Appendix L

Summary of Environmental Effects and Mitigation Measures for the Los Cerritos Wetlands Oil Consolidation and Restoration Project

ESA

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
3.1 Aesthetics		
Impact AES-1: The project would not have a substantial adverse effect on a scenic vista.	None required.	Less than Significant
Impact AES-2: The project would not substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	None required.	Less than Significant
Impact AES-3: The project would not result in substantial degradation of the visual character or quality of the site.	**Mitigation Measure AES-1:** Construction contractors shall be required to strictly control the staging and cleanliness of construction equipment stored on the project site. Staging areas shall be screened from view at street level with solid wood fencing or green fence. Prior to the issuance of a building permit, the Applicant shall submit a Construction Staging, Access, and Parking Plan to the City of Long Beach Planning and Development Services Department for review and approval. Construction workers would be required to park on the Synergy Oil Field site and would be bussed to their respective construction site. Construction worker vehicles and work vehicles shall be kept clean and free of mud and dust before leaving the project site. Project contractors shall be required to sweep surrounding streets used for construction access on a daily basis to keep them free of construction-related dirt and debris.	Less than Significant
Impact AES-4: The project 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 substantially impact other people or properties.	**Mitigation Measure AES-2: Lighting Plan.** Prior to issuance of a grading permit for each site, a Lighting Plan for the 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 would apply.	Less than Significant
3.2 Air Quality		
Impact AQ-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact AQ-2a: The project would violate the air quality standard and contribute substantially to an existing or projected air quality violation for construction-related VOC and NO_X emissions.	**Mitigation Measure AQ-1: Construction-Period Use of Low-VOC Paints.** The proposed project shall use paints with a VOC content of 75 grams per liter or less. **Mitigation Measure AQ-2: Construction 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 project including Tier IV certification, or lack of commercial availability if applicable, shall be maintained and made available by the contractor to the City 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 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. ● 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. ● Provide dedicated turn lanes for movement of construction trucks and equipment on and off site. ● Reroute construction trucks away from congested streets or sensitive receptor areas.	Significant and Unavoidable
Impact AQ-2b: The project would not violate the air quality standard and contribute substantially to an existing or projected air quality violation for operational-related NO_X emissions.	**Mitigation Measure AQ-3: Operational NO_X Reduction Measures.** Require all diesel-powered drilling rigs located at the Pumpkin Patch and LCWA sites to comply with EPA-certified Tier IV emission controls. This drilling rig equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB.	Less than Significant
Impact AQ-3a: The project would 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors) during construction.	Mitigation Measures AQ-1 and AQ-2 would apply.	Significant and Unavoidable
Impact AQ-3b: The project would not 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors) during operations.	Mitigation Measure AQ-3 would apply.	Less than Significant
Impact AQ-4: The project would not expose sensitive receptors to substantial pollutant concentrations in excess of the localized significance thresholds and would not result in CO hotspot impacts.	Mitigation Measures AQ-2 and AQ-3 would apply.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact AQ-5: The project would not create objectionable odors affecting a substantial number of people.	Mitigation Measures AQ-1 and AQ-2 would apply.	Less than Significant
Cumulative	Mitigation Measures AQ-1 through AQ-3 would apply.	Cumulatively Significant
3.3 Biological Resources		
Impact BIO-1: The project would not have a substantial adverse effect, either directly or through habitat modifications, on southern tarplant, estuary seablite and woolly seablite, which are special-status plant 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 Wildlife or U.S. Fish and Wildlife Service.	**Mitigation Measure BIO-1: Avoidance of Special-Status Plants.** Prior to vegetation or ground disturbance, a qualified botanist/biologist shall flag special-status plants located within 25 feet of proposed disturbance areas on the project site including southern tarplant, estuary seablite, and woolly seablite. Individual plants shall be marked or flagged for avoidance and a minimum no-disturbance buffer of 10 feet shall be established. The appropriate buffer distance shall be determined by the qualified botanist/biologist. If southern tarplant plants cannot be avoided, Mitigation Measure BIO-2 shall be implemented. **Mitigation Measure BIO-2: Re-establish Southern Tarplant on Synergy Oil Field, City Property, and Pumpkin Patch Sites.** Prior to any disturbance to special-status plants, a Southern Tarplant Restoration Plan shall be prepared and approved by CDFW. At a minimum, the Restoration Plan shall include the following: ● A map showing the areas to be restored following temporary impacts ● Weed management procedures to prevent introduction of invasive plant species on site prior to and during construction, and during maintenance ● Seed collection protocol ● Seed dispersal protocol ● Performance standards for the areas to be re-established ● Maintenance and monitoring procedures for the areas to be re-established ● Adaptive management strategies ● Reporting requirements	Less than Significant
Impact BIO-2: The project would not have a substantial adverse effect, either directly or through habitat modifications, on any special-status wildlife 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 Wildlife or U.S. Fish and Wildlife Service.	**Mitigation Measure BIO-3: Biological Monitoring.** All proposed project implementation shall occur under the supervision and direction of a qualified biologist. The biologist shall ensure maximum avoidance and minimization of impacts to wildlife and wetland vegetation during implementation of project activities on the Synergy Oil Field site, Pumpkin Patch site, and City site. Prior to the daily start of cleanup activities and at the end of the work day, wildlife monitoring by a qualified biologist shall include inspection of any hazardous features (e.g., open trenches) that would trap, displace, injure, or kill wildlife. Prior to the end of daily cleanup activities, the biologist shall ensure all trash is properly disposed of such that it would not be accessible to wildlife. For areas that contain suitable habitat for special-status wildlife, prior to and during all vegetation and ground-disturbing activities, a qualified biologist shall monitor work areas. If any special-status wildlife species are encountered during biological monitoring or by construction workers, work shall halt until the biologist determines appropriate actions to	Less than Significant

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Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	avoid and minimize harm to the species. California Fully-Protected species shall be avoided. Other actions may include relocation of the species for non-listed wildlife; however, relocation shall not be allowed for any listed species without first obtaining take authorization from USFWS and/or CDFW. To the extent feasible, non-listed wildlife shall be relocated to a CDFW/USFWS-approved relocation site that contains suitable habitat adjacent to the habitat where the species is found. **Mitigation Measure BIO-4: Belding's Savannah Sparrow Breeding Habitat.** Suitable breeding habitat shall be created on the Synergy Oil Field site at a minimum acreage of 1:1 (created: impacted). Suitable breeding habitat shall consist of areas dominated by pickleweed and Parish's glasswort with a minimum 60 percent cover with a hydrologic regime similar to that currently present in the northern area, with suitable slope, inundation and soil salinity. The re-establishment requirements for Belding's savannah sparrow suitable breeding habitat (dominated by pickleweed and Parish's glasswort) shall be addressed in the Restoration Plan for the Synergy Oil Field site as outlined in Mitigation Measure BIO-5. **Mitigation Measure BIO-5: Re-establish Sensitive Natural Community Vegetation Alliances Subject to Permanent and Temporary Impacts.** Sensitive natural communities located on the project site include California cordgrass marsh, Parish's glasswort patches, alkali heath marsh, pickleweed mats, Emory's baccharis thickets, black willow thicket, southern coastal brackish marsh, southern coastal salt marsh, and alkali meadow. Prior to any vegetation or ground disturbance associated with the Synergy Oil Field or City Property site, comprehensive restoration plans shall be prepared and implemented within 1 year of impacts to sensitive natural communities. The Restoration Plan for the Synergy Oil Field site will be subject to review and approval of the Interagency Review Team (IRT) led by the Corps, and evidence of the IRT's approval shall be submitted to the City prior to initiation of grading activity on the Synergy Oil Field site. The Revegetation Plan for the City Property site shall be reviewed and approved by the CCC. The plans shall include, at a minimum, the following: ● A map showing the areas to be restored following permanent and temporary impacts. ● Identify specific restoration actions (e.g., revegetation requirements, removal of non-native plants) to be implemented during restoration. ● Quantity and quality of vegetation communities to be restored on site. Permanent impacts shall be restored at a minimum of 2:1 and temporary impacts restored at 1:1. The amount and extent of restoration shall be identified and determined based on habitat quality prior to implementation of the Restoration Plan and the initiation of any vegetation or ground disturbance. ● Plant palette for each Sensitive Natural Communities subject to re-establishment. ● Specific measurable performance standards for the areas to be re-established to evaluate habitat development, species composition and ecosystem functions. ● A timeline for implementation (within 1 year of impacts to sensitive natural communities).	

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	● Provide specific protocols for monitoring, including sample design (e.g., number of replicates, locations for sample points, transects, etc.), sampling methods to be implemented, and statistical methods for analyzing the data. ● Maintenance procedures for areas to be re-established. ● Identify contingency plans (i.e., adaptive management procedures) to be implemented if specific performance goals are not met within the timeframe anticipated. ● Performance goals for the restoration that shall focus on habitat development, species composition, and ecosystem functions. ● Reporting requirements. **Mitigation Measure BIO-6: Nesting Bird and Raptor Avoidance.** A qualified biologist shall identify areas where nesting habitat for birds and raptors is present. To ensure the avoidance of impacts to native nesting avian species, the following measures shall be implemented pursuant to the MBTA and California Fish and Game Code: ● Construction and maintenance activities during operations within and adjacent to known and potential avian nesting habitat 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 (generally March 1 through August 31 for passerines and January 1 through August 31 for raptors), a qualified biologist shall conduct pre-construction nesting avian surveys within 5 days of the initiation of construction to determine the presence or absence of active nests. If a lapse in work of 5 days or longer occurs, another survey shall be conducted prior to work being reinitiated. Surveys shall include any potential habitat, including trees, shrubs, and on the ground, or on nearby structures that might be impacted by construction or maintenance activities that may cause nest destruction or abandonment, such as vegetation or weed removal, earth work, and vector control actions. ● If active nests are observed, an avoidance buffer shall be demarcated with exclusion fencing and shall be maintained until the qualified biologist determines that the young have fledged. Fence stakes designed with bolt holes shall be plugged with bolts or other materials to avoid entrapping birds. The initial avoidance buffer(s) shall extend a minimum of 500 feet in all directions for raptors and listed passerines such as Belding's savannah sparrow and Ridgway's rail, and 300 feet in all directions for all other native passerines. A reduced buffer may be implemented at the discretion of the biologist for non-listed passerines based on such factors as species-tolerance to human presence, location of the nest, and the timing of nest construction, such as whether the nest was constructed after construction is initiated; however, for raptors and listed passerines, the biologist shall obtain approval from USFWS and/or CDFW prior to allowing work to commence within the 500-foot buffer. **Mitigation Measure BIO-7: Habitat Assessment and Pre-Construction Surveys for Burrowing Owl.** A qualified biologist shall conduct a pre-construction burrowing owl survey of the project site prior to construction activities. If burrowing owls are detected, a Burrowing Owl Management Plan shall be prepared and approved by CDFW 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	

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	minimization and avoidance measures for burrowing owls, and measures to protect occupied habitat, such as avoidance and revegetation. **Mitigation Measure BIO-8: Avoidance of White-Tailed Kite Nesting.** Remove all trees on the site outside the white-tailed kite nesting season (February 1 through June 30). If it is not possible to remove trees during the non-breeding season, a qualified biologist shall conduct a survey no more than 5 days prior to tree removal to document the absence of nests. If active nests are detected, they shall be avoided and a 500-foot no-disturbance buffer established (or reduced as specified in BIO-6). The qualified biologist shall monitor the site weekly until the nestlings have fledged and are no longer dependent on the nest. **Mitigation Measure BIO-9: Minimization of Light Spillage.** A Project Lighting Plan shall be designed to minimize light trespass and glare into the avoided wetland habitat in the northeast portion of the site. Artificial lights shall be directed away from or shielded to prevent spillage into the avoided wetland habitat.	
Impact BIO-3: The project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Mitigation Measure BIO-5 would apply.	Less than Significant
Impact BIO-4: The project would not have a substantial adverse effect on federally or state protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	**Mitigation Measure BIO-10: Avoid or Minimize Impacts to Aquatic Habitat.** Temporary disturbance to, and permanent loss of, all aquatic habitat shall be avoided to the maximum extent feasible. All temporary staging areas and access roads, if necessary, shall be located away from aquatic habitats to the extent practicable, and aquatic habitats abutting impacted areas shall be clearly demarcated with fencing, rope, or signage to avoid inadvertent disturbance during restoration activities and operations. As detailed grading plans are prepared, they shall be designed to avoid temporary and permanent impacts to aquatic habitats to the extent practicable. **Mitigation Measure BIO-11: Post-Restoration Functional Lift Assessments of Wetland Waters of the U.S./State and Coastal Wetlands.** Upon completion of restoration activities, the project shall demonstrate a no net loss of aquatic resource functions and demonstrate a substantial increase in wetland functions and values throughout the entire site. An assessment of habitat functions, such as biotic structure and hydrology, shall be conducted as part of the project's monitoring and reporting program outlined in the Final Restoration Plan for the Upper Los Cerritos Wetlands Mitigation Bank, so that these agencies can verify that the functional values have been achieved and/or provide measures that need to be implemented to meet the appropriate level of functionality.	Less than Significant
Impact BIO-5: The project 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.	None required.	Less than Significant
Impact BIO-6: The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	None required.	Less than Significant

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Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Cumulative	None required.	Less than Significant
3.4 Cultural Resources		
Impact CUL-1: The project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	**Mitigation Measure CUL-1: Recordation.** Prior to the issuance by the City of Long Beach of a grading or building permit for the relocation of the Bixby Ranch Field Office and a grading permit for the wetlands restoration work on the Synergy Oil Field, a recordation document in accordance with the Historic American Landscape Survey (HALS) and the Historic American Buildings Survey (HABS) Level II requirements shall be completed for the Bixby No. 2 Discovery Well and the Bixby Ranch Field Office, both of which are individually eligible. The HABS/HALS document shall be prepared by a qualified architectural historian or historic preservation professional. These documents shall include a historical narrative on the industrial and historical importance of the Synergy Oil Field and Seal Beach Oil Field for background information, in addition to recording the existing appearance of the Bixby Ranch Field Office and the Bixby No. 2 Discovery Well in professional large format HABS/HALS photographs. For HALS, the Bixby No. 2 Discovery Well, the property setting and contextual views shall be documented. For HABS, the exteriors of the Bixby Ranch Field Office, representative interior spaces, character-defining features, as well as the setting and contextual views shall be documented. All documentation shall be completed in accordance with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (HABS/HALS standards). Original archivally sound copies of the report shall be submitted to the HABS/HALS collection at the Library of Congress and the archives of the South Central Coastal Information Center, California State University, Fullerton, CA. Non-archival digital copies shall be distributed to the City of Long Beach, City of Long Beach Public Library, and the Long Beach Historical Society. In addition, any existing and available design and/or as-built drawings and pertinent supporting materials such as maps and aerial photographs shall be compiled, reproduced, and incorporated into the recordation document. **Mitigation Measure CUL-2: Retention of the Bixby No. 2 Discovery Well.** The Bixby No. 2 Discovery Well and sign shall be retained and preserved along with a 5-foot buffer around the furthest point from the concrete pad. Necessary maintenance to the sign shall be performed, see National Park Service Preservation Brief 25, "The Preservation of Historic Signs," by Michael J. Auer. A path for pedestrian traffic from the visitors center to the Discovery Well shall be developed and installed. At the Discovery Well site, a wayside sign shall be installed interpreting the Seal Beach Oil Field and the importance of the Bixby No. 2 Discovery Well. The interpretation of the Bixby No. 2 Discovery Well shall be overseen and prepared by a qualified architectural historian or historic preservation professional. **Mitigation Measure CUL-3: Historic Preservation Consultation, Preparation of a Relocation and Rehabilitation Plan, and Construction Monitoring.** The project design for Bixby Ranch Field Office is presently conceptual and detailed architectural drawings showing the proposed rehabilitation have not been prepared. A qualified architectural historian shall provide input to the project architect to revise the design in accordance with the Standards to retain the character-defining features of the exterior and interior of the Bixby Ranch Field Office. Once the design has been finalized, the architectural historian	Less than Significant

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Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	shall prepare a Standards plan review for submittal to the City of Long Beach Planning for a Certificate of Appropriateness. Following the approval of the Bixby Ranch Field Office project plans, a Relocation and Rehabilitation Plan (Plan) shall be developed by a qualified historic preservation consultant. The Plan shall include relocation and rehabilitation methodology recommended by the National Park Service (NPS), which are outlined in the booklet entitled "Moving Historic Buildings," by John Obed Curtis (1979). The Plan shall include an assessment of the building condition by a qualified engineer, and a shoring plan for relocation and storage, and guidelines for relocation to the final site. If temporary storage is required, the storage conditions should closely follow the recommendations of NPS Preservation Brief 31: Mothballing Historic Buildings with regard to recommendations for structural stabilization, pest control, protection against vandalism, fire, and moisture, adequate ventilation which should be applied to the building at the temporary storage location to ensure the safety of the building during storage. A periodic maintenance and monitoring plan shall also be included in the Plan and implemented during the storage period in accordance with the guidance outlined in NPS Preservation Brief 31. The Plan shall be reviewed and approved by the City prior to issuance by the City of permits to relocate the Bixby Ranch Field Office. Upon relocation of the Bixby Ranch Field Office, any maintenance, repair, stabilization, rehabilitation, preservation, conservation, or reconstruction work performed in conjunction with the relocation of the building shall be undertaken in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Properties. The relocation and rehabilitation process shall be monitored by a qualified historic preservation consultant at key intervals to ensure conformance with the Standards and NPS guidelines. The preservation consultant shall also be available to provide technical expertise to reduce potential impacts to historical resources from unforeseen circumstances. Lastly, a permanent metal plaque shall be affixed to the primary elevation or a marker shall be imbedded in the pavement in front of the primary elevation of the relocated Bixby Ranch Field Office, which will briefly explain where the building was originally located (original and second location) and that the building was relocated to a third location. A qualified architectural historian or historic preservation professional shall provide oversight to the design and fabrication of an interpretive plaque/marker. **Mitigation Measure CUL-4: Interpretation.** Interpretation about the significant history of the Synergy Oil Field shall be placed within the Bixby Ranch Field Office (the proposed visitors center), and along the proposed walking trails. The interpretation shall use the recommendations from Mitigation Measures CUL-2 (Retention) and CUL-3 (Recordation) to interpret the history of the Los Angeles Basin Oil Industry, Long Beach Oil Industry, Seal Beach Oil Field (including the Bixby and McGrath leases), Rancho Los Alamitos Company, Synergy Oil Field, Marland Oil Company, and Continental Oil Company. Furthermore, oral histories shall be conducted of previous employees who worked on the Synergy Oil Field or Seal Beach Oil Field, or experts with knowledge of the abovementioned themes to incorporate within the interpretive exhibit. Historical photographs, aerials, topographic maps, and newspapers shall compliment the interpretive exhibit to visually demonstrate the activities that took place on the Synergy Oil Field. A qualified architectural historian or	

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	historic preservation professional shall provide oversight to the design and installation of an interpretive program. **Mitigation Measure CUL-5: Retention of Qualified Archaeologist and Worker Training.** Prior to the issuance of a grading permit for project implementation, evidence shall be provided to the City that a qualified archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Secretary of the Interior 2008) has been retained by the City to conduct any required training, evaluation, or treatment of archaeological resources that might be encountered during implementation of the project. As part of this, prior to the start of grading, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel must be informed of the types of archaeological resources that may be encountered (both prehistoric and historical), and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. The City must ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **Mitigation Measure CUL-6: Native American Monitoring.** A Native American monitor from the Gabrieleño Band of Mission Indians—Kizh Nation, a consulting party for the project under AB 52, shall be present during all earth-moving construction activities. The Native American monitor shall be given the opportunity to participate in the cultural resources sensitivity training described in Mitigation Measure CUL-5. At least 30 days prior to issuance of grading permits, a Native American Monitoring Agreement (Monitoring Agreement) shall be developed between the City and the Gabrieleño Band of Mission Indians—Kizh Nation. The agreement shall pertain to prehistoric archaeological resources and Tribal cultural resources, respectively, and shall identify any monitoring requirements and treatment of cultural resources to meet both the requirements of CEQA and those of the Tribal representative. The Monitoring Agreement shall also address communication protocols in the event of an unanticipated discovery of cultural materials, and the roles, responsibilities, and authorities of the Native American Monitor. The Monitoring Agreement shall also detail the protocols for treatment and final disposition of any Native American cultural resources, sacred sites, and human remains discovered on the site that the Native American Monitor shall implement in consultation and coordination with the Native American Most Likely Descendant, as identified by the NAHC. In accordance with Mitigation Measure CUL-9, discussed below, discovery and treatment of human remains shall comply with State Health and Safety Code Section 7050.5 and PRC Section 5097.98. **Mitigation Measure CUL-7: Archaeological Resource Discovery and Treatment.** In the event of the unanticipated discovery of archaeological or other cultural resources, whether discovered through Native American monitoring or not, all work activities in the area (within approximately 100 feet of the discovery) shall be halted or redirected until the discovery can be evaluated by a qualified archaeologist. Construction shall not resume until a qualified archaeologist has conferred with the City and, in the case of prehistoric archaeological resources, the Native American monitor, on the significance of the resource. If it is determined that the discovered archaeological resource is significant under CEQA, avoidance and preservation in place shall be the preferred manner of mitigation, pursuant to PRC Section 21083.2(b). 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	

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	a permanent conservation easement. In the event that preservation in place is demonstrated to be infeasible and data recovery through excavation is the only feasible mitigation available, a Treatment Plan shall be prepared and implemented by a qualified archaeologist, in consultation with the City, that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The City shall also consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered. Any evaluation and treatment shall be supervised by an individual or individuals that meet the Secretary of the Interior's Professional Qualification Standards.	
Impact CUL-2: The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Mitigation Measures CUL-5 through CUL-7 would apply.	Less than Significant
Impact CUL-3: The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Mitigation Measure CUL-8: Paleontological Monitoring.** Prior to commencement of any grading or excavation activity on site, the City shall retain a qualified paleontologist, defined as a paleontologist meeting the guidelines of the Society of Vertebrate Paleontology (SVP) (2010). The qualified paleontologist, or a designated paleontological monitor working under the guidance of the qualified paleontologist, shall attend and participate in any preconstruction meetings and worker training (as discussed in Mitigation Measure CUL-5), and shall be on site during all excavation and other significant ground-disturbing activities that reach a depth of 15 feet or greater below the modern ground surface. This is the minimum depth at which Young Alluvial Fan and Channel Deposits, Undivided may be encountered. These deposits are considered to have low paleontological sensitivity near the top of the geologic unit (which may not necessarily correspond with the modern ground surface), and a high paleontological sensitivity greater than 15 feet below the top of the unit. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activity, the paleontological monitor shall have the authority to temporarily halt or divert grading activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor shall allow grading to recommence in the area of the find. Daily field logs shall be prepared during the course of the monitoring, and upon completion of monitoring a final report shall be prepared.	Less than Significant

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Impact CUL-4: The project would not disturb any human remains, including those interred outside of formal cemeteries.	**Mitigation Measure CUL-9: Treatment of Human Remains.** In accordance with California Health and Safety Code Section 7050.5, if human remains are found, the Los Angeles County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains (100 feet or as determined by the project archaeologist) shall occur until the procedures set forth in this measure have been implemented. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California PRC Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.	Less than Significant
Cumulative	Mitigation Measures CUL-1 through CUL-9 would apply.	Less than Significant
3.5 Geology and Soils		
Impact GEO-1: The project would not expose people or structures to potential substantial adverse effects as a result of rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map.	None required.	Less than Significant
Impact GEO-2: The project would not expose people or structures to potential substantial adverse effects as a result of strong seismic ground shaking.	**Mitigation Measure GEO-1: Implement Geotechnical Recommendations.** The Applicant shall prepare final geotechnical investigations for the following project components: ● Visitors center on the Synergy Oil Field site; ● Building on Pumpkin Patch site; ● All well cellars on the Pumpkin Patch and LCWA sites; and ● All tank battery areas on the Pumpkin Patch and LCWA sites. The geotechnical investigations shall provide recommendations as necessary to address relevant geotechnical issues such as active faults, seismic shaking, seismic-related ground failure including liquefaction, and other soil stability issues including expansive soils, as needed. These types of issues are addressed through compliance with the CBC, which requires geotechnical investigations to identify geotechnical hazards along with recommendations to reduce the identified risks. Risks from seismic shaking of structures such as the building to be constructed on the Pumpkin Patch site shall be reduced by designing the structures to withstand the anticipated maximum level of seismic shaking. The preliminary geotechnical investigation for the Pumpkin Patch site estimates the Maximum Credible Earthquake of 7.0 magnitude would result in a PGA of 0.604 g (KCG 2016a). Damage from seismic shaking of structures is reduced by designing buildings capable of withstanding or accommodating strong ground motion by using various bracing and anchoring techniques. Damage from soils susceptible to liquefaction can be addressed by driving piles through susceptible materials; conditioning the soils by deep soil mixing, jet or pressure grouting, or dynamic compaction techniques; or by removing the susceptible soils. Damage from placing structures on unstable materials (e.g., the landfill materials on the	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	Pumpkin Patch site) can be addressed by driving piles through unstable materials into underlying stable units or by removing the susceptible soils and replacing the materials with properly compacted imported fill. Damage from expansive soils can be addressed by removing and replacing expansive soils with imported non-expansive fill, or with proper mixing and grading of site materials. The Applicant shall provide the geotechnical investigations along with the plans, specifications, grading plans, and building plans to the City for review as a condition of approval to acquire the necessary grading and building permits. Upon approval by the City, implementation by the Applicant of the recommendations in the geotechnical investigations will mitigate geotechnical hazards.	
Impact GEO-3: The project would not expose people or structures to potential substantial adverse effects as a result of seismic-related ground failure, including liquefaction.	Mitigation Measure GEO-1 would apply.	Less than Significant
Impact GEO-4: The project would not expose people or structures to potential substantial adverse effects as a result of seismic-induced landslides.	None required.	Less than Significant
Impact GEO-5: The project would not result in substantial soil erosion or the loss of topsoil.	None required.	Less than Significant
Impact GEO-6: The project would not 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.	Mitigation Measure GEO-1 would apply.	Less than Significant
Impact GEO-7: The project could be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property.	Mitigation Measure GEO-1 would apply.	Less than Significant
Cumulative	Mitigation Measure GEO-1 would apply.	Less than Significant
3.6 Greenhouse Gas Emissions		
Impact GHG-1: The proposed project would generate GHG emissions, either directly or indirectly, but would not result in a significant impact on the environment.	**Mitigation Measure GHG-1: Cap-and-Trade Program.** The project shall comply with the Cap-and-Trade Program as administered by CARB for covered sources. In accordance with the Cap-and-Trade Program, the project shall retire GHG allowances or offsets equal to the project's GHG emissions for covered sources. Retiring the GHG allowances or offsets means the project would acquire them through a number of means carefully controlled by CARB, including obtaining allowances and offsets in CARB-controlled auctions with variable and increasing cost, according to projections and decreasing supply. The project shall also comply with all applicable and required reporting requirements and GHG reduction and trading requirements. The project shall also comply with all applicable Cap-and-Trade regulations as they continue to evolve, such as revisions to the Climate Change Scoping Plan, and become adopted by the California Legislature and/or through CARB's rulemaking process.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact GHG-2: The proposed project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	Mitigation Measure GHG-1 would apply.	Less than Significant
3.7 Hazardous and Hazardous Materials		
Impact HAZ-1: The project 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.	None required.	Less than Significant
Impact HAZ-2: The project 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.	None required.	No Impact
Impact HAZ-3: The project 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 construction 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 the project applicant and the Long Beach Hazardous Materials Division for review prior to commencement of construction. The Health and Safety Plan shall include, but is 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 Long Beach Hazardous Materials Division, the LARWQCB, and DOGGR, 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 shall develop and implement a Soil, Landfilled Materials, and Groundwater Management Plan that includes a materials disposal plan specifying how the construction contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The Plan must 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	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	the identification, transportation, and disposal of hazardous materials, including those encountered in excavated soil or dewatering effluent. As part of the Soil 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 must 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 project applicant and Long Beach Hazardous Materials Division for review and approval prior to commencement of construction.	
Impact HAZ-4: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	None required.	Less than Significant
Impact HAZ-5: The project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	None required.	No Impact
Cumulative	None required.	Less than Significant
3.8 Hydrology and Water Quality		
Impact HY-1: The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality.	None required.	Less than Significant
Impact HY-2: The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table.	None required.	Less than Significant
Impact HY-3: The project would not substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation or flooding off site.	None required.	Less than Significant
Impact HY-4: The project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact HY-5: The project would not place buildings, oil production infrastructure, workers, or the public within areas anticipated to be inundated due to sea level rise.	None required.	Less than Significant
Impact HY-6: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	None required.	Less than Significant
Impact HY-7: The project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.9 Land Use and Planning		
Impact LU-1: The project would not physically divide an established community.	None required.	Less than Significant
Impact LU-2: The project would not conflict with most applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, adopted for the purpose of avoiding or mitigating an environmental effect.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.10 Mineral Resources		
Impact MR-1: The project would not result in the loss of availability of a known or locally important mineral resource that would be of value to the region and the residents of the state or is delineated on a local General Plan, Specific Plan, or other land use plan.	None required.	No Impact
Cumulative	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
3.11 Noise		
Impact NOI-1: The project would not result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**Mitigation Measure NOI-1:** Prior to issuance of the permits for the drilling and drilling equipment at the Pumpkin Patch and LCWA sites, a detailed noise assessment shall be prepared to demonstrate that the resultant noise levels from oil production activities will meet the City of Long Beach Noise Ordinance limits. The operational noise assessment shall be prepared by a qualified acoustical consultant who is a Registered Engineer in the State of California. The report shall document the specific sources of noise and detail any measures, if any are required, to ensure that operational noise is maintained within the City's standards. These measures will be incorporated into the project plans. The report shall be completed and approved by the City prior to issuance of building permits. Additionally, once the sites are in operation, noise measurements should be conducted within 60 days that demonstrate both oil production sites are in compliance with the City's Noise Ordinance. If any exceedances are detected, the City shall require that noise attenuation measures, such as equipment enclosures, mufflers, etc. are implemented, and require additional noise measurements be taken to demonstrate compliance with the City's Noise Ordinance.	Less than Significant
Impact NOI-2: The project would not result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels.	None required.	Less than Significant
Impact NOI-3: The project would not result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Mitigation Measure NOI-1 would apply.	Less than Significant
Impact NOI-4: The project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	**Mitigation Measure NOI-2: 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. **Mitigation Measure NOI-3: Limit Grading and Pile Driving.** All grading and sheet pile driving 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 the Biological section of the EIR for more information on potential impacts to bird species and the corresponding mitigation.) **Mitigation Measure NOI-4: Prohibit Impact Sheet Pile Driving.** Impact sheet pile driving should be prohibited on the Synergy Oil Field site. Only vibratory sheet pile driving shall be employed.	Less than Significant
Cumulative	None required.	Less than Significant
3.12 Population and Employment		
Impact PE-1: The project would not induce substantial indirect population growth.	None required.	Less than Significant
Cumulative	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
3.13 Public Services		
Impact PS-1: The project would not result in the need for new or physically altered facilities in order to maintain acceptable response times for fire protection and emergency medical services.	**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 project. Topics shall include general fire prevention practices such as avoiding smoking on site 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 project site 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 Long Beach Fire Department.	Less than Significant
Impact PS-2: The project would not result in the need for new or physically altered facilities in order to maintain acceptable response times for police protection services.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.14 Recreation		
Impact RE-1: The project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.	None required.	Less than Significant
Impact RE-2: The project would include recreational facilities but would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.15 Transportation and Traffic		
Impact TRA-1: The project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	None required.	Less than Significant
Impact TRA-2: The project would not conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact TRA-3: The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	None required.	No Impact
Impact TRA-4: The project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	None required.	Less than Significant
Impact TRA-5: The project would not result in inadequate emergency access.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.16 Tribal Cultural Resources		
Impact TCR-1: The project would not cause a substantial adverse change in the significance of a tribal cultural resource, as defined in CEQA PRC Section 21074(a) or (b).	Mitigation Measures CUL-5 through CUL-7 would apply.	Less than Significant
Cumulative	Mitigation Measures CUL-5 through CUL-7 would apply.	Less than Significant
3.17 Utilities and Service Systems		
Impact UT-1: The project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	None required.	Less than Significant
Impact UT-2a: The project would not require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	Less than Significant
Impact UT-2b: The project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	No Impact
Impact UT-3: The project would not require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	Less than Significant
Impact UT-4: The project would have sufficient water supplies available to serve the project from existing entitlements and resources.	None required.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact UT-5: The project would not result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	None required.	Less than Significant
Impact UT-6: The project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	None required.	Less than Significant
Impact UT-7: The project would comply with federal, state, and local statutes and regulations related to solid waste.	None required.	Less than Significant
Cumulative	None required.	Less than Significant
3.18 Energy Consumption		
Impact EN-1: The project would not result in the wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance.	Mitigation Measure AQ-3 would apply.	Less than Significant
Impact EN-2: The project would not increase demand on local and regional energy supplies, resulting in the need for additional capacity.	None required.	Less than Significant
Impact EN-3: The project would be consistent with existing energy standards, policies, and regulations.	Mitigation Measures AQ-2 and AQ-3 would apply.	Less than Significant
Cumulative	None required.	Less than Significant

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Pages ES-12 to ES-31, Table ES-5, Summary of Environmental Effects and Mitigation Measures/Project Requirements, cells shown below, is revised as follows:

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
3.1 Aesthetics		
…		
Impact AES-4: The project 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 substantially impact other people or properties.	**Mitigation Measure AES-2: Lighting Plan.** Prior to issuance of a grading permit for each site, a Lighting Plan for the site shall be developed and ~~implemented~~ submitted to the City of Long Beach Planning and Development Services Department 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 and working at the oil facilities on the Pumpkin Patch and the LCWA sites. Compliance with the approved Lighting Plan shall be implemented through the City's development review and building plan check process.	Less than Significant
…		
3.2 Air Quality		
…		
Impact AQ-2a: The project would violate the air quality standard and contribute substantially to an existing or projected air quality violation for construction-related VOC and NO_X emissions.	**Mitigation Measure AQ-1: Construction-Period Use of Low-VOC Paints.** The Applicant for the proposed project shall be responsible for the use of SCAQMD Rule 1113–compliant paints with a VOC content of ~~75~~50 grams per liter or less. **Mitigation Measure AQ-2: Construction NO_X Reduction Measures.** The Applicant for the proposed project 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 project, including Tier IV certification, or lack of commercial availability if applicable, shall be maintained and made available by the contractor to the City 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 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, the City 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 phases 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. ● Eliminate the use of all portable generators. Require the use of electricity from power poles rather than temporary diesel or gasoline power generators.	Significant and Unavoidable

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	● 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 project site shall be engine model year 2010 or later or shall comply with the USEPA 2007 on-road emissions standards.	
…		
3.4 Cultural Resources		
Impact CUL-1: The project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	… **Mitigation Measure CUL-2: Retention of the Bixby No. 2 Discovery Well.** Prior to the issuance of a grading permit for the Synergy Oil Field site by the City of Long Beach, a plan shall be implemented by the Applicant for the retention and preservation of t~~T~~he Bixby No. 2 Discovery Well and sign ~~shall be retained and preserved~~ along with a 5-foot buffer around the furthest point from the concrete pad. ~~Necessary~~ The plan shall define the necessary maintenance to the sign that shall be performed~~,~~ (see National Park Service Preservation Brief 25, "The Preservation of Historic Signs," by Michael J. Auer). The plan shall describe a~~A~~ path for pedestrian traffic from the visitors center to the Discovery Well that shall be developed and installed. At the Discovery Well site, a wayside sign shall be installed interpreting the Seal Beach Oil Field and the importance of the Bixby No. 2 Discovery Well. The interpretation of the Bixby No. 2 Discovery Well shall be overseen and prepared by a qualified architectural historian or historic preservation professional. The ongoing maintenance of the Bixby No. 2 Discovery Well site shall be the responsibility of the owner of this area of the Synergy Oil Field site. **Mitigation Measure CUL-3: Historic Preservation Consultation, Preparation of a Relocation and Rehabilitation Plan, and Construction Monitoring.** Prior to the issuance of a grading permit for the Synergy Oil Field site by the City of Long Beach, a Relocation and Rehabilitation Plan and plans for Construction Monitoring shall be submitted by the Applicant for review and approval. The project design for Bixby Ranch Field Office is presently conceptual and detailed architectural drawings showing the proposed rehabilitation have not been prepared. A qualified architectural historian shall provide input to the project architect to revise the design in accordance with the Standards to retain the character-defining features of the exterior and interior of the Bixby Ranch Field Office. Once the design has been finalized, the architectural historian shall prepare a Standards plan review for submittal to the City of Long Beach Planning for a Certificate of Appropriateness. Following the approval of the Bixby Ranch Field Office project plans, a Relocation and Rehabilitation Plan (Plan) shall be developed by a qualified historic preservation consultant. The Plan shall include relocation and rehabilitation methodology recommended by the National Park Service (NPS), which are outlined in the booklet entitled "Moving Historic Buildings," by John Obed Curtis (1979). The Plan shall include an assessment of the building condition by a qualified engineer, and a shoring plan for relocation and storage, and guidelines for relocation to the final site. If temporary storage is required, the storage conditions should	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	closely follow the recommendations of NPS Preservation Brief 31: Mothballing Historic Buildings with regard to recommendations for structural stabilization, pest control, protection against vandalism, fire, and moisture, adequate ventilation which should be applied to the building at the temporary storage location to ensure the safety of the building during storage. A periodic maintenance and monitoring plan shall also be included in the Plan and implemented during the storage period in accordance with the guidance outlined in NPS Preservation Brief 31. The Plan shall be reviewed and approved by the City prior to issuance by the City of permits to relocate the Bixby Ranch Field Office. Upon relocation of the Bixby Ranch Field Office, any maintenance, repair, stabilization, rehabilitation, preservation, conservation, or reconstruction work performed in conjunction with the relocation of the building shall be undertaken in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Properties. The relocation and rehabilitation process shall be monitored by a qualified historic preservation consultant at key intervals to ensure conformance with the Standards and NPS guidelines. The preservation consultant shall also be available to provide technical expertise to reduce potential impacts to historical resources from unforeseen circumstances. Lastly, a permanent metal plaque shall be affixed to the primary elevation or a marker shall be imbedded in the pavement in front of the primary elevation of the relocated Bixby Ranch Field Office, which will briefly explain where the building was originally located (original and second location) and that the building was relocated to a third location. A qualified architectural historian or historic preservation professional shall provide oversight to the design and fabrication of an interpretive plaque/marker. … **Mitigation Measure CUL-5: Retention of Qualified Archaeologist and Worker Training.** Prior to the issuance of a grading permit for ~~project implementation~~ each of the four individual sites and any off-site improvements by the City of Long Beach, evidence shall be provided to the City that a qualified archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Secretary of the Interior 2008) has been retained by the City to conduct any required training, evaluation, or treatment of archaeological resources that might be encountered during implementation of the project. As part of this, prior to the start of grading, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel must be informed of the types of archaeological resources that may be encountered (both prehistoric and historical), and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. The ~~City~~ Applicant must ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. This documentation shall be made available to the City upon request. **Mitigation Measure CUL-6: Native American Monitoring.** A Native American monitor from the Gabrieleño Band of Mission Indians—Kizh Nation, a consulting party for the project under AB 52, shall be present during all earth-moving construction activities. The Native American monitor shall be given the opportunity to participate in the cultural resources sensitivity training described in Mitigation Measure CUL-5. At least 30 days prior to issuance of grading permits by the City of Long Beach for each of the four individual sites and any off-site improvements, a Native American Monitoring Agreement (Monitoring Agreement) shall be developed between the City and the Gabrieleño Band of Mission Indians—Kizh Nation. The ~~agreement~~ Monitoring Agreement shall pertain to prehistoric archaeological resources and Tribal cultural resources, respectively, and shall identify any monitoring requirements and treatment of cultural resources to meet both the requirements of CEQA and those of the Tribal representative. The Monitoring Agreement shall also address communication protocols in the event of an unanticipated discovery of cultural materials, and the roles, responsibilities, and authorities of the Native American Monitor. The Monitoring Agreement shall also detail the protocols for	

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	treatment and final disposition of any Native American cultural resources, sacred sites, and human remains discovered on the site that the Native American Monitor shall implement in consultation and coordination with the Native American Most Likely Descendant, as identified by the NAHC. In accordance with Mitigation Measure CUL-9, discussed below, discovery and treatment of human remains shall comply with State Health and Safety Code Section 7050.5 and PRC Section 5097.98. **Mitigation Measure CUL-7: Archaeological Resource and/or Tribal Cultural Resource Discovery and Treatment.** In the event of the unanticipated discovery of archaeological or other cultural resources, whether discovered through Native American monitoring or not, all work activities in the area (within approximately 100 feet of the discovery) shall be halted or redirected until the discovery can be evaluated by a qualified archaeologist. Construction shall not resume until a qualified archaeologist has conferred with the City and, in the case of prehistoric archaeological resources and tribal cultural resources, the Native American monitor, on the significance of the resource. If it is determined that the discovered archaeological resource and/or tribal cultural resource is significant under CEQA, avoidance and preservation in place shall be the preferred manner of mitigation, pursuant to PRC Section 21083.2(b) and Section 21084.3. 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. In the event that preservation in place is demonstrated to be infeasible and data recovery through excavation is the only feasible mitigation available, a Treatment Plan shall be prepared and implemented by a qualified archaeologist, in consultation with the City, that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource or cultural information in the event of a tribal cultural resource. The City shall also consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered. Any evaluation and treatment shall be supervised by an individual or individuals that meet the Secretary of the Interior's Professional Qualification Standards.	
Impact CUL-2: The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.	Mitigation Measures CUL-5 through CUL-7 would apply.	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
Impact CUL-3: The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Mitigation Measure CUL-8: Paleontological Monitoring.** Prior to commencement of any grading or excavation activity on site, the ~~City~~ Applicant shall retain a qualified paleontologist, defined as a paleontologist meeting the guidelines of the Society of Vertebrate Paleontology (SVP) (2010) and approved by the City of Long Beach. The qualified paleontologist, or a designated paleontological monitor working under the guidance of the qualified paleontologist, shall attend and participate in any preconstruction meetings and worker training (as discussed in Mitigation Measure CUL-5), and shall be on site during all excavation and other significant ground-disturbing activities that reach a depth of 15 feet or greater below the modern ground surface. This is the minimum depth at which Young Alluvial Fan and ~~Channel~~ Valley Deposits, Undivided may be encountered. These deposits are considered to have low paleontological sensitivity near the top of the geologic unit (which may not necessarily correspond with the modern ground surface), and a high paleontological sensitivity greater than 15 feet below the top of the unit. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activity, the paleontological monitor shall have the authority to temporarily halt or divert grading activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor shall allow grading to recommence in the area of the find. Daily field logs shall be prepared during the course of the monitoring, and upon completion of monitoring a final report shall be prepared for submittal to the City of Long Beach.	Less than Significant
…		
3.5 Geology and Soils		
…		
Impact GEO-2: The project would not expose people or structures to potential substantial adverse effects as a result of strong seismic ground shaking.	**Mitigation Measure GEO-1: Implement Geotechnical Recommendations.** ~~The Applicant shall prepare final geotechnical investigations for the following project components~~ As recommended in the geotechnical studies prepared for project implementation on each project site, at such time the details for the following site specific improvements and their locations are finalized, a design-level geotechnical investigation shall be prepared to develop final site- and development-specific recommendations based upon the potential geologic conditions that are described and evaluated in the geotechnical studies and this EIR. Design-level geotechnical investigation shall be prepared for the following project components and shall be submitted to the City of Long Beach, Building Department and Planning Department: ● Visitors center on the Synergy Oil Field site; ● Office b~~B~~uilding and warehouse on the Pumpkin Patch site; ● All well cellars on the Pumpkin Patch and LCWA sites; and ● All tank battery and containment areas on the Pumpkin Patch and LCWA sites. The design-level geotechnical investigations shall provide recommendations as necessary to address ~~relevant~~ the geotechnical issues that were identified for each site in the EIR~~ such as active faults, seismic shaking, seismic-related ground failure including liquefaction, and other soil stability issues including expansive soils, as needed. These types of issues are addressed through compliance with the CBC, which requires geotechnical investigations to identify geotechnical hazards along with recommendations to reduce the identified risks~~. In addition to compliance with the CBC, design-level measures shall be provided for the following specific geotechnical issues: ● Risks from seismic shaking of structures such as the building to be constructed on the Pumpkin Patch site shall be reduced by designing the structures to withstand the anticipated maximum level of seismic ground	Less than Significant

Table ES-5 Summary of Environmental Effects and Mitigation Measures/Project Requirements

Impacts	Mitigation Measures and/or Project Requirements	Level of Significance after Mitigation
	shaking, and incorporating bracing and anchoring techniques to withstand a~~. The preliminary geotechnical investigation for the Pumpkin Patch site estimates the~~ Maximum Credible Earthquake of 7.0 magnitude ~~would result in a PGA of 0.604 g (KCG 2016a). Damage from seismic shaking of structures is reduced by designing buildings capable of withstanding or accommodating strong ground motion by using various bracing and anchoring techniques. Damage from soils~~ ● For those project sites that have been identified as susceptible to liquefaction~~ can be addressed by~~, the design-level geotechnical investigations shall identify the specific measures recommended to address liquefaction potential, which could include driving piles through susceptible materials; conditioning the soils by deep soil mixing, jet or pressure grouting, or dynamic compaction techniques; or by removing the susceptible soils. ● ~~Damage from placing structures on unstable materials (e.g.,~~ If the landfill ~~materials~~ on the Pumpkin Patch site~~) can be addressed~~ is not removed, any structures proposed to be placed on top of the landfill shall be stabilized by one of two measures: by driving piles through unstable materials into underlying stable units or by removing the susceptible soils and replacing the materials with properly compacted imported fill. ~~Damage from~~ ● For those sites on which structures may be placed in areas of expansive soils~~ can be addressed by removing and replacing expansive soils~~, the design-level geotechnical study shall identify whether the expansive soils should be removed and replaced with imported non-expansive fill, or with proper mixing and grading of site materials. ● The Applicant shall provide the design-level geotechnical investigations along with the plans, specifications, grading plans, and building plans to the City for review as a condition of approval to acquire the necessary grading and building permits.~~ Upon approval by the City,~~ ● I~~i~~mplementation by the Applicant of the recommendations in the geotechnical investigations will mitigate geotechnical hazards to a level of less than significant.	
…		