenic quality, or light and glare, and impacts would be less than the less-than-significant impacts identified for the proposed program.

5.7.1.2 Air Quality

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. The existing oil production facilities located on the Hellman Retained site, Isthmus LCWA site, Central LCWA site, and Alamitos Bay Partners site, would continue to operate. As Alternative 1 does not include any of the construction activities proposed under the proposed program, this alternative would not generate emissions associated with construction and restoration activities. Thus, this alternative would result in no construction emissions, eliminating the significant and unavoidable construction emission impact associated with conflicting and obstructing implementation of the applicable air quality plan and impacts to sensitive receptors. Thus, Alternative 1 would result in less construction impacts than those identified for the proposed program. In addition, the less-than-significant with mitigation impacts related to a cumulative considerable net increase in criteria pollutants during construction would be eliminated and impacts under Alternative 1 would be less than those identified for the proposed program.

Under Alternative 1, the proposed program would not generate new emissions associated with truck trips for maintenance of trails and wetlands and emissions from passenger vehicles from visitors to the program area and existing facilities would continue to operate as they do under existing conditions. As such, there would be no net increases in emissions under this alternative. Therefore, Alternative 1 would not have any impacts related to conflicting with or obstructing implementation of the applicable air quality plan, cumulatively considerable net increase in criteria pollutants, and impacts to sensitive receptors. Operational emissions generated under Alternative 1 would be less than those identified for the proposed program. However, it should be noted that program activities under the proposed program would restore habitats and eventually decommission and remove existing oil operations, potentially resulting in a decrease in emissions in the long-term.

5.7.1.3 Biological Resources

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. Thus, there would be no impacts to candidate, sensitive, or special-status plant, wildlife, and/or riparian species or other sensitive natural communities within the program area. Given the lack of restoration under this alternative, no state or federally protected wetlands would be restored and no environmentally sensitive habitat areas (ESHA) would be expanded. This alternative would not interfere with the movement of any native resident, migratory fish, wildlife species, established native resident, wildlife corridors, or impede the use of native wildlife nursery sites, but it would also not enhance or expand these as in the proposed program. In addition, this alternative would not conflict with any local policies or ordinances protecting biological resources or conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local regional, or state habitat conservation plan. Therefore, there would be no impacts related to biological resources, and impacts would be less than the less-than-significant impacts identified for the proposed program. However, there would be no benefits to biological resources, which is one of the main objectives of the proposed program.

5.7.1.4 Cultural Resources

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. Given that there would be no ground disturbance, this alternative would avoid the potential impacts associated with historical resources as well as the potential discovery of undocumented cultural resources that were determined to be archaeological resources or discovery of human remains. Therefore, Alternative 1 would eliminate the significant and unavoidable program-level and cumulative impacts related to historical and archaeological resources and the less-than-significant with mitigation impacts identified for human remains under the proposed program.

5.7.1.5 Geology, Soils, and Paleontological Resources

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area and no structures would be constructed within the program area (beyond those covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project). Thus, Alternative 1 would not directly or indirectly cause potential

substantial adverse effects from rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure. In addition, as no construction or ground disturbance would occur under Alternative 1, Alternative 1 would have no impacts related to soil erosion and the loss of topsoil. Furthermore, as with the proposed program, as there would be no changes to oil production under Alternative 1, oil production would continue the current practice of returning the groundwater to the depth levels from which it was extracted, and this alternative would not have any impacts from subsidence and collapse as it relates to geologic instability. Additionally, as Alternative 1 does not include the construction of trails or visitor center (beyond those covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project), exposure of people to expansive soil impacts on the program area during operation would be unlikely. No septic tanks would be constructed under Alternative 1, as with the proposed program, and Alternative 1 would have no impacts related to septic tanks. Impacts would be less than the less-than-significant impacts identified for the proposed program.

With regard to paleontological resources, as Alternative 1 would not include any ground disturbing activities, the potential to encounter significant paleontological resources would be eliminated as compared to the proposed program. Therefore, there would be no impacts related to paleontological resources, and impacts would be less than the less-than-significant with mitigation impacts identified for the proposed program.

5.7.1.6 Greenhouse Gas Emissions and Energy

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. As such, Alternative 1 would not generate greenhouse gas (GHG) emissions associated with the construction and restoration activities or truck trips for maintenance of trails and wetlands and passenger vehicles from visitors to the program area during operation of the proposed program beyond existing operations and maintenance. As such, impacts under Alternative 1 would be less than the less-than-significant impacts identified for the proposed program.

Both the proposed program and Alternative 1 would be consistent with all applicable plans, policies, and regulations related to the reduction of GHG emissions as required by the City of Long Beach and the state. Therefore, impacts associated with GHG emission reduction plans and policies would be similar under Alternative 1 to the less-than-significant impacts identified for the proposed program.

With regard to energy consumption, Alternative 1 would not require energy associated with construction and restoration activities or truck trips for maintenance of trails and wetlands and passenger vehicles from visitors to the program area during operation of the proposed program beyond existing operations and maintenance. While Alternative 1 would continue to require energy associated with existing oil production facilities; new energy demand associated with the development of a Seal Beach Visitor Center and the use of transportation fuels (e.g., diesel and gasoline) from vehicles traveling to and from the program area would not be required, as under the proposed program. Overall, energy usage would be lower under Alternative 1; thus, Alternative 1 would have no impacts related to wasteful, inefficient, or unnecessary consumption of energy resources, and impacts would be less than the less-than-significant impacts identified

for the proposed program. As noted for air quality impacts, above, as the program activities would restore habitats and eventually decommission and remove existing oil operations, there could be a decrease in energy consumption in the long-term. In addition, recreational opportunities provided under the proposed program for the City of Seal Beach and City of Long Beach residents, employees, and visitors, which would reduce transportation-related fuel demand by providing nearby recreational amenities including a visitor center and trails, would not be realized under Alternative 1.

Since both the proposed program and this alternative would comply with applicable energy standards, policies, regulations, impacts to energy standards, policies, and regulations would be similar under Alternative 1 to the less-than-significant impacts identified for the proposed program.

5.7.1.7 Hazards and Hazardous Materials

Under Alternative 1, existing oil production uses would remain unchanged and there would be no potential to create a significant hazard through the routine transport, use, disposal, or upset and accident conditions that release hazardous materials through construction activities, well plugging and abandonment, and removal and relocation of oil pipelines. While Alternative 1 would still require maintenance of existing oil wells and pipelines on the program area, Alternative 1 would not include development of the Seal Beach Visitor Center, which could occasionally use small quantities of cleaning products and paints, solvents, and thinners for routine maintenance. Thus, there would be no impacts under Alternative 1 and impacts would be less than the less-than-significant impacts identified for the proposed program.

As discussed in Section 3.7, *Hazards and Hazardous Materials*, there are no schools located within 0.25 mile of the program area. Therefore, there would be no impacts related to hazardous materials near schools, similar to the proposed program.

While the program area has several individual sites listed on one or more hazardous materials lists for the presence of active, idle, or plugged oil wells, historical releases of contamination, and/or the presence of landfill materials, this alternative would not result in restoration activities or new development of a Seal Beach Visitor Center and, thus, this alternative would not create new significant hazards to the public or environment. Therefore, there would be no impact under Alternative 1 and impacts would be less than the less-than-significant with mitigation impacts identified for the proposed program.

Similar to the proposed program, this alternative would not be located within an airport land use plan nor would the alternative expose people or structures to significant risk involving wildland fires and there would be no impact.

5.7.1.8 Hydrology and Water Quality

Under Alternative 1, the proposed program would not be implemented and existing conditions would remain unchanged on most of the program area. As such, Alternative 1 would not require ground disturbance, vegetation removal and/or grading, levee modifications, public access facilities (beyond those covered by the Los Cerritos Wetlands Oil Consolidation and Restoration

Project), and infrastructure and utility modifications. In addition, no changes would occur to local water bodies. As such, Alternative 1 would not violate any water quality standards and impacts would be less than the less-than-significant with mitigation impacts of the proposed program.

As no construction or operational activities would occur under Alternative 1, Alternative 1 would not require the use of groundwater, which could impede sustainable groundwater management of the basin. Therefore, no impacts would occur under Alternative 1 and impacts would be less than the less-than-significant impacts of the proposed program.

Unlike the proposed program, this alternative would not alter the drainage patterns and, thus, would not result in substantial erosion or siltation, result in flooding on or off site, exceed capacity of existing or planned stormwater drainage systems, or impede or redirect flood flows. However, existing levees along the San Gabriel River do not account for sea-level rise, while the levees proposed under the proposed program would be designed to account for sea-level rise. As such, impacts under Alternative 1 would be less than the less-than-significant with mitigation impacts of the proposed program related to substantial erosion or siltation. In addition, impacts under Alternative 1 would be less than the less-than-significant impacts related to exceeding capacity of existing or planned stormwater drainage systems, or impeding or redirecting flood flows. However, impacts under Alternative 1 would be greater than the less-than-significant impacts related to flooding on or off site.

This alternative would result in similar less-than-significant impacts related to a flood hazard, tsunami, or seiche zone since both this alternative and the proposed program would operate facilities in a tsunami inundation area.

While activities under Alternative 1 would remain unchanged and there would be no potential to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, the benefits to water quality would not be realized under this alternative as with the proposed program, which includes implementation of a restoration program that would allow for tidal flows into the vegetated wetlands and would create favorable water quality conditions by limiting retention time and enhancing tidal exchange. Impacts would be less than significant under Alternative 1, but greater than the less-than-significant impacts of the proposed program.

5.7.1.9 Land Use and Planning

While there would be no change to existing uses, Alternative 1 would not include habitat restoration (beyond restoration activities covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project). As such, Alternative 1 would conflict with land use plans, policies, or regulations related to habitat restoration including the Hellman Ranch Specific Plan, adopted South East Area Development and Improvement Plan (SEADIP), the proposed Southeast Area Specific Plan (SEASP) 2060 (for informational purposes), the California Coastal Act, and Long Beach Local Coastal Program. Impacts would be less than significant under Alternative 1, but greater than the less-than-significant impacts identified for the proposed program.

5.7.1.10 Mineral Resources

Under Alternative 1, extraction of the existing resources would continue to occur, however oil wells would not be plugged and associated oil infrastructure would not be removed. As such, this alternative would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Impacts would be similar to the less-than-significant impacts identified for the proposed program.

5.7.1.11 Noise

Given that existing conditions would remain unchanged on most of the program area and no restoration activities or new development of a Seal Beach Visitor Center would occur under Alternative 1, impacts related to generation of substantial temporary or permanent increase in ambient noise levels would not occur. As such, impacts would be less than the less-than-significant impacts identified for the proposed program. In addition, this alternative would not result in excessive groundborne vibration or groundborne noise levels. Therefore, related impacts would be less than the less-than-significant impacts identified for the proposed program.

5.7.1.12 Public Services

Under Alternative 1, existing conditions would remain unchanged on most of the program area and restoration activities or new development of a Seal Beach Visitor Center would not occur; thus, the potential increase in demand for fire protection and police protection services would not occur. As such, Alternative 1 would not require new or physically altered government facilities and would have a less-than-significant impact on public services. Impacts under this alternative would be less than the less-than-significant with mitigation impacts identified for the proposed program for fire protection and less than the less-than-significant impacts identified for the proposed program for police protection.

5.7.1.13 Recreation

Under Alternative 1, existing conditions would remain unchanged on most of the program area and restoration activities or new development of a Seal Beach Visitor Center would not occur, thus, temporary construction workers or the number of employees, volunteers, and daytime visitors within the program area would not increase. As such, an increase in the use of existing parks and recreational facilities resulting in substantial physical deterioration of facilities would not occur or be accelerated. Alternative 1 would maintain the program area's existing operations and new recreational facilities, including the Seal Beach Visitor Center, overlooks, pedestrian trails, and potential sidewalk improvements, would not be developed. Thus, the City of Seal Beach and City of Long Beach would not benefit from the increase in recreational uses. However, because this alternative would not increase the use of existing parks and recreational facilities, there would be no impact and impacts would be less than the less-than-significant impacts identified for the proposed program.

5.7.1.14 Transportation

Alternative 1 would not result in the construction-related traffic or additional operations-related traffic associated with the proposed program; therefore, this alternative would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts under Alternative 1 would be less than the less-than-significant impacts identified for the proposed program. However, Alternative 1 would not provide an increase in connectivity, walkability, and safety for pedestrians that would be realized under the proposed programs' installation of new trails along the perimeter of the program areas. Similar to the proposed program, as it relates to the regulations of SB 743 and vehicle miles travelled (VMT), CEQA Guidelines section 15064.3, subdivision (b) is not applicable to Alternative 1 at this time. However, unlike the proposed program, Alternative 1 does not have the potential to generate operational trips. As such, no impacts would occur under Alternative 1 and would be less than the less-than-significant impacts of the proposed program. Given that there would be no restoration activities or new development of a Seal Beach Visitor Center, this alternative would also not increase hazards due to a design feature or incompatible uses. Thus, impacts under Alternative 1 would be less than the less-than-significant impacts identified for the proposed program.

5.7.1.15 Tribal Cultural Resources

Given the cultural resources sensitivity of the program area, construction activities associated with the proposed program could impact tribal cultural resources. This alternative would not include restoration or the construction of any facilities or structures and, thus, would not result in potential construction-related impacts to tribal cultural resources that could occur under the proposed program. No impacts to tribal cultural resources are expected in association with continued operation of existing facilities at the program area. However, the benefit of restoring a natural marsh system as part of the cultural resources of the site would be lost in the no project alternative. This alternative would result in no impact, and would avoid the significant and unavoidable impacts to tribal cultural resources identified for the proposed program.

5.7.1.16 Utilities and Service Systems

Alternative 1 would not result in an increase in water use, would not generate additional wastewater, would not change the existing flood risk and stormwater management elements, and would not increase electricity, natural gas, and telecommunications use. As such, this alternative would not result in the construction of associated facilities or the expansion of existing facilities and there would be no impact under Alternative 1. Impacts would be less than the less-than-significant with mitigation impact related to water infrastructure and less than the less-than-significant impacts related to wastewater infrastructure, stormwater infrastructure, electric infrastructure, or telecommunications infrastructure. In addition, as Alternative 1 would not increase water use or generate additional wastewater, this alternative would not affect water supplies or impact wastewater treatment capacity. Impacts related to sufficient water supplies and adequate wastewater treatment capacity under Alternative 1 would be less than the less-than-significant impacts identified for the proposed program.

Given that there would be no change to existing conditions under this alternative, solid waste disposal needs would not increase and this alternative would continue to comply with all regulations pertaining to solid waste. Therefore, there would be no impact under this alternative, and impacts would be less than the less-than-significant impacts identified for the proposed program.

5.7.1.17 Comparison of Impacts

Alternative 1 would avoid the proposed program's significant and unavoidable construction air quality impacts, historical resource impacts, archeological impacts, and tribal cultural resources impacts. With the exception of impacts related to scenic vistas, odors, GHG emissions, drainage patterns related to flooding on or off site, water quality, and consistency with land use plans, policies, or regulations that would be greater under this alternative, all impacts associated with the remaining environmental issues would be similar or less than those of the proposed program.

5.7.1.18 Relationship of the Alternative to the Project Objectives

No restoration activities or new development of a Seal Beach Visitor Center would be introduced on the program area under Alternative 1 and existing oil production would continue. No oil production facilities would be decommissioned to allow for restoration of tidal wetlands and habitat buffers and no visitor center or public access trails (beyond those covered by the Los Cerritos Wetlands Oil Consolidation and Restoration Project) would be constructed. As a result, none of the proposed program objectives would be achieved by Alternative 1.

5.7.2 Alternative 2: Culvert Connection to San Gabriel River with Perimeter Levee

As described above, under Alternative 2, a culvert or set of culverts would be installed within the northern San Gabriel River levee to connect the river to the Central Area rather than breaching the levee as in the proposed program. As such, all components of this alternative would remain the same as the proposed program except for the change to install a culvert or set of culverts in the levee rather than breach the levee, and to reduce the height and footprint of the Perimeter and Interim Levees in the Central Area. Thus, the analysis contained herein focuses on impacts that could occur within the Central Area as a result of implementation of this alternative.

5.7.2.1 Aesthetics

Installation of the culvert(s) in Alternative 2 would restrict the water levels in the site. As such, the levees proposed within the Central Area would be designed to have a smaller footprint and would be lowered by approximately 3 to 7 feet. As construction and restoration activities under Alternative 2 would require similar construction equipment as the proposed program, impacts to scenic vistas during construction would be similar to those of the proposed program. However, impacts along 2nd Street and Shopkeeper Road would be less during operation of Alternative 2 as compared to the proposed program, as the proposed levees would be lower and would allow for a better view of the Los Cerritos Wetlands complex. Views of the Central Area from the San Gabriel River Levee Bike Trail would not be improved as in the proposed program, since the existing northern San Gabriel River levee would not be breached and lowered. Overall, impacts

related to scenic vistas would be less than significant under Alternative 2 and similar to the less-than-significant impacts identified for the proposed program.

Alternative 2 would include similar alterations to the program area as the proposed program; as such, no scenic resources would be damaged within a state scenic highway and implementation of the alternative would enhance the scenic value of the proposed program. In addition, similar to the proposed program, Alternative 2 would not conflict with applicable zoning and other regulations governing scenic quality, including the City of Seal Beach General Plan, Hellman Ranch Specific Plan, City of Long Beach General Plan, adopted SEADIP, proposed SEASP 2060 (for informational purposes), and City of Long Beach's LCP. Impacts related to damaging a scenic resource within a state scenic highway and consistency with zoning and other regulations governing scenic quality, would be less than significant under Alternative 2 and similar to the less-than-significant impacts identified for the proposed program.

Impacts from light and glare associated with Alternative 2 during construction and operation would be similar to the proposed program as the activities and intensity of light and glare required under both the alternative and proposed program would be similar. Therefore, impacts under Alternative 2 would be less than significant and impacts would be similar to the less-than-significant impacts identified for the proposed program.

5.7.2.2 Air Quality

On a daily basis, the type of equipment used within the program area during construction of Alternative 2 would be similar to the proposed program. As such, construction emissions under Alternative 2 would be similar to the construction emissions under the proposed program. Alternative 2 would have a significant and unavoidable impact as it relates to conflicting and obstructing implementation of the applicable air quality plan and impacts to sensitive receptors during construction. Impacts related to a cumulative considerable net increase in criteria pollutants during construction would be less than significant under Alternative 2 with implementation of Mitigation Measure AQ-1, as with the proposed program. With respect to odors, impacts would be less than significant under Alternative 2 and similar to those of the proposed program.

Alternative 2 would generate similar operational emissions as the proposed program, as operational activities would be similar under both the alternative and the proposed program. As such, impacts related to conflicting and obstructing implementation of the applicable air quality plan, cumulative considerable net increase in criteria pollutants, sensitive receptors, and odors, would be less than significant under Alternative 2 and similar to the less-than-significant impacts identified for the proposed program.

5.7.2.3 Biological Resources

Under Alternative 2, the footprint of the levees would be reduced and there would be 1 – 3 acres less encroachment into the existing wetland habitat areas. Impacts related to candidate, sensitive, or special-status species, riparian habitat or sensitive natural communities, state or federally protected wetlands, and native resident or migratory fish or wildlife species would be less-than-

significant with mitigation and less than the less-than-significant with mitigation impacts identified for the proposed program. However, Alternative 2 would create 1.5 acres less marsh, compared to the proposed program, since the San Gabriel River levee would not be breached and reduced to the marsh plain elevation. Additionally, the hydrologic processes in a natural tidal marsh along a river would be restricted by the culverts, so the marsh would not experience the same high water levels as it would under the proposed program. The tide range would be reduced 1 to 2 feet compared to the proposed program.

As Alternative 2 would include the same habitat restoration activities as the proposed program, this alternative would not conflict with any local policies or ordinances protecting biological resources or conflict with the provisions of an adopted Habitation Conservation Plan, Natural Community Conservation Plan, or other approved local regional, or state habitat conservation plan. Impacts would be less than significant under Alternative 2 and similar to the less-than-significant impacts identified for the proposed program.

5.7.2.4 Cultural Resources

Similar to the proposed program, construction under this alternative would require ground disturbance; thus, there would be the potential to impact and encounter historical resources, archaeological resources, and human remains. As such, Alternative 2 would implement similar mitigation measures as the proposed program. However, as with the proposed program, even with implementation of mitigation measures, Alternative 2 would have significant and unavoidable program-level and cumulative impacts related to historical resources and archaeological resources and impacts related to human remains would be less than significant with mitigation, as with the proposed program. Impacts under Alternative 2 would be similar to the impacts identified for the proposed program.

5.7.2.5 Geology, Soils, and Paleontological Resources

Operational activities under Alternative 2 include the Seal Beach Visitors Center, which would not be located within a fault zone and would implement the regulatory requirements of the California Building Code. No change to the oil operators would occur under Alternative 2 within the Central Area. In addition, with regard to the existing oil fields, Alternative 2 does not include changes to the existing injection and extraction of oil and produced water. Over time, these oil wells and associated pipelines would be plugged or removed and the operators would be required to comply with the California Geologic Energy Management Division (formerly the Department of Conservation's Division of Oil, Gas, and Geothermal Resources) regulations for these activities. With implementation of regulatory requirements, Alternative 2 would have less than significant impacts related to fault rupture, seismic ground shaking, seismic-related ground failure, geologic instability, and expansive soils. Impacts under Alternative 2 would be similar to the less-than-significant impacts identified for the proposed program.

As with the proposed program, since Alternative 2 would exceed one acre, Alternative 2 would be required to comply with the *NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (Construction

General Permit), the *Long Beach Storm Water Management Program Manual*, and the *Seal Beach Grading and Stormwater Pollution Prevention Implementation Manual*, the compliance of which would serve to reduce impacts associated with soil erosion during construction of Alternative 2. In addition, during operation, the change to the installation of a set of culverts rather than breaching the existing San Gabriel River levee would result in less erosion during storm events in the Central Area. Impacts related to soil erosion and loss of top soils under Alternative 2 would be less than significant and less than the less-than-significant impacts identified for the proposed program.

Similar to the proposed program, Alternative 2 does not include the construction or operation of septic tanks or alternative waste water disposal systems, resulting in no impacts. Impacts under Alternative 2 would be similar to the impacts identified for the proposed program.

Similar to the proposed program, construction under this alternative would require ground disturbance; thus, there would be the potential to impact and encounter paleontological resources. As such, Alternative 2 would implement similar mitigation measures as the proposed program. With implementation of mitigation, impacts related to paleontological resources would be less than significant with mitigation. Impacts would be similar under Alternative 2 as compared to the less-than-significant with mitigation impacts identified for the proposed program.

5.7.2.6 Greenhouse Gas Emissions and Energy

While operational activities and resulting emissions would be similar under Alternative 2 to the operational emissions of the proposed program, construction emissions under Alternative 2 would be reduced as installation of the culverts within the San Gabriel River levee would reduce the overall required soils movement during construction, which would reduce the overall number of tug boats and/or haul truck trips needed to move soil off site. Total GHG emissions would decrease under Alternative 2 and GHG emissions would not exceed the GHG threshold of 10,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year) for industrial projects. Impacts would be less than significant under Alternative 2 and less than the less-than-significant impacts identified for the proposed program.

As with the proposed program, Alternative 2 would utilize construction contractors that would be in compliance with the same regulations as the proposed program. In addition, during operation, workers and visitors to the program area would utilize vehicles that comply with State motor vehicle emissions standards and the visitor center buildings would be built to the CALGREEN standards, as with the proposed program. Similar to the proposed program, Alternative 2 would provide improved public access to the wetlands both on foot and by bicycle. As Alternative 2 includes the installation of culverts rather than breaching the levee, this would allow for a loop trail to be constructed along the existing San Gabriel River levee and the Perimeter Levee, which would serve to contribute to the non-automotive transportation network and would further reduce transportation-related air pollutants and GHG emissions. Impacts under Alternative 2 as it relates to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions would be less than significant and similar to the less-than-significant impacts identified for the proposed program.

Operational activities would be similar under Alternative 2 as with the proposed program, and Alternative 2 would generate an energy demand similar to the proposed program; however, the levees would be smaller and, therefore, require less fill. Overall transportation fuel usage would decrease during construction of Alternative 2 as this alternative would require fewer tug boat and/or haul truck trips. As with the proposed program, construction trucks would be required to comply with fuel saving regulations such as the USEPA Phase 2 standards. During operation, Alternative 2 would incorporate similar green building measures as the proposed program. As such, Alternative 2 would continue to not result in wasteful, inefficient, and unnecessary consumption of building energy or transportation usage during construction and operation of Alternative 2 and impacts would be less than significant. However, impacts under Alternative 2 would be less than the less-than-significant impacts identified for the proposed program due to the reduction in tug boat/haul truck trips.

As with the proposed program, Alternative 2 would generally include the same construction and operational activities. As such, Alternative 2 would be consistent with energy efficiency standards in the City of Seal Beach municipal code, City of Long Beach municipal code, and CALGreen Code. Alternative 2 would also not conflict with the Southern California Association of Governments (SCAG) *2016–2040 Regional Transportation Plan and Sustainable Communities Strategy* (RTP/SCS) general goals and strategies of increasing accessibility to natural areas, preserving open space, and encouraging active transportation (e.g., bicycling and walking) thereby minimizing transportation fuel demand. As noted previously, since Alternative 2 includes the installation of culverts rather than breaching the levee, this would allow for a loop trail to be constructed along the existing San Gabriel River levee and the Perimeter Levee, which would add to the improved public access of the proposed program, and would further reduce transportation-related fuel demand. Alternative 2 would have a less than significant impact with regard to conflicting with or obstructing a state or local plan for renewable energy or energy efficiency and impacts would be similar to the less-than-significant impacts identified for the proposed program.

5.7.2.7 Hazards and Hazardous Materials

As construction and operational activities under Alternative 2 would be similar to the proposed program, including overall construction activities, well plugging and abandonment, removal of oil pipelines, relocation of oil pipelines, restoration of wetland habitat, operations of oil wells and pipelines, and construction of the Seal Beach Visitor Center, Alternative 2 would comply with the appropriate existing regulations and policies. As such, Alternative 2 would result in less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials, similar to the proposed program.

As with the proposed program, Alternative 2 would not be located within one-quarter mile of a school, would not be within two miles of a public airport or public use airport, and would not be within or near a very high or high fire hazard severity zone; therefore, no impacts would occur. Impacts under Alternative 2 would be similar to the impacts identified for the proposed program.

As the program area of Alternative 2 would be the same as the proposed program, several individual sites within the program area of Alternative 2 would be listed on one or more hazardous materials lists for the presence of active, idle, or plugged oil wells; historical releases

of contamination; and/or the presence of landfill materials. As such, Alternative 2 would comply with existing regulations and would implement similar mitigation measures as the proposed program to reduce the potential for harmful exposure to hazardous materials. Impacts under Alternative 2 would be less than significant with mitigation, and would be similar to the less-than-significant with mitigation impacts identified for the proposed program.

5.7.2.8 Hydrology and Water Quality

Installation of the culvert or set of culverts within the existing San Gabriel River levee would change the hydrology of the Central Area.

With regard to violating water quality standards or waste discharge, construction activities under Alternative 2 would be similar to those of the proposed program. As such, construction activities under Alternative 2 would be required to comply with the Construction General Permit for the State and the County MS4 Permit required as part of the permitting process. With regard to contaminated water and sediment from upstream sources, upstream sources that have the potential to impact water quality, these sources have identified watershed control measures that help jurisdictions meet the MS4 permit requirements and improve water and sediment quality in the rivers and channels. The concentration and loading of the water quality constituents from the watershed will be reduced through compliance with the reissued MS4 Permit, TMDLs, and the WMPs. Additionally, the culverts could be outfitted with trash racks to reduce trash coming into the Central Area, which would improve water quality in the Central Area. The potential for significant adverse impacts to the program would, therefore, be significantly reduced.

Reconnections of water bodies with poor water quality under Alternative 2 could also impact channels and marshes within the program area for Alternative 2 which may impact biological resources/beneficial uses. Alternative 2 would implement similar mitigation measures as the proposed program, the implementation of which would ensure monitoring and adaptive management is conducted to recognize and address any erosion, deposition, or sediment quality issues. Similar to the proposed program, since it is likely that sediment in certain areas of the program area will require remediation before restoration, remediation undertaken under Alternative 2 would improve conditions and be a benefit to groundwater quality. Restoration of Alternative 2 would also not impact ocean water quality as any sediment placed in an ocean disposal site would only be placed if it met the standards of the Ocean Disposal – Testing Manual. Based on the above, impacts related to water quality standards would be less than significant with mitigation, and similar to the less-than-significant with mitigation impacts identified for the proposed program.

As with the proposed program, Alternative 2 could include use of groundwater supplies, however, construction water supply needs would be temporary and are unlikely to be substantial. In addition, while operation of Alternative 2 would generate a demand for water supplies, water would be supplied through the City of Seal Beach and Long Beach Water District, and, as such, would not deplete groundwater supplies or impede sustainable groundwater management of the basin, similar to the proposed program. Impacts under Alternative 2 would be less than significant, and similar to the less-than-significant impacts of the proposed program.

Post-construction, Alternative 2 would reconnect the San Gabriel River to the Central Area, which could cause erosion of the marsh during a large storm event and could deliver sediment-laden runoff further down the river or to the ocean. If this sediment deposited in the San Gabriel River or the entrance of Alamitos Bay, it could impact flood management or navigation. However, the sediment dynamics analysis (refer to Appendix I) showed that the erosion of the Central Area during a 100-year storm event under the proposed program is expected to be minimal and Alternative 2 would result in even less erosion due to the culvert(s) limiting velocities inside the site. Additionally, Alternative 2 would implement similar mitigation measures as the proposed program, the implementation of which would ensure monitoring and adaptive management is conducted to recognize and address any erosion or deposition issues. Impacts under Alternative 2 would be less than significant after mitigation and less than the proposed program.

Alternative 2 would reconnect the San Gabriel River to the restored wetland floodplain by grading the Central Area to marshplain elevations and installing a culvert or set of culverts in the levees along the river. The expansion of the floodplain could increase water levels upstream, downstream, and at the site during storm events, thereby increasing off-site flooding. Hydrodynamic modeling of the proposed program (refer to Appendix H) showed that Alternative 2 would lower water levels in the San Gabriel River compared to existing conditions due to the extra flood storage in the site. Within the site under Alternative 2, water levels would increase compared to existing conditions, but the Perimeter Levee would be designed to maintain or increase the level of flood protection, similar to the proposed program. Impacts under Alternative 2 would be less than significant and similar to the proposed program.

Alternative 2 would include replacement of stormwater storage volume by creating low areas (e.g., basins or swales) between the roads and the proposed levee in the Central Area, as provided under the proposed program. These storage basins or bioswales would be sized to accommodate the local area drainage. These basins would also function as water quality treatment measures for a portion of the runoff from the existing paved areas. All drainage features throughout the program area would be designed in accordance with NPDES MS4 permit requirements. The potential impacts would be less than significant.

By design, Alternative 2 would alter existing drainage patterns of the site to allow for increased flooding within the targeted restoration areas in pursuit of mimicking pre-development conditions, while also providing flood protection of off-site properties through the construction of levees, berms, or flood walls. The levees, berms, or flood walls would be constructed in accordance with 33 U.S.C. Section 408 permit requirements. Therefore, Alternative 2 would alter drainage patterns and areas that would be susceptible to flooding, but would not impede or redirect flood flows to off-site areas. As a result, the potential impact related to altered drainage patterns and flood flows would be less than significant.

As with the proposed program, Alternative 2 would be located within a tsunami inundation zone. Alternative 2 would include flood protection measures that would be designed to limit flooding to the intended habitat areas consistent with pre-restoration conditions and provide sufficient protection to off-site areas. In addition, there would not be any storage of substantive quantities of

hazardous materials anywhere within the program area of Alternative 2 such that there would be risk of release from program inundation. Otherwise, the program area is not located adjacent to an enclosed or semi-enclosed water body such that there would be no risk of seiche waves that could affect the site. Impacts under Alternative 2 would be less than significant and similar to the less-than-significant impacts of the proposed program.

The Los Cerritos Channel and San Gabriel River, which are both located within the program area of Alternative 2, are both listed as impaired waterbodies for a number of constituents through the 303(d) and TMDL programs. Implementation of the proposed restoration program under Alternative 2 would allow for tidal flows into the program area, improving water quality conditions through vegetated wetlands and by limiting retention time and enhancing tidal exchange. The culvert(s) would also minimize the amount of sediment that comes into the Central Area and deposits on the restored program area during high storm flow events. As a result, Alternative 2, similar to the proposed program, would not conflict with or obstruct implementation of the water quality control plan, but would actually be a benefit to water quality. Impacts under Alternative 2 would be less than significant and similar to the less-than-significant impacts of the proposed program.

5.7.2.9 Land Use and Planning

Restoration under this alternative would include similar activities in the Program area as the proposed program and would require similar approvals. As with the proposed program, Alternative 2 would not conflict with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect, including the Seal Beach General Plan, Seal Beach Municipal Code, Hellman Ranch Specific Plan, Long Beach General Plan, Long Beach Municipal Code, adopted SEADIP, proposed SEASP 2060 (for informational purposes), Long Beach Bicycle Master Plan, AELUP, SCAG 2016–2040 RTP/SCS, the California Coastal Act, and Long Beach Local Coastal Program. Impacts would be similar to the less-than-significant impacts identified for the proposed program.

5.7.2.10 Mineral Resources

Oil production would continue on the Central, Isthmus, and South Areas until the operations cease. Once the oil production ceases, the oil wells would be plugged, the associated infrastructure would be removed, and no economic resources would remain accessible within these areas. Therefore, there would be no impact under Alternative 2 and impacts would be similar to those identified for the proposed program.

5.7.2.11 Noise

Similar to the proposed program, Alternative 2 would require the use of heavy equipment during the construction activities on site and the type of equipment used would be similar to the equipment used for the development of the proposed program. One exception would be the equipment associated with the installation of the culvert(s) within the San Gabriel River levee, which would require the use of vibratory pile drivers. While vibratory pile drivers would produce greater noise as compared to the proposed program, the cities of Seal Beach and Long Beach exempt noise generated by construction activities during daytime hours depending on the day of

the week. As with the proposed program, construction of Alternative 2 would occur within these defined daytime hours and would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance. Nonetheless, construction of Alternative 2 would implement recommended noise reduction measures similar to the proposed program. While overall required tug boat and/or haul truck trips would be reduced under Alternative 2 compared to the proposed program, since the levees would be smaller and, therefore, require less fill, impacts on a daily basis would be similar to those of the proposed program. As such, off-site construction traffic noise under Alternative 2 would similarly not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance. With regard to noise during operation, as operational activities under Alternative 2 would be similar to those of the proposed program, Alternative 2 would not generate a substantial increase in ambient noise levels in the vicinity of the proposed program in excess of standards established in the local general plan or noise ordinance. Impacts to noise during construction and operation under Alternative 2 would be less than significant, but greater than the less-than-significant impacts identified under the proposed program due to the use of vibratory pile drivers during construction.

With regard to vibration impacts during construction, the proposed program assumed that no rock blasting with explosives or pile driving would be used during program construction. However, under Alternative 2, vibratory pile drivers would need to be used for the installation of culverts within the San Gabriel River levee. This would increase the vibration generated during construction of Alternative 2. The operation of heavy equipment generates vibrations that propagate though the ground and diminish in intensity with distance from the source. Residences were conservatively assumed to be 50 feet from the program area boundary. Vibratory pile drivers would have a vibration level of 0.17 in/sec peak particle velocity (PPV) at a reference distance of 25 feet (FTA, 2018). Therefore, Alternative 2 would generate vibration levels at 50 feet that would not exceed the structural damage potential criteria of 0.5 in/sec PPV or exceed the vibration criteria for human annoyance of 0.04 in/sec PPV. Residences are located as close as approximately 50 feet outside of the program area boundary, and program restoration activities with the operation of heavy equipment (i.e., bulldozer) would not occur at the program area boundary. With regard to vibration during operation, as operational activities under Alternative 2 would be similar to those of the proposed program, vibration associated with operation of the program would be below the structural damage and human annoyance criteria. Therefore, the potential vibration impacts for structural damage at off-site residences and human annoyance during construction and operation of Alternative 2 would be less than significant, but greater than the less-then-significant impacts identified for the proposed program due to the use of vibratory pile drivers required for development of Alternative 2.

5.7.2.12 Public Services

As construction and operational components under Alternative 2 would be similar to the proposed program, there would be a similar potential increase in demand for fire protection and police protection services. Both Alternative 2 and the proposed program would result in a small incremental increase in demand for fire and police protection services. Similar to the proposed

program, this alternative, would not require new or physically altered government facilities. Impacts under Alternative 2 would be similar to the less-than-significant with mitigation impacts identified for the proposed program for fire protection and similar to the less-than-significant impacts identified for the proposed program for police protection.

5.7.2.13 Recreation

Similar to the proposed program, Alternative 2 would include the development of new recreational facilities, including the Seal Beach Visitor Center, overlooks, pedestrian trails, and potential sidewalk improvements, and would improve recreational resources in the City of Seal Beach and City of Long Beach. As noted above, since Alternative 2 includes the installation of a culvert or set of culverts rather than breaching the levee, this would allow for a loop trail to be constructed along the existing San Gabriel River levee and the Perimeter Levee and would allow for visitors to view areas within the proposed program that were once inaccessible areas on site, and gain better views of the on-site wetland habitat. Thus, impacts under Alternative 2 would be less than significant and similar to the less-than-significant impacts identified for the proposed program.

5.7.2.14 Transportation

As the height and footprint of the Perimeter and Interim Levees would be reduced under Alternative 2, compared to the proposed program, fewer tug boat and/or haul truck trips would be required overall; all other components of construction and operation under Alternative 2 would be similar to the proposed program. On a daily basis, Alternative 2 would be expected to require roughly the same level of construction effort and the number of construction vehicles as the proposed program and operation of Alternative 2 would be the same as the proposed program. As with the proposed program, Alternative 2 would implement mitigation during construction which would require the preparation and implementation of a traffic control plan and would serve to reduce impacts during construction. Impacts under Alternative 2 related to consistency with a program plan, ordinance, or policy addressing the circulation system as well as impacts related to increasing hazards would be less than significant with mitigation and similar to the less-than-significant impacts identified for the proposed program. As VMT produced under Alternative 2 would be similar to that of the propose program, impacts related to consistency with CEQA Guidelines section 15064.3, subdivision (b) would also be less than significant and similar to the less-than-significant impacts identified for the proposed program.

5.7.2.15 Tribal Cultural Resources

Similar to the proposed program, construction under this alternative would require ground disturbance; thus, there would be the potential to encounter tribal cultural resources. As such, Alternative 2 would implement similar mitigation measures as the proposed program. However, even with implementation of these mitigation measures, impacts to tribal cultural resources would be significant and unavoidable under Alternative 2. Impacts would be similar under Alternative 2 as compared to the impacts identified for the proposed program.

5.7.2.16 Utilities and Service Systems

As Alternative 2 would require similar construction and operational activities as the proposed program, water demand, wastewater generation, design of the on-site stormwater drainage facilities, electricity demand, and telecommunication demand would be the same under Alternative 2 as with the proposed program. As such, Alternative 2 would not result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. As with the proposed program, Alternative 2 would implement mitigation to reduce temporary pedestrian and traffic impacts during construction of water distribution lines and connections to the public main. As such, impacts would be less than significant with mitigation under Alternative 2. In addition, as water demand and wastewater generation during construction and operation of Alternative 2 would be similar to the proposed program, impacts related to available water supplies and capacity of wastewater treatment providers would be less than significant. Furthermore, as solid waste generation under Alternative 2 would be similar to that of the proposed program, impacts related to solid waste capacity of local infrastructure and consistency with federal, state, and local management and reduction statutes and regulations related to solid waste would be less than significant. All impacts analyzed under utilities and service systems for Alternative 2 would be similar to those of the proposed program.

5.7.2.17 Comparison of Impacts

As described above, under Alternative 2, a culvert or set of culverts would be installed within the northern San Gabriel River levee to connect the river to the Central Area rather than breaching the levee as in the proposed program. Additionally, the height and footprint of the Perimeter and Interim Levees would be reduced, compared to the proposed program. As such, all components of this alternative would remain the same as the proposed program except for the change to install a culvert or set of culverts rather than breach the levee in the Central Area and to reduce the height and footprint of the levees. Impacts related to noise and vibration were found to be greater under Alternative 2, while impacts related to soil erosion and top soil, GHG emissions, and wasteful, inefficient, and unnecessary consumption of energy would be less than the impacts under the proposed program. Impacts related to biological resources related to candidate, sensitive or special-status species, riparian habitat or sensitive natural communities, state or federally protected wetlands, native residential or migratory fish or wildlife species would be less than the impacts under the proposed program, but Alternative 2 would also create less wetland habitat than the proposed program because a portion of the levee along the San Gabriel River would not be removed and restored to wetlands. All impacts associated with the remaining environmental issues would be similar to impacts associated with the proposed program.

5.7.2.18 Relationship of the Alternative to the Project Objectives

Similar to the proposed program, Alternative 2 would meet all of the Project Objectives, in that it contains the same components as the proposed program.

5.8 Environmentally Superior Alternative to the Proposed Program

CEQA Guidelines Section 15126.6(e)(2) indicates that an analysis of alternatives to a project shall identify an Environmentally Superior Alternative among the alternatives evaluated in the EIR. The *CEQA Guidelines* also state that should it be determined that the No Program (No Build) Alternative is the Environmentally Superior Alternative, then the EIR shall identify another Environmentally Superior Alternative among the remaining alternatives.

A comparative summary of the environmental impacts anticipated under each alternative with the environmental impacts associated with the proposed program is provided above in Table 5-1, on page 5-28. A more detailed description of the potential impacts associated with each alternative is provided above. Pursuant to *CEQA Guidelines* Section 15126.6(c), the analysis presented above addresses the ability of the alternatives to "avoid or substantially lessen one or more of the significant effects" of the proposed program.

As previously stated, the intent of the alternatives analysis is to reduce the significant impacts of a project. Implementation of the proposed program would result in significant and unavoidable impacts on a program level with regard to emissions of NO_X, which would exceed the threshold for localized impacts to sensitive receptors. As the proposed program would have a localized impact from NO_X emissions, the proposed program would also have a significant impact related to consistency with the AQMP. In addition, the proposed program would have a significant and unavoidable impact related to historical resources, archaeological resources, and tribal cultural resources.

The No Program (No Build) Alternative would eliminate all of the significant impacts of the proposed program, including those related to consistency with the AQMP, localized emissions during construction, historical resources, archaeological resources, and tribal cultural resources, as there would be no change to the existing site conditions. As the No Program (No Build) Alternative eliminates the proposed program's significant impacts, it is determined to be the Environmentally Superior Alternative. In accordance with the *CEQA Guidelines* requirement to identify an Environmentally Superior Alternative other than the No Program (No Build) Alternative, Alternative 2 would reduce program impacts to biological resources related to candidate, sensitive or special-status species; riparian habitat or sensitive natural communities; state or federally protected wetlands; and native residential or migratory fish or wildlife species, and soil erosion and top soil, GHG emissions, and wasteful, inefficient, and unnecessary consumption of energy; however, Alternative 2 would not eliminate the significant impacts related to consistency with the AQMP, localized emissions during construction, historical resources, archaeological resources, and tribal cultural resources. In addition, impacts related to noise and vibration would be greater under Alternative 2. While the No Program (No Build) Alternative reduces impacts to a greater degree than the proposed program, in accordance with CEQA, the EIR is required to identify an Environmentally Superior Alternative other than the No Program (No Build) Alternative; as such, Alternative 2 is selected as the Environmentally Superior Alternative.

5.9 References

Environmental Science Associates (ESA). 2017. *Los Cerritos Wetlands Oil Consolidation and Restoration Project, Final Environmental Impact Report*, November 2017.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*, September.

Moffatt & Nichol. 2015. *Los Cerritos Wetlands Final Conceptual Restoration Plan*.

CHAPTER 6
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