Appendix D

Cultural Resources
D1 Historic Resources Assessment
HISTORIC RESOURCES ASSESSMENT

LOS CERRITOS OIL CONSOLIDATION AND
WETLAND RESTORATION PROJECT
CITY OF LONG BEACH, COUNTY OF LOS ANGELES, CALIFORNIA

LSA
January 2017
HISTORIC RESOURCES ASSESSMENT

LOS CERRITOS OIL CONSOLIDATION AND WETLAND RESTORATION PROJECT
CITY OF LONG BEACH, COUNTY OF LOS ANGELES, CALIFORNIA

Submitted to:

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LSA Project Number LYC1501
MANAGEMENT SUMMARY

LSA Associates, Inc. (LSA) conducted a historic resources assessment for the Los Cerritos Oil Consolidation and Wetland Restoration Project, located in the City of Long Beach, County of Los Angeles, California. The assessment included archival research, a field survey, and an impacts assessment and this report. The subject property is approximately 199 acres and is currently developed with an office building, outbuildings, and oil and gas industry infrastructure such as pumps, pipes, and storage tanks.

The 199 - acre project consists of four sites: the Synergy Oil Field Site (154 acres), the “Pumpkin Patch” Site (7 acres), the Los Cerritos Wetlands Authority (LCWA) Site (5 acres), and the City Marketplace Marsh (33 Acres) Site (33 acres). The Synergy Oil Field Site is located at 6433 East 2nd Street generally bounded by the Pacific Coast Highway to the west, the Los Cerritos Channel to the north, Studebaker Road to the east, and E. 2nd Street to the south. The “Pumpkin Patch” Site is located at 6701 East Pacific Coast Highway at the northeast corner of the intersection with the San Gabriel Channel. The LCWA Site is located at the northeast corner of the intersection of Studebaker Road and Westminster Boulevard. The City Marketplace Marsh Site is located between East 2nd Street to the north and the San Gabriel River to the south and east; it is bounded by the Marketplace shopping mall to the west. The project area is depicted on the 1981 United States Geological Survey (USGS) Los Alamitos, California, 7.5-minute topographic quadrangle map in un-sectioned lands of the Los Alamitos Land Grant.

At the Synergy Oil Field Site, also known as the Bixby A Lease, the project proposes to establish a wetlands mitigation bank and public access trail, implement a wetlands restoration plan, construct public access improvements, and convert the Bixby Ranch Field Office to a visitors’ center. The project also proposes the removal of 37 oil wells.

Oil production activities will be conducted from the “Pumpkin Patch” Site where the project proposes construction of an office building, a storage/warehouse, parking, a “wet oil” storage tank, a “skim oil” storage tank, a screen wall around the perimeter of the site, and drilling of up to 50 new wells and associated production facilities.

In addition, the project proposes drilling and operating approximately 70 oil wells on the LCWA Site. Wells operating from this site are able to access an oil horizon that cannot be accessed from the “Pumpkin Patch” Site. The project also proposes to construct an elevated piperack, a sales oil tank, and a barrel injection water tank. The site will also include a high ground flare, 3 gas turbines, and a high screen wall around the perimeter of the site. Improvements will be made to the entrance/exit.

At the City Marketplace Marsh (33 Acres) Site, the project includes removal and abandonment of the approximately 21 oil wells currently being operated there pursuant to the Surface Use Release Agreement and Grant of Easements (Surface Use Agreement) between the City of Long Beach (City) and LCW Oil Operations, LLC. The wells will be removed and abandoned in accordance with the Surface Use Agreement.
The City, as Lead Agency for the project, required this study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the City with the necessary CEQA-mandated information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical resources that may exist in or around the project area. In order to identify and evaluate such resources, LSA conducted historical background research and carried out an intensive-level field survey.

As a result of those efforts, the Bixby Ranch Field Office appears eligible for listing in the California Register of Historical Resources (California Register) under Criterion 1, at the local level because it is a resource with a direct association to the discovery of oil in Long Beach. In addition, it is eligible for designation under the City’s ordinance (Chapter 2.63 of the Long Beach Municipal Code) as a local Landmark under criterion 2.63.050(A).

The Bixby Ranch Field Office is a historical resource for the purposes of CEQA, and the proposed conversion of the building from its historic use as office space or worker housing to a new use as a visitors’ center may result in a substantial adverse change to the historical resource. Therefore, the project was analyzed using the Secretary of the Interior’s Standards (SOIS) for the Treatment of Historic Properties (Rehabilitation). Projects that meet the SOIS are considered to be mitigated to a level that is less than significant.

Based on the evaluation and SOIS analysis LSA recommends a finding of Less Than Significant with Mitigation Incorporated. In addition to the mitigation measures listed below, LSA also recommends conditions of approval to further enhance the integrity of the building and its ability to convey an association with its period of significance.

**RECOMMENDED MITIGATION MEASURES**

1. The following notes shall be added to the project plans to ensure compliance with the SOIS:

   - The removal of historic materials or alteration of features that characterize the building shall be avoided. Repair/replacement of materials shall be made in kind.
   - Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize the building shall be preserved and/or repaired/replaced in kind.
   - Any deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a character-defining feature, the new feature shall match the old in design, color, texture, and other visual qualities, and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical or pictorial evidence.
   - Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

2. The design plans and elevations for the new visitors center should retain the feeling of a utilitarian building associated with the early twentieth-century oil industry, and must be reviewed and approved by City staff prior to the issuing of building permits.
RECOMMENDED CONDITIONS OF APPROVAL

3. Revise the proposed project plans to eliminate the inconsistency between the West Elevation view and the Floor Plan (sheet CC-A-1) regarding the new stairs and guardrail at the northwest corner of the building.

4. Rehabilitate the primary (west) elevation and the south elevation in a manner consistent with the panoramic photograph of the Seal Beach Oil Field (Figures 5 and 6) by:
   - Removing the metal fabricated sign from the south elevation
   - Relocating the utility pole, air conditioners on pads, and electrical conduit on the south elevation to the rear elevation;
   - Replacing and/or adding downspouts as they appear in the panoramic photograph (Figure 5);
   - Removing the satellite dish from the roof;
   - Replacing or repairing the roof and exterior walls in a way that preserves the size, color, and pattern of the original roofing material and exterior wall cladding;
   - Gently removing the paint that covers up the restoration period sign on the framed board above the porch and entry on the primary elevation;
   - Reconstructing the porch, stairs flanked by piers, and walkway leading to the entry on the primary elevation in a way compatible with the massing size scale and architectural features of the original, as seen in Figures 5 and 6; and
   - Constructing the Americans with Disabilities Act (ADA) ramp, stair, and landing on the rear elevation.

STANDARD CONDITIONS

If buried cultural materials are encountered during earthmoving operations associated with the project after the removal and relocation of the above-ground oil field infrastructure or during the moving of the building, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.
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D: SYNERGY OIL FIELD SITE PLANS
E: ADDENDUM TO ADDRESS THE NATIONAL REGISTER OF HISTORIC PLACES
INTRODUCTION

LSA Associates, Inc. (LSA) conducted a historic resources assessment for the Los Cerritos Oil Consolidation and Wetland Restoration Project (project) located in the City of Long Beach (City), County of Los Angeles, California. The subject property consists of 25 parcels (listed below). Specifically, the project area is located in Section 3 and in unsectioned portions of Township 5 South, Range 12 West, and is depicted on the United States Geological Survey (USGS) Los Alamitos, California, 7.5 minute topographic quadrangle map, San Bernardino Baseline and Meridian (USGS 1981; Figures 1 and 2).

The City of Long Beach (City), as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC § 21000. et seq.) and the City’s Historic Preservation Commission Ordinance (Chapter 2.63 of the Long Beach Municipal Code). The purpose of the assessment was to determine whether “historical resources” (cultural resources eligible for listing in the California Register of Historical Resources) may be present within the proposed project area, whether they might be impacted by development of the project, and to make recommendations to mitigate any potential impacts to cultural resources. LSA performed the present study to provide the City with the necessary CEQA-mandated information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical resources that may exist in or around the project area. In order to identify and evaluate such resources, LSA conducted historical background research and carried out an intensive-level field survey. This report is a complete account of the methods, results, and final conclusion of the study.

The project consists of four sites: the Synergy Oil Field Site (154 acres; Assessor’s Parcel Numbers [APNs] 7237-107-010, -011, -012, -013, -014, -019, -805, -806, -807, -808, and -809), the “Pumpkin Patch” Site (7 acres; APNs 7237-010-043, 7237-020-003, -044, and -045), the Los Cerritos Wetlands Authority (LCWA) Site (5 acres; APNs 7237-020-003, -041, -044, -045, -051, -901, -903, and -904), and the City Marketplace Marsh (33 Acres) Site (33 acres; APNs 7237-019-007 and -809; Figure 2). The Synergy Oil Field Site is located at 6433 East 2nd Street between Pacific Coast Highway to the west, the Los Cerritos Channel to the north, Studebaker Road to the east, and 2nd Street to the south. The “Pumpkin Patch” Site is located at 6701 East Pacific Coast Highway at the northeast corner of the intersection with the San Gabriel Channel. The LCWA Site is located at the northeast corner of the intersection of Studebaker Road and Westminster Boulevard. The City Marketplace Marsh (33 Acres) Site is located between 2nd Street to the north and the San Gabriel River to the south.

SYNERGY OIL FIELD SITE

On the Synergy Oil Field Site, the project proposes to establish a wetlands mitigation bank and public access trail on the northerly approximately 78 acres of the 154-acre Synergy Oil Field (formerly known as the Bixby Oil Field), to implement a wetlands restoration plan on the southerly approximately 72 acres of the Synergy Oil Field, and to construct public access improvements, including a parking lot on existing disturbed areas and converting an existing building for use as a visitors’ center on the remaining approximately 4 acres of the Synergy Oil Field. The mitigation bank
provides for the phased restoration and permanent preservation of restored wetlands. The project also proposes the removal of 37 oil wells from the southerly 72 acres. The Synergy Oil Field is owned and operated by Beach Oil Minerals Partners.

“PUMPKIN PATCH” SITE

In order to facilitate the restoration of the approximately southerly 72 acres on the Synergy Oil Field and construction of the public access improvements, the warehouse structures currently on the Synergy Oil Field will be removed and a portion of the oil production activities currently being conducted at the Synergy Oil Field will be relocated to the 7-acre property located at 6701 E. Pacific Coast Highway (commonly known as the “Pumpkin Patch”). The office uses currently occupying the Bixby building on the Synergy Oil Field site would be relocated to a new approximately 5,200-square-foot (sf) two-story office building constructed on the Pumpkin Patch Site. Other proposed site developments include an approximately 9,750 sf of storage/warehouse, parking for 47 cars, drilling of up to 50 new wells (both oil production and water injection wells) and associated production facilities. The height of the office building is 35 feet (ft) and the storage/warehouse is 22 ft.

In addition to the 50 wells, two tanks will be constructed on the site: a 3,000-barrel tank for storing “wet oil” that is 30 ft in diameter and 24 ft high; and a 2,000-barrel “skim oil” tank that is 24 ft in diameter and 24 ft high. There is an existing oil well on the Pumpkin Patch Site that will be used on a temporary basis as a test well to confirm the feasibility of oil production operations on the Pumpkin Patch.

A 22 ft high screen wall will be built on the perimeter of the Pumpkin Patch Site. Vehicular access to the site will be from Studebaker Road. The structures will be set back 30 ft from Pacific Coast Highway and perimeter landscaping will be provided along Studebaker, Pacific Coast Highway, and the San Gabriel River Channel.

The Pumpkin Patch Site is owned by Beach Oil Minerals Partners. The Pumpkin Patch Site is currently vacant, except for one operating oil well. It is currently used for seasonal sales of pumpkins and Christmas trees.

Although the Pumpkin Patch Site is approximately 7 acres in size, the oil production operations will be located on 5 acres of the site closest to Pacific Coast Highway. The northeasterly 2-acre portion of the site will be retained as open space and used to provide a 100 ft buffer from the coastal wetland habitat area at the eastern edge of the site.

LCWA SITE

The project proposes the drilling and operation of up to 70 wells on a 5-acre parcel owned by LCWA located at Studebaker and Westminster (“LCWA Site”) to replace the oil production facilities currently on the Synergy Oil Field and the City’s 33 Acres. The LCWA Site is currently undeveloped and is used on a temporary lease basis for equipment storage and staging. Due to the geologic conditions at the Synergy Oil Field (i.e., the Newport-Inglewood Fault traverses the site), the oil field is divided between two operating areas, one on each side of the fault. The oil field operations north of
the fault extract oil from a subterranean oil horizon that cannot be accessed from Pumpkin Patch, but can be accessed from the LCWA Site.

The wells will be a combination of oil production well and water injection wells. In addition to the oil production area, the project proposes to construct an elevated piperack, a 21,000-barrel sales oil tank (35 ft in height and 75 ft in diameter), and a 5,000-barrel injection water tank (35 ft in height and 32 ft in diameter). The site will also include a 15–20 ft high ground flare and 3 gas turbines for on-site electrical power generation. A 22 ft high screen wall will be built on the perimeter of the LCWA Site. The project proposes to improve the existing driveway off Studebaker Road to a 30 ft entrance/exit, and to construct a secondary 30 ft access from Westminster Boulevard. Perimeter landscaping will be provided along the Studebaker Road and Westminster Boulevard frontage.

CITY MARKETPLACE MARSH (33 ACRES) SITE

The project proposes the removal of approximately 21 oil wells that are currently being operated on the 33 Acres, City-owned property located at Westminster and Shopkeeper Road. The wells are being operated pursuant to a Surface Use Release Agreement and Grant of Easements (“Surface Use Agreement”) between the City and LCW Oil Operations, LLC, and the wells would be removed and abandoned in accordance with the terms of the Surface Use Agreement, which requires abandonment to a standard acceptable to the State of California Division of Oil, Gas and Geothermal Resources at the time of abandonment and suitable for the City’s intended use for public open space.

The field survey was conducted by LSA archaeologists Terri Fulton and Phil Fulton. Ms. Fulton authored this report. LSA Principal Deborah McLean, M.A., RPA, oversaw all work associated with the project and reviewed this report.
METHODS

ARCHIVAL RESEARCH

LSA completed archival research during the months of December 2015 and January 2016. Research methodology focused on the review of a variety of primary and secondary source materials relating to the history and development of the project area. Sources included, but were not limited to, online sources, published literature in local and regional history, news articles, historic aerial photographs, and historic maps. Primary historical themes included City of Long Beach Development and Growth, 1921–1945 and Oil Industry History. Some of the resources contacted are listed below and a complete list of all references is included at the end of this report.

- Petroleum Collection, Long Beach Public Library
- Alamitos Land Company Papers, The Huntington Library, San Marino, California
- Historical Society of Long Beach
- Special Collections and Archives, California State University (CSU), Long Beach
- Rancho Los Alamitos Foundation
- Los Alamitos Museum
- Conoco Museum
- Historical Society of Oklahoma
- California Department of Conservation, Division of Oil, Gas and Geothermal Resources
- Los Angeles County Office of the Assessor, South District Office, Signal Hill, California
- City of Long Beach, Building & Safety, Construction Permits

FIELD SURVEY

On December 11, 2015, LSA architectural historian Gene Heck, assisted by Riordan Goodwin, conducted an intensive-level architectural survey of the Synergy site. The only historic-period resource identified was a small office building on the Synergy site. Mr. Goodwin took numerous photographs of the exterior of the historic-period office building, as well as other features such as pumps, storage tanks, pipes, accessory buildings, and sheds. Mr. Heck made detailed notations regarding the structural and architectural characteristics and current conditions of the building and associated features. He then conducted a brief reconnaissance survey of the vicinity to determine whether the project area is within a potential historic district. It was not necessary to survey the LCWA and the City Marketplace Marsh sites because there are no buildings or structures present.
RESULTS

RESEARCH

As previously discussed, the only historic-period resource identified in the project area is a small office building known as the Bixby Ranch Field Office. The key to understanding the historic significance of the Bixby Ranch Field Office is primary source evidence, which unfortunately did not include the original plans and drawings, or even building permits. However, an undated panoramic photograph of the Seal Beach Oil Field yielded the information needed to evaluate this building with respect to the California Register and the City of Long Beach (City) local ordinance. Lauren Nguyen, Librarian in charge of the Petroleum Collection at the Long Beach Public Library, assisted LSA in digitally scanning the photograph for this report. The image is used to assess the integrity of the building and to make impacts assessments and recommendations. Julie Bartolotto and her staff at the Historical Society of Long Beach provided research assistance in their extensive photographic collection. Kaye Briegel, Ph.D., Professor Emerita CSU Long Beach, generously shared her information about the Bixby family businesses and her oral history interview of Jan Law. Pam Seager, of the Rancho Los Alamitos Foundation, kindly shared information about the building’s signage and the proposed plans for converting it into a visitor’s center (Appendix A). Chloe Pascual, Archivist and Special Collections Librarian at University Library, CSU Long Beach, provided a rare book and helped repair a broken link to the Virtual Oral/Aural History Archive. Marilyn Poe at the Alamitos Museum provided advice on reliable secondary sources. The Historic Context Statement prepared by Sapphos Environmental, Inc. for the City has been relied upon extensively, as was the meticulous scholarship of Strudwick, et al. (1996) in previous studies. The current study adds the following to the previous studies: a discussion of the Marland Oil Co. merger with Conoco; the roles of the San Gabriel River Improvement Company, the Naples Company, and the Alamitos Land Company; discussions of the problem of subsidence and the program of repressurizing; and an explicit analysis of the panoramic photograph of the Seal Beach Oil Field.

Selected Chronology

(Adapted from Sapphos Environmental Inc., 2009: 5.1.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1542</td>
<td>Sailing under the flag of Spain, explorer Juan Rodriguez Cabrillo departs from Mexico and becomes the first European to navigate the California coast.</td>
</tr>
<tr>
<td>1769</td>
<td>Gaspar de Portolá leads an overland expedition from San Diego as far north as San Francisco Bay, passing through what would become Los Angeles County. Franciscan Father Junipero Serra founds the first of an eventual string of 21 missions in Alta California: Mission San Diego de Alcala.</td>
</tr>
<tr>
<td>1771</td>
<td>Mission San Gabriel Archangel becomes the fourth mission and is the closest to the area that would become the City of Long Beach.</td>
</tr>
<tr>
<td>1781</td>
<td>What would become Los Angeles is founded by 44 pobladores as El Pueblo de Nuestra Senora la Reina de Los Angeles del Rio Porciuncula.</td>
</tr>
<tr>
<td>1784</td>
<td>Spanish governor of California makes land grant of 300,000 acres (later reduced to 167,000), encompassing the future City of Long Beach, to retired soldier Manuel Nieto.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
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<tr>
<td>------</td>
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</tr>
<tr>
<td>1821</td>
<td>Mexico wins independence from Spain. California becomes a Mexican holding.</td>
</tr>
<tr>
<td>1834</td>
<td>The California missions are secularized. Nieto’s heirs divide their inheritance into five Ranchos; the 28,500-acre Rancho Los Alamitos is purchased by Governor José Figueroa.</td>
</tr>
<tr>
<td>1842</td>
<td>Abel Stearns acquires Rancho Los Alamitos.</td>
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<tr>
<td>1844</td>
<td>John Temple purchases Rancho Cerritos (Ranch of Little Hills).</td>
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<tr>
<td>1848</td>
<td>Under the Treaty of Guadalupe Hidalgo, California is ceded to the United States as a territory.</td>
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<tr>
<td>1849</td>
<td>The California Gold Rush begins, drawing thousands of prospectors and others to the state.</td>
</tr>
<tr>
<td>1850</td>
<td>California becomes the 31st state in the Union. The City of Los Angeles incorporates with a population of 1,610.</td>
</tr>
<tr>
<td>1853</td>
<td>William Phipps Blake, geologist and mineralogist for the Pacific Railroad Survey observes and notes the usefulness of oil near the City of Los Angeles.</td>
</tr>
<tr>
<td>1869</td>
<td>Transcontinental railroad is achieved when Union Pacific and Central Pacific meet at Promontory Summit, Utah.</td>
</tr>
<tr>
<td>1870</td>
<td>John D. Rockefeller and Henry Flagler found Standard Oil.</td>
</tr>
<tr>
<td>1875</td>
<td>Continental Oil and Transportation Company founded.</td>
</tr>
<tr>
<td>1876</td>
<td>Southern Pacific Railroad completes line to the City of Los Angeles. California Star Oil Works Company completes Pico No. 4, extending 300 ft in depth and producing 30 barrels per day; the state’s first truly commercial oil well.</td>
</tr>
<tr>
<td>1880</td>
<td>Oil discovered in the Los Angeles basin.</td>
</tr>
<tr>
<td>1881</td>
<td>William Erwin Willmore and the J. Bixby Company begin development of the American Colony and Willmore City on 4,000 acres of Rancho Los Cerritos.</td>
</tr>
<tr>
<td>1882</td>
<td>Rockefeller organizes his various oil holdings into the Standard Oil Trust, with headquarters in New York.</td>
</tr>
<tr>
<td>1884</td>
<td>Willmore City and American Colony are purchased and renamed Long Beach.</td>
</tr>
<tr>
<td>1885</td>
<td>Atchison, Topeka, and Santa Fe Railroad reaches San Bernardino. Continental Oil and Transportation Company reincorporated as Continental within the Standard Oil Trust.</td>
</tr>
<tr>
<td>1886–1888</td>
<td>Southern California real estate boom is sparked by a fare war between the Santa Fe and Southern Pacific Railroads.</td>
</tr>
<tr>
<td>1886</td>
<td>John W. Bixby lays out the Alamitos Beach town site in what is now east Long Beach.</td>
</tr>
<tr>
<td>1887</td>
<td>Santa Fe Railroad is extended to Los Angeles. The City of Long Beach incorporates with 800 citizens.</td>
</tr>
<tr>
<td>1888</td>
<td>Alamitos Land Company and Alamitos Water Company are formed, following the sudden death of John Bixby in 1887.</td>
</tr>
<tr>
<td>1891</td>
<td>The Los Angeles Terminal Railroad Company installs a rail line along Ocean Avenue to connect Long Beach with Los Angeles. Oil boom in Los Angeles; over 1,000 oil wells in the northwest part of town before 1901.</td>
</tr>
<tr>
<td>1897</td>
<td>The City of Long Beach unincorporates and reincorporates in a dispute over whether to remain a “dry” city.</td>
</tr>
<tr>
<td>1898</td>
<td>Sanborn Map Company reports that Long Beach has 2,000 winter residents and 6,000 summer residents. John B. Treadwell completes Summerland Treadwell Wharf extending into Santa Barbara Channel; the state’s first offshore oil well. By 1900, 19 wells operate on the pier.</td>
</tr>
<tr>
<td>1902</td>
<td>Long Beach is linked to the Pacific Electric interurban network. Long Beach population reaches 4,000 residents.</td>
</tr>
<tr>
<td>1905</td>
<td>Alamitos Beach is annexed by the City of Long Beach. San Gabriel River Improvement Company is formed.</td>
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<tr>
<td>Year</td>
<td>Event</td>
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<tr>
<td>------</td>
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</tr>
<tr>
<td>1907</td>
<td>“Panic of 1907.” (Aka “Bankers’ Panic” and “Knickerbocker Crisis” [a 3-week-long United States financial crisis]) Standard establishes Standard Oil of California.</td>
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<tr>
<td>1908</td>
<td>Caroll Park is annexed by the City of Long Beach. The Virginia Hotel opens.</td>
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<tr>
<td>1909</td>
<td>Virginia Country Club is established.</td>
</tr>
<tr>
<td>1910</td>
<td>Long Beach population reaches 17,809 residents. Belmont Heights is annexed by the City of Long Beach. Port of Long Beach opens. Alamitos Water Company is acquired by the City of Long Beach. United States Supreme Court orders the dissolution of the Standard Oil Trust.</td>
</tr>
<tr>
<td>1913</td>
<td>Continental Oil reincorporated after breakup of the Standard Oil Trust.</td>
</tr>
<tr>
<td>1914</td>
<td>World War I begins in Europe, concluding in 1918.</td>
</tr>
<tr>
<td>1915</td>
<td>Los Angeles Flood Control District is created.</td>
</tr>
<tr>
<td>1919</td>
<td>U.S. Navy designates Long Beach as headquarters for new Pacific Fleet.</td>
</tr>
<tr>
<td>1920</td>
<td>Zaferia, located in East Long Beach, is annexed by the City of Long Beach. Long Beach population is 55,000. Marland Oil Company founded.</td>
</tr>
<tr>
<td>1921</td>
<td>Oil is discovered on Signal Hill and becomes Long Beach’s primary industry. Standard Oil drills the first of 11 dry holes in Seal Beach Oil Field.</td>
</tr>
<tr>
<td>1922</td>
<td>Shell Oil drills “Bryant 1” in the Seal Beach Oil Field with an initial production of 100 barrels per day. Two gas blowouts occur during drilling. The well is drilled just north of the Newport-Inglewood Structural Zone and misses most of the productive sand. This well is abandoned in 1926 due to increasing water production.</td>
</tr>
<tr>
<td>1923</td>
<td>Long Beach Municipal Airport is established as Daugherty Field. Signal Hill incorporates to avoid annexation by the City of Long Beach. Warren F. McGrath starts dredging what later becomes Marine Stadium. Shell Oil follows up with “Bixby 1” located immediately south of Bryant 1. Although numerous signs of oil were noted during drilling, hot salt water (3,000 barrels per day) is produced on completion of the well.</td>
</tr>
<tr>
<td>1924</td>
<td>Cooper Arms becomes the first residential “high-rise” in the City of Long Beach.</td>
</tr>
<tr>
<td>1925</td>
<td>Long Beach population jumps to an estimated 135,000.</td>
</tr>
<tr>
<td>1926</td>
<td>Marland Oil drills “Bixby 2,” opening the Seal Beach Oil Field to commercial high production.</td>
</tr>
<tr>
<td>1927</td>
<td>Peak production is reached for the Seal Beach Oil Field: 70,000 barrels per day in June. Marland Oil initiates a pressure maintenance project using “Bixby 3” as a gas injection well.</td>
</tr>
<tr>
<td>1928</td>
<td>Pacific Southwest Exposition is held in Long Beach.</td>
</tr>
<tr>
<td>1929</td>
<td>Stock market crashes, marking the onset of the Great Depression. Marland Oil Company is consolidated into the Continental Oil Company (Conoco).</td>
</tr>
<tr>
<td>1931</td>
<td>Long Beach becomes one of the original charter members of the Metropolitan Water District.</td>
</tr>
<tr>
<td>1932</td>
<td>X Olympiad holds rowing events in Marine Stadium.</td>
</tr>
<tr>
<td>1933</td>
<td>On March 10, 1933, at 5:55 p.m. a 6.4-magnitude earthquake devastates Long Beach.</td>
</tr>
<tr>
<td>1936</td>
<td>The Wilmington Oil Field is discovered.</td>
</tr>
<tr>
<td>1937</td>
<td>Reeves Field opens on Terminal Island as the first permanent naval base in Long Beach.</td>
</tr>
<tr>
<td>1945</td>
<td>World War II ends.</td>
</tr>
<tr>
<td>1947</td>
<td>Construction of Interstate 710 (I-710; Long Beach Freeway) commences.</td>
</tr>
<tr>
<td>1949</td>
<td>California State University, Long Beach, is established.</td>
</tr>
</tbody>
</table>
1950–1956  | The City of Long Beach acquires 9.8 square miles of land through 69 annexations.
1951      | The Bixby Ranch Company is formed by Fred H. Bixby.
1953      | Tidelands restoration program begins.
1954      | Hancock Oil discovers the North Block East Extension area of the Seal Beach Oil Field, with a
discovery well producing 4,000 barrels per day. This well is the first of 29 wells drilled from a
man-made island in the tidal flats of Anaheim Bay.
1956      | Los Altos shopping center opens.
          | “Bridge to Nowhere” is completed.
1959      | Alamitos Marina is completed.
1960      | Water-flooding commences on the Continental Oil Company (Conoco) McGrath lease.
1962      | The City of Long Beach launches its first redevelopment plan.
1967      | Historical Society of Long Beach is founded.
1967      | The Queen Mary comes to Long Beach.
1978      | The City of Long Beach establishes the Cultural Heritage Committee, forerunner of the Cultural
Heritage Commission.
1979      | Elliot and Ten Eyck Company develops the Marine area of the Seal Beach Oil Field from a drill
site adjacent to the Marine Stadium waterway, 9 wells producing from the area.
1981      | Conoco becomes a wholly owned subsidiary of E.I. Du Pont de Nemours & Company.
2008      | Alamitos Land Company dissolution is final.
          | Population of Long Beach is over 460,000.
          | Population of Signal Hill is less than 11,000.
          | Seal Beach Oil Field is ranked twenty-eighth among California’s Giant Oil Fields.

Spanish and Mexican Settlement

(Adapted from Sapphos Environmental, Inc., 2009: 5.2.2.)

The area that is now the City of Long Beach received its first European visitors in the late 18th century
with the arrival of Spanish explorers and missionaries. Mission San Gabriel Archangel, originally
founded near what is now Montebello, was awarded jurisdiction over most of this region after its
establishment in 1771. Ten years later, a group of 12 families from Mexico founded a secular
community in what is now downtown Los Angeles. The settlers, who were reportedly recruited to
establish a farming community to relieve Alta California’s dependence on imported grain, named the
area el Pueblo de Nuestra Senora la Reina de Los Angeles de Porciuncula (Robinson, W.W., 1959: 5)

During the Spanish and subsequent Mexican reign over Alta California, the southern portion of
present-day Los Angeles County was held in a variety of land grants. In 1784 Pedro Fages, the
Spanish governor of California granted in the name of the King of Spain 300,000 acres (amount
reduced in 1792 to 167,000 acres) to Manuel Nieto, a Spanish soldier, as a reward for his military
service. Nieto raised cattle, sheep, and horses on the lands and built an adobe home on a hilltop near
today’s Anaheim Road. Following Nieto’s death in 1804, the land grant known as Los Coyotes
became the property of his heirs. In 1834, it was divided into five smaller ranchos, including Rancho
Los Alamitos and Rancho Los Cerritos. These two ranchos encompassed the majority of what now
comprises the City of Long Beach, with a portion of the 28,500-acre Rancho Los Alamitos on the east
and a portion of the 27,000-acre Rancho Los Cerritos on the west. Today, Alamitos Avenue marks the
dividing line between the two.
Rancho Los Alamitos was purchased by Governor José Figueroa in 1834 for $500. Figueroa most likely began construction on the rancho’s existing adobe home. In 1842, Don Abel Stearns, a prominent American-born ranchero from New England, purchased the land for $6,000 and improved the old adobe for use as his summer home. Stearns’s cattle enterprise on the ranch was dealt a mortal blow by droughts in the early 1860s, and he lost Rancho Los Alamitos to its San Francisco mortgage holder, Michael Reese, in 1866.

Rancho Los Cerritos was given to Nieto’s daughter, Manuela Cota, in 1834. The property was bordered on the south by the Pacific Ocean and on the west by the (now) Los Angeles River. Manuela and her husband Guillermo built at least two adobes on the land for rearing their 12 children and raising cattle and crops. Following her death, the children sold Rancho Los Cerritos in 1843 to Massachusetts-born merchant John Temple, an entrepreneur with investments in Los Angeles real estate and ranches. Temple was married to Nieto’s granddaughter, thus granting him Mexican citizenship. Temple raised cattle and sheep on the rancho and maintained a lucrative business shipping hides to San Pedro harbor. In 1844, Temple constructed a two-story, Monterey style adobe house on the property. At its peak, Rancho Los Cerritos possessed 15,000 head of cattle, 7,000 sheep, and 3,000 horses (Johnson Heumann Research Associates 1988: 9).

American Settlement

(Adapted from Sapphos Environmental, Inc., 2009: 5.2.3.)

California became a territory of the United States in 1848 and the 31st state in the Union in 1850. With the discovery of gold in California and the influx of people to the area between 1849 and 1855, both Stearns and Temple experienced a brief period of prosperity. However, both ranchers suffered during the severe droughts of the 1860s and the subsequent economic decline of the 1870s. By the late 1870s, both ranchos had changed hands again.

In 1866, Temple retired and the company of brothers Thomas and Benjamin Flint and their cousin Llewellyn Bixby (Flint, Bixby & Co.) bought Rancho Los Cerritos from Temple for $20,000. The company selected Llewellyn’s brother Jotham to manage the land and some 30,000 sheep. Within three years, Jotham bought into the property and formed his own company. Jotham Bixby and his family resided in the Cerritos adobe from 1866 to 1881.

In 1878, Jotham’s brother, John W. Bixby, leased Rancho Los Alamitos from owner Michael Reese and moved his family into the then-deteriorated adobe. In 1881, Reese sold the 26,392.5-acre rancho for $125,000 to a partnership composed of I.W. Hellman, a banker and local investor, and the J. Bixby & Co. (comprising Jotham Bixby, Thomas Flint, and Llewellyn Bixby), and the property later became known as the Bixby Ranch (Woodbridge n.d.: 12–14). John W. Bixby and his wife Susan remained residents of the ranch and began to rehabilitate the adobe and surrounding land, transforming the property into a prosperous working ranch and dairy farm (Mullio and Volland 2004: 9). John W. Bixby’s son Fred H., with his wife Florence, moved into the adobe in 1906. Florence created expansive gardens surrounding the house, while Fred H. Bixby focused on the activities of ranching, business, oil, and breeding Shire horses.

Thus, by the late 1870s, both Rancho Los Alamitos and Rancho Los Cerritos were under the control of members of the Bixby family, which would become one of the most influential families of Long
Beach. Both properties continued to operate as ranches well into the early decades of the 20\textsuperscript{th} century, maintaining dairy farms and growing beans, barley, and alfalfa. However, land from both ranchos was slowly sold off, beginning with the decline of the sheep industry in the 1870s. By 1884, the town of Long Beach occupied the southwest corner of Rancho Los Cerritos. Eventually Bellflower, Paramount, Signal Hill, and Lakewood were founded on Cerritos lands, as well. In the 1950s and 1960s, both ranchos were donated to the City as historic sites.

City Development and Growth, 1921–1945

Oil and Industry. (adapted from Sapphos Environmental, Inc., 2009: 5.5.1). In 1921, discovery of oil at Signal Hill by the Shell Oil Company brought radical changes to Long Beach, as the ownership, production, and sale of oil became the City’s primary economic industry (Robinson 1948: 14). The field at Signal Hill proved remarkably rich in oil, producing 859 million barrels of oil and more than 100 million cubic feet of natural gas in the first 50 years. Speculators, promoters, and experienced oilmen descended on Signal Hill, competing for mineral leases (Berner 1995: 18–19). Although Signal Hill was an unincorporated island within the City, the building boom resulting from oil production at Signal Hill had a dramatic effect on Long Beach’s population (Robinson 1948: 14). From 1922 to 1925, the population more than doubled due to an influx of people hoping to find work in the oil industry, growing from 55,000 in 1920 to an estimated 135,000 in 1925 (Johnson Heumann Research Associates 1988: 14; U.S. Census Bureau 1920). The discovery of oil created millionaires out of ordinary citizens and investors, and the effects were felt throughout the city, particularly downtown and along the shoreline.

The need to meet the housing demand triggered a construction boom; in this way, the discovery of oil in Signal Hill became the catalyst for a “$1 million per month” building boom in the downtown area. Many luxury high-rise buildings rose at this time in downtown Long Beach and along the shore, including the Cooper Arms (1923), Blackstone (1924), Willmore (1925), Campbell Apartments (1928), Broadlind (1928), Lafayette Hotel (1929), and the Villa Riviera (1929) (Johnson Heumann Research Associates 1988:15).

Also in the 1920s, a professional organization of architects known as the Long Beach Architectural Club formed to address the haphazard development of the City’s most valuable areas and to guide decisions with regard to local architecture. Advocating cohesive, complementary urban design, the Long Beach Architectural Club became a strong presence in Long Beach, offering expertise in design solutions. Throughout that decade, even in modest neighborhoods, a comprehensive, overall approach to building and streetscape design is evident, which began to re-shape Long Beach and many other Southern California cities. Period revival styles became increasingly popular, a trend that influenced both residential and commercial architecture. In downtown Long Beach and along the shoreline, the scale of construction was grand and the new construction of luxurious hotels, commercial buildings, civic buildings, and entertainment facilities reached a peak. Similarly, an increasing number of multiple-family residential buildings began to quote the period-revival styles. Acute population pressures prompted developers to build additional stories on existing apartment buildings; a new form of housing, known as own-your-own cooperatives or apartment hotels, was the result.
Industrial Development, Circa 1900–1945

(Adapted from Sapphos Environmental, Inc., 2009: 6.5.)

The earliest industrial activities in Long Beach were largely related to agriculture and to a lesser extent, producing equipment and supplies necessary to the construction industry. By the early 1900s, harbor development efforts set in motion the development of a wide variety of industrial activities within the city. Shipbuilding was established at the harbor in 1907, with the successful debut of John F. Craig’s enterprise, followed by several other businesses, such as fish canneries, packinghouses, maintenance yards, and manufacturing plants.

During the first decade of the 20th century, the majority of Long Beach’s commercial and industrial development was located south of Anaheim Street. Part of this economic growth was also fueled by territorial expansion. Between 1900 and 1910, an additional 6.3 square miles of territory surrounding the original city were annexed by Long Beach, including a substantial portion of lands near the harbor area, which were utilized for industrial and commercial purposes (City of Long Beach Department of Planning 1958: 22).

The expansion of the City’s harbor and ports led to other types of economic development throughout coastal Long Beach. The area directly to the north of the harbor, near Anaheim Street, became a hub of activity, given its proximity to the harbor and railroad lines. A 1914 map depicts several businesses operating in the vicinity of Anaheim Street, including a glassmaking plant and a woolen mill (Sanborn Map Company 1914). That same year, plans were announced for the construction of a tuna cannery, near the waterfront. In 1917, the Curtis Olive Company moved its headquarters to Long Beach. During World War I, industrial production at the port was strong, with the Long Beach Shipbuilding Company constructing a total of $20 million in warships for the U.S. government, including a number of freighters and submarines (DeAtley 1988: 68).

The city also experienced much industrial development in the following decade (1920s), due to oil drilling, road construction, and shipping. In 1929, the Janss Investment Company of Los Angeles acquired an 8,000-acre holding of the Montana Land Company and established one of the largest single industrial tracts in Long Beach. The property bordered the Long Beach Municipal Airport and plans were immediately drawn up for the development of a large aircraft manufacturing center. The Janss Company purchased the property hoping to benefit from the rapid industrial growth happening elsewhere within the city and chose the Montana tract due to its “rail facilities, and nearness to the harbor and airport” (Los Angeles Times 1929).

By the 1930s, industry in Long Beach had expanded into many of the nonresidential areas of the City, predominantly agricultural lands. Factory outputs increased almost seven-fold between 1920 and 1930, from $14.3 million to nearly $95 million (DeAtley 1988: 77). By 1930, the terminal boasted an annual capacity of 1 million tons of cargo (Robinson 1988: 14). Industrial development in the 1930s centered on the construction of several large manufacturing plants. A new $5 million Ford Motor Company facility opened its doors on April 21, 1930, only to suspend activities in December 1932; but in early 1935, the Ford plant reopened. A new $4.6 million manufacturing plant for the Procter & Gamble Company, located at 1601 W. Seventh Street, began operations in June, 1931. Other companies that built large manufacturing plants in Long Beach during the 1930s included the Consolidated Aircraft Corporation and the Fields Chemical Corporation. Harbor projects funded by the Works Progress Administration (WPA), including the construction of a concrete and steel freight
and passenger terminal at Pier A and a wharf at Pier B, kept Long Beach from falling into economic stagnation during the Great Depression (DeAtley 1988: 87).

By the 1940s, the industrial and commercial area north of the harbor and Anaheim Road had expanded farther north to the Pacific Coast Highway and west to Santa Fe Avenue. The Los Angeles River, which separated the western strip of the city from residential neighborhoods, formed something of an eastern barrier for commercial development. Many types of industrial and commercial enterprises established businesses in the area, including welders, upholsterers, fabricators, furniture makers, boat and auto repair, and various manufacturing plants. The demands of the wartime economy stimulated this growth.

Despite job losses at the end of the war, in 1945 Long Beach boasted the third largest economy in the nation. This fact was largely the result of jobs created in the manufacturing sector, and to a lesser extent due to harbor activities and the production of oil and gas. Manufacturing jobs that expanded during the time included aircraft, machinery, automobiles, clothing, and furniture.

Associated Building Types: Industrial Buildings and Structures. Because Long Beach’s history of industrial development spans more than 100 years, many properties reflecting this history have been expanded and adapted over time and may lack historic integrity. More recent industrial buildings are not old enough to warrant historic significance. However, should primary source research identify properties constructed between 1900 and 1945 that show a direct association with the City’s history of industrial development, these properties would be rare and potentially significant if identified. Potential property types would include warehouses, manufacturing plants, associated offices, and ancillary buildings and structures. The Foster & Kleiser Building at 1428 Magnolia Avenue (1923/1930) is an example of an Industrial Development Building.

Registration Requirements. To qualify for the California Register, or local listing under the Industrial Development theme, a resource must have been constructed between circa 1900 and 1945 and should retain sufficient integrity such that the resource continues to convey its original use. This property type would meet the Federal, State, or local registration requirements as an individual resource or as a contributor to a historic district. To qualify for the California Register, any resource associated with the history of industrial development must possess an exceptionally high level of historic integrity to qualify under Criterion A (association with a particular historical theme). To qualify for the California Register, a property may be eligible under the theme of industrial development according to Criterion 1 (association with “events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States”). For local eligibility, a resource associated with Long Beach’s history of industrial development “may be eligible under Criterion A” (“possesses a significant character, interest, or value attributable to the development, heritage or cultural characteristics of the city, the Southern California region, the state or the nation”), Criterion H (“is part of or related to a distinctive area and should be developed or preserved according to a specific historical, cultural or architectural motif”),

1 In December 2015, the City of Long Beach adopted a revised ordinance with new evaluation criteria for local Landmark designation. The previous criteria (A–K) have been folded into the new criteria (A–D) and integrity is now a requirement.
or Criterion K (“one of the few remaining examples in the city, region, state or nation possessing distinguishing characteristics of an architectural or historical type”).

Industrial Subtheme: Oil Industry, 1921–1945

(Adapted from Sapphos Environmental, Inc., 2009: 6.5.1.)

In 1921, oil was discovered under Signal Hill, an event that brought a new industrial giant to Long Beach, boosted the City budget with oil revenues, and catalyzed commercial and residential expansion. News of the discovery, called the “greatest oil strike ever!” spread like wildfire, and in response, Long Beach residents approved numerous bond measures in the early 1920s to fund civic projects to expand infrastructure. While the 1920s represented a boom period for many Southern California communities, the wealth created by the oil industry in Long Beach produced unprecedented growth with respect to income, construction, and population surges. However, in later decades, the aftereffects of oil extraction brought a tremendous financial and technical challenge to Long Beach harbor officials and the oil industry.

Although the initial discovery of oil took place outside of the city limits, Long Beach was the single largest landowner on Signal Hill, having purchased several lots from two water companies for the purpose of housing and maintaining utilities. The City signed leases for oil and gas production with several oil companies, with 60 percent of profits going to the City, and drilling began shortly afterwards (Meyer et al. 1983:55).

Following the discovery of oil at Signal Hill, thousands of oil workers and speculators assembled in Long Beach hoping to benefit from the newly tapped commodity. With money pouring in from the oil industry, the 1920s brought a massive commercial and residential building expansion to accommodate the near doubling of the City’s population between 1920 and 1924 (DeAtley 1988: 68). By 1923, Signal Hill and adjacent areas comprising the Long Beach Oil Field were producing more than 250,000 barrels a day on a staggering 270 drilling rigs, for an annual production of 69 million barrels (ibid.).

Oil production peaked in 1929 for the State of California, at 292 million barrels of crude (Franks and Lambert: 1985 229). By 1930, Long Beach had become one of the top two oil producers in California, second only to Santa Fe Springs. At this point, Long Beach had the capacity to produce 160,000 barrels a day, but the supply of oil was already far in excess of demand. The price of crude reached a peak of $3.50 per barrel in 1920, dropped to $1.50 per barrel in early spring of 1921 and fluctuated within a narrow range of that price until 1926. A sharp increase in output in the latter part of that year and during 1927 dropped prices to $1.28, around which they fluctuated until 1931 when the downward trend resumed (Stocking: 1933). Proration, an oil curtailment program aimed at stabilizing crude oil prices, restricted oil production in the Long Beach Oil Field to 100,000 barrels a day (The Wall Street Journal 1930). During this time, California provided one quarter of the nation’s total oil supply. (Robinson 1948: 7; Ovnick 1994: 47). Despite the collapse of crude oil prices due to overproduction, by the end of the decade the Signal Hill oil fields were the most lucrative in the world, with 3,000 active wells (Mullio and Volland 2004: 28). This wealth was reflected in Long Beach’s commercial development in the 1920s, with the addition of numerous 10- to 12-story skyscrapers lining downtown thoroughfares.
A range of buildings, structures, and oil-extraction equipment emerged in the oil fields of Long Beach during this time, for oil companies and related enterprises. These businesses, which brought considerable wealth to the City, included carbon factories, drill tool producers, pump and valve companies, trucking firms, instrument surveyors, and chemical plants (Wride 1949: 88).

Oil revenues in Long Beach helped compensate for the economic downturn of the 1930s. The focus on the oil industry as a central economic engine for the city was reaffirmed in 1936, when oil was discovered in the Long Beach Harbor. Two years later, Harbor Department’s first well was producing money for the City. By 1939, the Long Beach Oil Development Company had become the City’s primary oil operator, bringing in revenues of more than $10 million a year, making Long Beach one of the most prosperous ports in the nation (CSU Long Beach 1981: 1(1):6, 4(4):4). By 1940, 400+ oil derricks in the harbor extracted on average more than 19 million barrels of oil annually. This effort yielded the city net income of $2.2 million by 1941. Oil profits were quickly infused into the City’s flailing port system, which freed up revenues from taxes and fees to pay for infrastructure and improvements throughout the City (Hillburg 2000: 64). Oil extraction from beneath the harbor continued into the postwar period; as of 1953, the harbor had more than 720 wells along its shoreline field, for a daily production of 55,000 barrels of oil. However, there was a downside to several decades of oil extraction from the tidelands and fields of Long Beach: subsidence, which was not effectively resolved until 1960, at great cost.

**Associated Property Type: Oil Associated Buildings and Structures.** Possible resources could include oil-extraction-related properties (such as drilling rigs, refineries, storage, and office spaces) or investment properties with a direct link to the discovery of oil and the establishment of the oil industry in Long Beach between 1921 and 1945. The Turmo Company at 3275 Cherry Avenue (1935) is an example of an Oil Associated Industry building.

**Registration Requirements.** To qualify for the California Register, or local listings under the Industrial Subtheme: Oil Industry, an oil-related property must have been constructed between 1921 and 1945 and should retain sufficient integrity such that the property continues to convey its original use. This property type would meet the Federal, State, or local registration requirements as an individual resource or as a contributor to a historic district. While alterations might have been made, the resource should retain its overall historic style and form, as reflected in the retention of a majority of its key character-defining features. To qualify for the California Register, a property must possess an exceptionally high level of historic integrity to qualify under Criterion A (association with a particular historical theme). To qualify for the California Register, a property or collection of properties may be eligible for their association with the history of the oil industry according to Criterion I (association with “events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States”). For local eligibility as either an individual resource or district, properties associated with the theme of the oil industry may be eligible under Criterion A (“possesses a significant character, interest, or value attributable to the development, heritage or cultural characteristics of the city, the Southern California region, the state or the nation”), Criterion D (“portrays … an era of history characterized by a distinctive architectural style”), Criterion H (“is part of or related to a distinctive area and should be developed or preserved according to a specific historical, cultural or architectural motif”), or Criterion K (“one of the few remaining examples in the city, region, state or nation possessing distinguishing
characteristics of architectural or historical type”). If identified through primary-source research, properties with a direct association to the discovery of oil in Long Beach and its impact on the city’s history and built environment would be considered rare and should be considered significant if identified.

**Tract Number 1077**

Despite the absence of building permits, research for this project has determined that the Bixby Ranch field office was originally located on Tract No. 1077, “Being a Subdivision of San Gabriel Extension of Naples, Sheets 1 and 2 as recorded… and San Gabriel Extension of Naples Number 2, as recorded …” (Huntington Library, Alamitos Tract Maps, Map Drawer, Folder 27 [n.d.]). The following discussions of the San Gabriel River Improvement Company, the Naples Company and the Alamitos Land Company are essential to understanding the events and persons related to the historic resource that is the subject of this report.

**The San Gabriel River Improvement Company**

(Adapted from Poe 2005.)

The San Gabriel River Improvement Company (SGRIC) was a very active company, begun concurrently with the Naples Company. It was formed on October 5, 1905, in Room 701 of the Hellman Building in Los Angeles. Several members of the Naples Company served on both boards. The deed shows the company’s land holdings extended roughly from 7th Street to the San Gabriel River and a bit beyond; the north boundary was approximately Studebaker and the south boundary Appian Way. Most of the land was purchased from J.W. Beardsley for $68,718. It consisted primarily of tidelands, about 558 acres in both Los Angeles and Orange Counties. A portion of the land was on Rancho Los Alamitos and $34,500 was paid to the Alamitos Land Company. The original Board included Frank Strong, Robert Marsh, and Warren F. McGrath. These three men, together with Sam Selover, eventually purchased the Naples Company. Other board members included Henry E. Huntington and Almira Hershey. In 1908, the SGRIC moved to Huntington’s Pacific Electric Building.

The original intent was to develop a project similar to Naples, commencing in 1909 with the construction of canals, sidewalks, curbs, and drives, but this never occurred due to the primary efforts being directed toward the Naples development. In 1912, SGRIC sold 200 acres to a gun club, there being already half dozen such clubs in the general vicinity. A clubhouse was built and they proceeded to dredge out a large shallow lake in front of the clubhouse to lure waterfowl within shooting distance of the clubhouse porch. In 1915, some of the property in East Naples was sold to the City of Seal Beach for a septic tank. The same year, a 10 ft strip was sold to the Los Alamitos Sugar Company to deliver wastewater to the ocean 4 ft below low tide. SGRIC engaged in no other activity until 1921, when 67 acres were leased to Shell Oil and the rest of SGRIC’s land was leased to Standard Oil for $1,000 per month plus one-sixth of the profits. This lucrative arrangement “definitely closed the door on residential development” (Poe 2005: 20). In 1935, under the directorship of Norman Chandler, the San Gabriel River Land Company added the Continental Oil Company lease and the Bixby lease to its streams of revenue.
The Naples Company

(Adapted from Poe 2005.)

Arthur M. Parsons and his son A.C. Parsons joined the salesforce for a company formed in 1903 that purchased and subdivided the Alamitos Bay Peninsula into 500 lots. While selling lots for this company from a canvas-covered shack they had built on the bay shore, father and son became so interested in the area that they bought 50 to 60 of these lots for themselves, on speculation. To publicize the area, they organized a club of Los Angeles businessmen called “The Channel Club,” and built a clubhouse on two of their bay front lots. This club was popular with young and old and was the scene of many dances and swimming and boating parties. During this time, the Parsons began to see the possibility of another land development in the marshes and wetlands across the bay. The story is that A.M. Parsons drew an envelope from his pocket and sketched on it his vision of how the marshes might be transformed. (The sketch was later reproduced in watercolors by a commercial artist, framed and hung on the wall of Parsons’ sales office, forming the promotional basis for the subdivision.)

Parsons had envisioned yet another Venice—presumably the one in Italy and not Abbot Kinney’s subdivision of cheap cottages or tents on small lots near Santa Monica—a land of canals and white villas with red tile roofs. However, the area of proposed development was covered with water at high tide and would have to be raised several feet before it would be possible to build on it. Parsons secretly hired a former city engineer, Frank E Olmsted, to test the soils in the area. After getting a favorable report, he contacted the Alamitos Land Company and purchased the land where Naples now stands. Together, the Parsons leased the corner of Sixth and Main Streets in Los Angeles and proceeded to sell real estate in the new subdivision. A new company, the Naples Company, was formed to promote the project, with Henry E. Huntington as its first president. Huntington was the man who built the Pacific Electric Railway system, which brought the “Big Red Cars” to Long Beach. The Newport Beach branch line of the Pacific Electric passed through Alamitos Bay, Seal Beach, and Huntington Beach, on its way to Newport Beach. It was not difficult for the Parsons to persuade Huntington, now the President of the Naples Company, to install a spur track from the Newport Beach branch line to the new real estate subdivision at Naples. The spur line ran along what is now Appian Way and Ravenna Drive and looped around the park in front of the Hotel Napoli. One of the sales promotions was a daily Big Red Car trip to Naples; when the prospective customers reached the park at the end of the trip, they were given a picnic lunch and a sales talk and then shown around the area. Lots sold for $900–$4,000 and sales were at first very encouraging. The sales requirements were one third down with the balance payable in 6, 12 or 18 months at 6 percent interest. The Parsons designed the plans and developed the Rivo Alto, Naples Canals, and Treasure Island. They also gave the streets their present names, the only difference being that they were originally called “Way” rather than “Walk” or “Drive.” The first home (still standing at 4 Savona Walk) was built in 1906. On July 27, 1905, the following full-page advertisement by an optimistic real estate firm ran in the Daily Telegram: “Naples of America at Alamitos Bay. Naples stands alone in its grandeur. Never before was such work undertaken by man. What money—combined with the grandest natural advantages can do—will be demonstrated in the next two years.” However, the San Francisco earthquake and fire of 1906 intervened, proving to be a major setback to real estate ventures all along the West Coast. The major financial institutions of the old American West were located in San Francisco, such as Wells Fargo Bank, the Bank of Italy (now Bank of America), and the Hibernia Bank; with the financial district in ruins and operations disrupted, thousands of outstanding loans had to be called in. Development came to a near standstill at Naples, but since the
original sales concept had included “in-house” financing of the transactions, the Naples project survived (Poe 2005: 64).

In 1907, the Naples Company became a part of the Huntington Land Company, which continued to promote the project vigorously; the Naples Hotel was built in 1909 and large numbers of trees were set out. During this period of development, a large construction camp was established in Naples. Over 125 men worked on the project, putting in sidewalks and canal walls. The Huntington interests were eventually sold to Warren McGrath and Samuel A. Selover, prominent Long Beach developers, who finished the project. McGrath & Selover Co. decided about 1919 to create Belmont Shore and Belmont Park in the lowlands west of Naples. It was Warren McGrath, of the San Gabriel River Improvement Company, who engineered a deal with the City of Long Beach that greatly affected Naples and the entire area (Poe 2005: 70).

McGrath, acting through the Alamitos Land Company, deeded the land northeast of the Pacific Electric Railway to the City of Long Beach as parkland to be used for recreational purposes only and stipulating a list of activities that would be permitted. Dredging operations removed more than 7,000,000 cubic yards of material, which was dumped into what would become the residential district known as Belmont Park. The fill raised the ground level to the same height as that of the Rivo Alto Canal wall in Naples. Where the dredging brought the ground below sea level, a channel communicated with the waters of Alamitos Bay, permanently flooding the area; a small strip of land remained between the southeast terminus of the flooded area and the San Gabriel River. The original location of the Bixby Ranch Field Office was on this strip of land. McGrath’s deed restrictions called for the flooded area to be used as a sailing basin; it is depicted as “Recreation Park Lagoon” on a map of the Seal Beach Oil Field dated March 1, 1931 (Barnes and Bowes 1930: Plate IV); it became known as Marine Stadium when serving as the venue for the rowing events of the 1932 Summer Olympics (X Olympiad), a historic association for which it was designated California Historical Landmark 1014.

Warren F. McGrath proved to be an astute businessman; not only did the City benefit from the recreational facility, but McGrath was able to purchase the fill land for a mere $200,000, eliminate some property tax liabilities, and still retain the subsurface mineral rights to the land, which he and his business partner Sam Selover later leased to the Marland Oil Company of California.

Recreation Park is the subject of a letter dated October 17, 1952, from Olen Lane, Conoco’s Assistant Regional Manager, Western Region, to the Alamitos Land Company (Huntington Library, Alamitos Land Company Collection, Administrative Series, Box 063, Folder 01 [n.d.]). In it, Lane says he has examined the deed dated March 5, 1923, wherein Alamitos Land Co. conveyed to the City of Long Beach certain property now known as Recreation Park, located south of Anaheim Street and east of Ximeno Avenue, which deed contains restrictions prohibiting the development of the property for oil and gas purposes. If the City of Long Beach and the Alamitos Land Company came to an agreement, Continental Oil Company would find “… some means by which the park surface and facilities would not be disturbed. …” Ray Kealer, Long Beach City Councilman and Chairman of the Oil Committee of the Long Beach City Council, told Conoco the City Council would be agreeable to the idea “in consideration of a royalty payment to the city.” Kealy thought it best for Conoco to first negotiate the matter with Alamitos Land Company. Lane offered and proposed that “… as consideration for oil and gas development privileges in favor of the Continental Oil Company on terms mutually satisfactory to Alamitos Land Company, Continental Oil Company and the City of Long Beach, Continental would
drill an exploratory well to a mutually agreed depth, and in the event oil is discovered therein would pay to Alamitos Land Company and the City of Long Beach a total royalty of thirty per cent (30%); such royalty to be divided between Alamitos Land Company and the City of Long Beach on some mutually satisfactory basis. Any lease or agreement entered into would contain provisions for continuous development by means acceptable to both Alamitos Land Company and the City of Long Beach, until sufficient wells may have been bottomed under the property to adequately remove any oil and gas which may underlie the same.”

The Alamitos Bay district east of Nieto Avenue, along with that part of the old Alamitos Beach Town Site not previously included in Long Beach, was finally annexed by the City in November of 1923. It is difficult to document the construction history of buildings in this part of the city, due to the numerous changes of ownership and jurisdictional changes; early records are often difficult to obtain or contradictory and accurate dates of construction for buildings are often nonexistent (Poe 2005: 70).

A newspaper article said of Naples in 1927: “After languishing for many years in the eastern extremity of Long Beach, with 7½ miles of quiet waterways, the community has suddenly found itself in the midst of a sizable boom. Investigation reveals that there are 330 homes in the district, more than half of which have been erected in the last two or three years. The class of construction has suddenly changed and in place of the multitude smaller residences there are beginning to appear a dozen high-class residences on strategic locations.” However, with the Stock Market crash of 1929 and the onset of the Great Depression, an aerial photograph of Naples taken in 1936 shows there were only three houses north of Second Street and three-quarters of the lots on Treasure Island were vacant.

**Alamitos Land Company**

(Adapted from Briegel 2011 and Dudley 1996.)

The Alamitos Land Company and the Alamitos Water Company were organized in 1888, at the tail-end of the Southern California real estate boom, which had been triggered by a rate war between the Southern Pacific and Santa Fe Railroads, to sell Rancho Los Alamitos land and convey water to town lots and small farms extending from the Alamitos Bay to Signal Hill. The majority of the shareholders in the Alamitos Land Company were descendants of the Bixby and Flint families, who originated in New England and arrived in California in 1851, becoming major landowners during the Rancho Era. A simplified family tree shows that Llewellyn Bixby married Sarah Hathaway and later Mary Hathaway; Jotham Bixby married Margaret Hathaway and John Bixby married Susan Hathaway.

The tidelands around Alamitos Bay were surveyed by E.T. Wright in December 1885. Later, these tidelands were purchased by the Bixby family from the State of California, under the law providing for the sale of swamp, overflowed land, and tidelands. John W. Bixby laid out the Alamitos Beach Town Site, in hopes that Alamitos Bay would be improved as a harbor capable of accommodating large seagoing ships and that the Continental railroads would converge at Alamitos Bay with the Town Site as their terminus (Poe 2005: 10).

John W. Bixby died unexpectedly in 1887, probably of acute appendicitis. “After the five thousand acres destined for real estate development had been set aside under the newly formed Alamitos Land Company, the rest was appraised and surveyed. Each participant ended up with seventy-two hundred...
acres. I.W. Hellman received the land along the coast, and J. Bixby & Co. took the inland section. John’s heirs, (Susan and his children, Fred H. and Susanna) received the central part of it: it embraced the house and barns and was given, permanently, the name Rancho Los Alamitos” (Briegel 2011: 1). John’s widow, Susan Bixby, the administratrix of his estate, found it necessary to sell John’s interest in the subdivision to his brother, Jotham Bixby. Court documents indicate that if Susan had tried to build the water system that John had planned, she would have had to seek court approval for all expenditures until his estate was settled, something which did not occur until 1891, when J. Bixby & Company ceased business (Briegel 2011: 9, 14; Dudley 1996: preface).

By the turn of the century, the Rancho Era was ending in Southern California, the economy was starting to improve, another population boom was beginning, and the ranches owned by the Bixbys and the Flints were giving way to small farms and new communities. A simpler age where individual and partnership activities were informal and almost interchangeable was transitioning into the new era of agribusiness and the corporation. Jotham Bixby had the dominant role in the family until about 1916 because of his age and experience, but otherwise a new generation was becoming involved.

Jotham Bixby, assisted by his son George H., pursued some of his own interests in addition to those of the Alamitos Land Company. These included the ever-shrinking Rancho Los Cerritos, Jotham Bixby Company projects, land acquired in other parts of Southern California, several citrus orchards, ranching in Arizona, Pacific Creamery in Buena Park, and banking in Long Beach (Dudley 1996: 42–43).

Aware of the great fortunes that had been made in Southern California oil fields northwest of the Bixby Ranch, Jotham Bixby retained the services of a consulting geologist, Ralph Arnold, in 1912. Following is a summary of two unpublished technical papers from the Alamitos Land Company Collection at the Huntington Library (Ralph Arnold Papers, Box 180, Folder 506).

“Reconnaissance field work undertaken April 19th to 26th 1912,” under instructions from Dr. Arnold: The time was entirely consumed on a reconnaissance of the ranch with the exception of one-half day which was spent in ascertaining the character of the formation of the hills east of El Modena to the south of this tract, which I thought might have some bearing on the geology of the Bixby Ranch. Conclusion: From this preliminary reconnaissance the structural and geologic conditions in the area examined do not seem to preclude the possibility of oil being found. Nevertheless from the absence of all oil seepages or other surface indications of oil, especially the broken formation of the eastern portion where we would expect to find some such indications of oil at the surface if it were likely to be encountered in commercial quantities by drilling, we must conclude that the district is not a favorable one for oil prospecting.” (“Preliminary Report on Oil Possibilities of the Bixby Ranch, Orange County, California,” by Clifford C. Thomas, Los Angeles, April 27, 1912.)

“This report is based upon an examination made at the request of Mr. Jotham Bixby, to determine the oil possibilities of his ranch near Olive, Orange County, California. The field work included one day’s personal examination of the property by myself and seven days’ reconnaissance by my assistant, Mr. C. C. Thomas. Conclusions: As mentioned at various points throughout the report the formations on the ranch were carefully tested with chloroform for indications of petroleum, but no positive results were obtained in any of these tests. As there are no records of any brea or oil seepages occurring on the ranch, and as the tests for the oil in the formations were without result, it is quite apparent that surface evidence of presence of oil is entirely lacking. It is true that the formations which carry the oil in the fields only a few miles northwest of the ranch are exposed
over the area, but this means little without the direct evidence of the presence of petroleum in
the rocks. I conclude from all of the evidence in hand that the chances of securing petroleum in
commercial quantities at this time are exceedingly remote, and I would therefore advise against the
expenditure of any money for oil prospecting purposes. If, however, it is thought advisable to put
down a test well, I believe that the most likely point for securing favorable results would be in the
northwestern-most portion of the ranch at Burrul Point where the exposures indicate a
northwestward plunging fold of a character similar to those found highly productive in certain of the
oil fields of the state.” (Report On the Oil Possibilities of the Bixby Ranch Near Olive, Orange
County, California, By Ralph Arnold, Consulting Geologist and Engineer, May 18, 1912.)

The Llewellyn Bixby family assumed the ownership of the various family companies previously held
by Flint, Bixby & Company. Llewellyn Bixby’s son, Llewellyn Bixby Junior, gradually became more
active in the family firms, including the Bank of Long Beach, established in 1896 and the Long Beach
Savings Bank, established in 1902. Llewellyn Bixby was first elected to the board of the Alamitos
Land Company in 1907. Ernest A. Bryant, M.D., was elected in the same year. Dr. Bryant, a well-
known Los Angeles physician, married Susanna Bixby, daughter of John and Susan and the sister of
Fred H. Bixby. In 1918, she also began serving on the board. Another change occurred in November
1916 when J.T. Musgrove was elected to replace George C. Flint as secretary (Briegel 2011: 31).

Beginning in 1917, shortly after Jotham Bixby died, oil companies began offering to lease Alamitos
Land Company property. The discovery of other oil fields in Southern California led some geologists
to wonder whether there might not be oil under Signal Hill. Although an unsuccessful well was
drilled by the Union Oil Company in 1917, some oil companies still believed Signal Hill might be
over an oil pool. Among them were Union Oil and Standard Oil, who asked for leases on Alamitos
Land Company property there (Briegel 2011: 31).

I.W. Hellman, the last of the original partners who bought Rancho Los Alamitos and organized the
Alamitos Land Company, died in April 1920. He had served as both President of the Alamitos Land
Co. and as a member of the Board of Directors. Fred H. Bixby was elected to take Hellman’s place as
president, while Hellman’s place on the board was taken by Victor Rossetti, who served along with
Jackson Grave as representatives of the Hellman family’s interests (Briegel 2011: 32).

**Discovery of the Long Beach Oil Field: Signal Hill**

The Alamitos 1, the first well drilled on 240 acres of land on Signal Hill owned by the Alamitos Land
Company and leased to Shell Oil, opened the giant Long Beach Oil Field to commercial oil and gas
production, changing the history of the City forever.

**Discovery of the Seal Beach Oil Field: Marland “Bixby 2”**

The opening of the Seal Beach Oil Field by Marland “Bixby 2” produced more wealth for the Bixby
family, Fred H. in particular, than the opening of the Long Beach Oil Field by the Alamitos 1
(Figure 3). The closest active pump today to the discovery well is Bixby A #81 (Figure 4). The
Alamitos Land Company had sold much of its land near Signal Hill by the time the strike was made,
but the southeast corner of Rancho Los Alamitos, where the Bixbys and Bryants held rights to over
200 acres of richly producing areas of the Seal Beach field provided Fred H. Bixby with the oil
FIGURE 3

Project Boundary
Continental Oil Lease
Marland Oil Co. Bixby 2
Synergy Bixby A 81

Bixby
McGrath
income needed to keep his cattle ranch afloat, along with his breeding of Shire horses and Florence Bixby’s philanthropic endeavors. When asked to what he attributed his great success as a cattleman, Fred replied, “Oil. There’s nothing puts fat on the ribs of a steer like rubbing up against the legs of an oil derrick” (Jurmain et al. 2011: 138).

Bixby Ranch Company

This company was incorporated on April 17, 1951, as the Fred H. Bixby Ranch Company. Owned by the descendants of Fred H. Bixby, it was still in operation as of 1996, although its corporate form had changed to that of a limited partnership. Holdings in the original Alamitos lands were small as of 1996, but included oil and commercial activities near the old ranch house. It also held that family’s ownership in the Alamitos Land Company and developed various other real estate ventures. Jan Law, a Petroleum Engineer who played a role in the history of the subsidence problem in Long Beach, was working for the Bixby Ranch Company as an independent consultant with an office in the Bixby Ranch Field Office where Kaye Briegel interviewed him in 1983 (personal communication, Kaye Briegel).
Marland Oil Company

(Adapted from Weaver, n.d., Encyclopedia of Oklahoma History and Culture.)

Ernest Whitworth Marland (1874–1941) was born in Pittsburgh, Pennsylvania. He graduated from law school at the age of 19, set up a private law practice in Pittsburgh, and became interested in geology while working with clients in the oil and gas industry. By the age of 33, Marland had become a self-made millionaire, but lost his fortune in the panic of 1907. Broke and without a job, he moved to the new State of Oklahoma in 1908, settling in Ponca City. He incorporated Marland Oil Company in Delaware, on October 8, 1920. In 1924, he expanded into California. Marland Oil Company underwent phenomenal growth and Marland amassed a second fortune. He lived a lavish lifestyle and built himself a second mansion in Ponca City in 1928. Due to the decline in oil prices, he could not meet his obligations and conflict developed with his principal financial backer, J.P. Morgan, Jr. Morgan gained control over Marland’s affairs and engineered a merger of Marland Oil Company with Continental Oil Company (Conoco). When the boardroom battle was over, on the eve of the Stock Market Crash of 1929, E.W. Marland no longer was in the oil business. Agitated by the loss of his oil empire and resulting bankruptcy, which Marland blamed on the uncontrolled banking industry, E.W. changed his political allegiance from Republican to Democrat and entered politics. “He became a staunch supporter of Franklin D. Roosevelt’s New Deal, was elected to Congress in 1932 representing the eighth District for one term, and then in 1934 declared for Governor. He won the Democratic primary by a narrow margin and the general election by a landslide. His administration had a contentious relationship with the state legislature, but Marland appealed directly to the citizens in statewide radio broadcasts, effectively outmaneuvering his conservative political opponents and bringing many New Deal programs to Oklahoma” (Weaver n.d.).

Marland took a strong, paternal interest in his company and in his employees and provided numerous benefits not normally offered in that era. He furnished company housing at a nominal fee, provided free insurance to all employees, paid wages above the norm for the time, and is generally acknowledged to have provided the best employee benefits and working conditions in the State of Oklahoma (Weaver n.d.).

Marland realized from the outset that in order to sustain long-range corporate growth, he must form an integrated company, encompassing drilling and production, storage and transportation, and refining and retailing, similar to the very successful model used by the Standard Oil Trust. Marland absorbed numerous small oil companies, many with highly competent executives whom Marland usually retained.

Marland Oil Company of California was incorporated on March 20, 1924, with headquarters at 417 S. Hill Street, Los Angeles and initial capitalization of $5,000,000. Effective September 1, 1929, the operations of the Marland Oil Company of California and Continental Oil Company (Arizona) were consolidated under the name of Continental Oil Company of California, a Delaware Corporation (Barnes and Bowes 1930).

Two petroleum engineers, Glenn H. Bowes and W.W. Copp, while employed by the Marland Oil Company of California, authored a “Special Article,” which appeared in California Oil Fields, at that time a monthly report of the State Oil and Gas Supervisor (Bowes and Copp 1927). The publication carried the latest production data from across the state and legal notices required of oil field operators.
Bowes and Copp’s 1927 Special Article chronicled the development of the Seal Beach Oil Field. They began by observing that Seal Beach filled in one of the few remaining gaps in a chain of prolific oil fields extending from Beverly Hills to Newport Beach. “The field may be said to have resisted discovery due to its peculiar topography…” Later in their report, the Marland engineers offered a reconstructed picture, which corrected the erroneous interpretations of their predecessors:

“A reconstruction of Seal Beach topography connects the high ground of Alamitos Heights on the west to that remnant on the east known as Landing Hill. The interval between, approximately two miles, is occupied by tidelands and mud flats. It is thought that the old meander courses of the San Gabriel River across these mud flats were more or less controlled by the structural depression or saddle between the two high parts of the Seal Beach field.” (Bowes and Copp 1927)

Five and one-half years elapsed between the spudding of the first wildcat well and commercial production in the Seal Beach Oil Field. (Research has not documented the exact year Marland built the Bixby Ranch Field Office (P-19-187657), but it could have been one of their earliest projects in California, likely 1924.) Standard Oil Company of California’s prospect well No. “Bixby” 1 was spudded February 26, 1921, in the southwest corner of Section 35, Township 4 South, Range 12 West, San Bernardino Baseline and Meridian. Various California oil companies drilled ten more deep dry holes, three of which did produce some oil, before Marland Oil Company of California spudded “Bixby” No. 2 on June 4, 1926, and placed it in production on August 4, 1926. The approximate cost of the prospecting was placed at $2,500,000 (Barnes and Bowes 1930). Marland “Bixby” No. 2 initially produced 1,240 barrels of oil a day from formations between depths of 4,399 and 4,427 ft, and the well was still flowing naturally as of September 1, 1927. However, close spacing of wells within the Alamitos Heights residential district (Figure 3, inset) caused premature exhaustion of gas and early encroachment of edgewater (Testa 2007: 21).

In 1927, the Seal Beach Oil Field operators knew of three subsurface oil zones in two subsurface domes, an “easterly” dome whose apex underlay the current location of the Bixby Ranch Field Office, and a “westerly” dome, on the edge of the Alamitos Heights subdivision. “Alamitos Heights” and “Seal Beach” were the terms used at that time to describe the field, a proved area in portions of Sections 2, 3, 10 and 11, Township 5 South, Range 12 West, San Bernardino Baseline and Meridian. Among the three zones, Bixby zone was the highest, from which Marland’s discovery well was producing oil, gas, and water. The effect of the water on production was “… in the nature of a water drive,” meaning that because of the high water pressure, the well flowed naturally and there was no need for pumps of any sort. Indeed, one of the 11 so-called “deep dry holes,” the one drilled by the Seal Beach Oil Company in February 1922 near the highway, came in wet, meaning that the proportion of water to total oil and gas (water cut) was so high that it was not economical to produce the oil or gas. The Selover zone, in a lower stratum than the Bixby zone, was discovered in the easterly dome in Marland Oil Company of California well No. “McGrath & Selover” 1. The Selover zone, underlying the Bixby zone in the westerly dome, was discovered by Pan American Petroleum Company in its well No. “Naples” 1. (Pan American Petroleum, owned by Edward Doheny, operated in the Elk Hills and Buena Vista Oil Fields, which were the Naval Petroleum Reserves involved in the infamous Teapot Dome Scandal.) The Wasem zone, which underlay the Selover zone in both domes, was not being produced from in the easterly dome in September 1927, but General Petroleum Corporation of California was producing from the westerly dome in its discovery well No. “Wasem” 7.
With respect to production, Bowes and Copp (1927) remarked that Seal Beach Oil Field was a little over a year old and had produced approximately 11 million barrels of oil. The average American Petroleum Institute gravity of all oils produced was about 27 degrees, with a gasoline content of about 25 percent. Practically all oil produced came from wells flowing naturally or by means of a compressor. Initial production ranged from 500 to 5,000 barrels daily, depending on sand produced from and structural position of the well. Furthermore, the range of gas-oil ratios was from 100 to 3,500 cubic feet of gas per barrel of oil, a wide range. Because of town-lot competition, the ratio was high in Alamitos Heights, which was very wasteful. In the easterly dome, where only Marland, Standard, and Associated were operating, the well spacing was better and the gas-oil ratio did not exceed 500 cubic feet per barrel.

Four years later, Glenn H. Bowes was in the employ of the Geological Department of the Continental Oil Company, California Division. He co-authored with R.M. Barnes another Special Article, noting that “All the fields along the Newport to Beverly Hills uplift are dissimilar. Much has been written and published concerning these other fields, but different surface and subsurface conditions, structure, and development and production methods at Seal Beach oil field and recent developments justify this report as of March 1, 1931” (Barnes and Bowes 1930: 9).

The two portions of the oil field were now referred to as Alamitos Heights and Main Field. Barnes and Bowes (1930) “made free use” of an unpublished report given by R.M. Barnes and W.W. Copp (1928) before the American Association of Petroleum Geologists in 1928, and a paper on repressuring by A. H. Bell and E.W. Webb, given at the Los Angeles meeting of the American Institute of Mining Engineers in October 1929 and published in the Transactions of American Institute of Mining and Metallurgical Engineers in 1930. A map (Plate IV) shows the subsurface structure of the field and the lease operators: Continental Oil Company “Bixby One Lease” with the discovery well, “Bixby Two Lease” and “McGrath & Selover” lease; Standard Oil is on “The San Gabriel River Improvement Company” lease and Associated Oil on “Bryant,” near the narrow right-of-way owned by the Alamitos Sugar Company in the saddle area. Recreation Park Lagoon abuts the McGrath & Selover lease.

The chief findings of the report (Barnes and Bowes 1930) relate to the production figures and the repressuring. The McGrath zone was now developed in the westerly dome, increasing the oil-producing zones to four. “All wells in the Seal Beach oil field are drilled entirely with rotary drilling equipment. Many kinds of bits are used” (ibid.). Typically, when drilling new holes to deep zones, a hole was started about 30 inches in diameter using 6-inch drill pipe; it was changed at a depth of about 4,500 ft to 5-inch and later to 4-inch pipe, as drilling proceeded. Wells “seldom drift 10 degrees from vertical” (ibid.). Casings were the usual type, ranging from 24-inch stovepipe to 4¾-inch combination strings. Several types of “oil strings” were used. The proved area at age 4½ years was now about 440 acres with 206 productive wells. Production to February 28, 1931, was 52,833,556 barrels of oil. Comparing production decline curves for the four producing zones, Barnes and Bowes concluded that the average Selover well production remained about 30 percent more than the average Bixby and Wassem zone wells, and this was attributed to repressuring.

Bell and Webb (1930: 240) reported that repressuring (gas drive) was first tried as a test in the Bixby zone of the Seal Beach oil field during the fall of 1927, and was carried on until the spring of 1928, when it was discontinued because of lease considerations, meaning that Marland’s repressuring would benefit the neighboring wells owned by Standard (and perhaps the many wells owned by residents of
Alamitos Heights), more than its own. Gas was injected slowly under pressure at well No. “Bixby” 3, the first injection well. Production increased by as much as 50 percent in some of the larger wells, and by as much as 500 percent in some of the smaller wells. Production in Standard Oil Company of California well No. “San Gabriel” 2 was increased from 100 to 650 barrels per day in a period of five weeks after repressuring was started. Moving the point of injection around the field was found to have varying effectiveness at increasing well production. Well No. “Bixby” 24 was chosen as an injection well because of its location near the Newport-Inglewood main fault, and it penetrated the Selover zone, which had been depleted. Gas pressures in surrounding wells “lifted” within a few days after repressuring started on February 10, 1929. Gas injection in well No. “Bixby” 24 was discontinued because of lack of gas or compressor capacity and the well was shut down on May 8, 1930. The repressuring project was credited with improving the performance of wells completed after repressuring began. Daily average clean oil production in barrels per well dropped from 450 to 250 when proration started in April, 1929 (Bell and Webb 1930: 244). Proration was “The method by which output has been brought into harmony with consumption…” (Stocking 1933: 59). Large operators such as Standard or Marland had greater influence over the allocation of production quotas and matters of price than small operators or consumers, and may be said to have benefitted disproportionately from the policy as it evolved throughout the Depression years from a voluntary program to one regulated at the state and federal levels (Stocking 1933: 59-70).

The future and ultimate production of Seal Beach was estimated in 1931 to be 100 million barrels of oil.

The next milestone in the development of Seal Beach Oil Field was the discovery of a Marine area in January 1979. The field now consists of five areas rather than two; they are Alamitos Area, Marine Area, North Block, South Block, and East Extension-North Block. The offshore Marine Area was producing in the Lane zone, underlying the lower McGrath zone (Hesson and Olilang 1990: 3-5). The Alamitos Area of the field was semi-depleted and most of the wells were abandoned. Seawater intrusion was found in five major freshwater aquifers in the Seal Beach Oil Field, necessitating the Alamitos Barrier Project in 1985, which consisted of 19 freshwater injection wells used to form a freshwater pressure ridge about two miles inland from the Pacific Ocean and five seawater extraction wells used to bring the seawater level at or below the freshwater level. The wells form a pressure trough, breaking the landward intrusion of seawater. The Marine Area had surface drilling limitations imposed by residential development, but it was in an early stage of development. Repressuring, described as “proper gas-oil ratio control,” was seen as a means of improving ultimate recovery.

In summary, the Newport-Inglewood Structural Zone (NISZ) is an active fault responsible for the 1933 Long Beach Earthquake, which took 115 lives and caused millions of dollars in property loss. However, it is also responsible for 13 of California’s giant oil fields, of which Seal Beach is one. Nearly 40 percent of the total oil production for Southern California has come from these wells and, during the “Roaring Twenties,” California became the most oil productive state in the country with much of the world’s oil being produced in these fields. “One would be hard pressed to find a more historically significant feature in regards to the pursuit of oil than the NISZ” (Testa 2007: 9–25).

Subsidence

Subsidence has been interpreted in the Historic Context for Long Beach as a major downside to the development of the oil industry in the City. For example, subsidence damaged the City’s sewer pipes
and water system, leading the insurance industry to stop writing policies in Long Beach (Law 1983). Costly pilot programs to inject water into areas of subsidence did not successfully mitigate the adverse effects of oil and gas production until the 1960s. However, a study of the growth of domestic oil reserves in recent years suggests that waterflooding, as a secondary production technique applied to old fields nationwide in the 21st century, may have the potential to enhance recovery rates, cumulative production, and ultimate reserves. In other words, subsidence may have stimulated a major technological advance in the oil industry, of historic significance at a national level. Further research is needed to develop the subtheme of Subsidence to the point of identifying property types associated with the subsidence-related industrial landscape. Further research into the subtheme of Subsidence may identify persons, such as petroleum engineers and geologists, who are important to the history of science and technology and who did their important work in Long Beach. For a thorough discussion of California Oil Fields in the 20th century and the importance of the Wilmington Oil Field, in particular, see Appendix B: U.S. Geological Survey Bulletin 2172-H.

The Seal Beach Oil Field no longer has a single example of a wood derrick. This is the character-defining feature of pre-1945 oil field industrial landscapes in Long Beach. Seal Beach Oil Field is associated with an early instance of a secondary production technique, repressurization, but much additional research would be required to document the significance, if any, of the oil field itself, as a potential historic district. Of California’s 51 Giant Oil Fields, Seal Beach ranks twenty-eighth (California Division of Oil, Gas and Geothermal Resources, 2006).

Undated Panoramic Photograph
As noted at the beginning of this section, the Bixby Ranch Field Office is the only historic-period resource that was documented and evaluated within the project area. An undated (circa 1928) panoramic photograph showing the building in its original location was obtained from the Petroleum Collection of the Long Beach Public Library for one-time use (see Figures 5 and 6). That photo is analyzed below.

1. Bixby Ranch Field Office is clearly visible to the right of the photo (Figures 5 and 6). The sign over the main entry is illegible; however, under magnification, the sign over the building to the left reads “Marland Oil Co” (Figure 6).
2. The porch on the Bixby Ranch Field Office has one set of stairs flanked by piers, at the end of a broad concrete walkway leading directly to the front entry (Figure 6).
3. Porch rails conform to position of stairs (Figure 6).
4. The exterior wall to the right of the main façade appears to be clad in stucco (Figure 6).
5. Fenestration of the main façade and the right elevation differs from the fenestration observed in December 2015 only by the addition of one small window to the right elevation (Figure 6).
6. The wells in the photo are named Marland, not Continental, suggesting the photo was taken before September 1929 (Figure 5).
7. Several wells are simply labeled “Standard,” whereas the full name is given for every well operated by Marland or Allied, suggesting whoever labeled the oil wells probably worked for Allied or Marland (Figure 5).
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Source: Petroleum Collection, Long Beach Public Library
Figure 6: Field Office Building Detail

*Source: Petroleum Collection, Long Beach Public Library (circa 1928).*
8. Marland “Bixby” No. 15 is the highest numbered well in the photograph. “… (T)he Marland “Bixby” series of wells shown in the photograph ends at “Bixby 15.” According to information published by the California State Mining Bureau and the Division of Mines and Mining, “Bixby 13” went into production in 1927 while “Bixby 18” was being tested for production in 1928 (California State Mining Bureau 1927:88; Division of Mines and Mining 1928:87). These data suggest that the photograph was taken in late 1927 or perhaps early 1928” (Strudwick et al. 1996: 20–21) (Figure 5).

9. The position of the camera at the time the photo was taken may be inferred from the fact that the camera panned 180 degrees and was at 90 degrees when facing the Marland “Bixby-14” well, which is seen at the exact center of the panoramic photo (Figure 5).

10. Recreation Park Lagoon is at the extreme left, the San Gabriel River is at the extreme right (Figure 5).

11. The area between the Marland “Bixby” 2 discovery well and the Bixby Ranch Field Office is clearly visible, and the well closest to the office is Marland Selover 6 (Figure 5).

12. Five storage tanks are located on a dirt road running between the line of Marland Selover wells and Standard wells; this road intersects the road leading to Bixby Ranch Field Office at a right angle (Figure 5).

13. Compared to the Fairchild aerial photograph of December 31, 1928 (Figure 7), the network of dirt roads within the Seal Beach Oil Field is less extensively developed (Figure 5).

14. If the American Petroleum Institute number for a well identified in the panoramic photograph (Figure 5) can be determined, its location may be viewed over a geographic information system (GIS) layer showing the current built environment, using the California Department of Conservation’s Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder tool, available at http://www.conservation.ca.gov/dog/Pages/Wellfinder.aspx.

FIELD SURVEY

The field survey was conducted only on the Synergy Site because the other three project sites are vacant land (Figure 2). The Synergy Site included a historic-period Bixby Ranch Field Office building, rod pumps, aboveground pipes, storage tanks, wellheads, concrete pads, a compressor, a hoist, partially dismantled oil pumps, shipping containers, several storage sheds of various sizes, Marston matting (steel strips with holes punched through them laid in the ground) around pumps and pads, valve assemblies, numerous dirt roads, and a surficial trash scatter containing miscellaneous industrial and domestic debris that was identified during the archaeological survey (December 15 and 16, 2015) as extending along the southern edge of Steamshovel Slough. Artifacts noted appear to date from the 1930s to approximately the 1970s. This trash scatter is associated with the historic oil field. It was recorded as part of the archaeological study, evaluated as not significant, and discussed in the Archaeological Resources Assessment report for this project (Fulton and Fulton 2017).

Also observed was a metal sign identifying the location of the Seal Beach Field Discovery Well. The sign misidentifies the well as operated by the Continental Oil Company and misidentifies the well as “Bixby No. 2.” The well was actually operated by the Marland Company and identified as “Marland Bixby 2” (see pages 22, 24, and 26 for discussion). There is no commemorative language stating who placed the sign or when it was placed. The sign is not important and is not historically significant (or
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1928 Aerial

LEGEND

- Current Location of Office
- Original Location of Office
- Panoramic Photograph Location

Figure 7

SOURCE: Fairchild, 12/31/1928.
The area surveyed has been heavily modified by oil industry activity since 1924. Whether active, idle, or plugged, every single well in the area can be accurately dated using the records of the State Oil and Gas Supervisor. The building with Bixby Ranch Office signage was built between 1924 and 1928; the sheds, outbuildings, storage tanks, pipes, and machinery on the site were implemented over the course of several decades. Considered an industrial landscape, the site possesses neither the temporal cohesion needed to convey its importance during the period of historic significance nor the visual aesthetic that evokes strong ties of feeling and association to the period of historic significance. It is worth noting that no derricks were observed; permanent derricks made of wood are considered the most important character-defining feature for an oil field industrial landscape dating to the pre-1945 era. The area surveyed does not meet the requirements for listing as a historic district under Criterion 1 of CEQA, nor for designation as a historic landmark under the Local Ordinance.

The historic-period building identified in the project area is a one-story office building with a simple rectangular plan and rests on a raised foundation with rectangular underfloor vents. “The building is supported on heavy wooden posts (4” x 4” or perhaps 6” x 6”), which rest on cement foundations; the foundations appear to run the length of the building and are spaced approximately four feet apart. A glimpse through an open crawl space revealed a deep subarea” (Strudwick et al. 1996: 21). The building is surmounted by a medium-pitched hip and gable roof sheathed with composition shingles and has no eaves. The west end features a small, steeply-pitched gable with an attic vent above the porch (Figure 8). The roof also includes four rooftop gravity vents on the north and south sides, three stacks or masts, and a satellite dish (Figure 9). The exterior walls are covered with modern stucco/cement plaster.

The west elevation, which is the primary façade, is symmetrical and includes a full inset porch supported by paired vinyl posts and accessed by steps at the north and south ends (Figure 8). The vinyl porch railing is unembellished. The glazed entry door does not appear to be original. It is flanked symmetrically by two ribbon windows with vinyl-framed, double-hung end vents on either side of large fixed windows. A “framed board” in the frieze beneath the small gable once included historic signage reading “Continental Oil Co.,” but it has been obliterated by the current coat of paint. Based on a circa 1928 panoramic photograph (Figure 6), the porch appears to have been extensively altered.

The north elevation includes six pairs of vinyl-framed, double-hung windows, a single double-hung window, and a door accessed by a set of wooden stairs with metal rails (Figure 9). The door may be an alteration, replacing an original window. The elevation also includes two downspouts, three underfloor vents evenly spaced along the raised foundation, what appears to be a small circuit breaker box, and a hose bib. The sides of the front porch and rear trellis-covered deck are also visible on this elevation.

The east (rear) elevation features a raised deck covered by a modern trellis supported by four vinyl posts (Figure 10). There are glazed double-doors, a pair of vinyl-framed double-hung windows, an attic vent, and three evenly-spaced underfloor vents.
Figure 8: Office Building West Elevation

![West Elevation, main façade. View to the east (December 11, 2015).](image)

Figure 9: Office Building North Elevation

![North elevation. View to the south (December 11, 2015).](image)
Figure 10: Office Building Rear/East Elevation

View to the west (December 11, 2015).

The south elevation is very similar to the north elevation and includes six pairs of vinyl-framed, double-hung, two single vinyl-framed double-hung windows, and a modern fabricated metal illuminated sign (Figure 11). Based on a circa 1928 panoramic photograph (Figure 6), one of the single windows is a later alteration. This elevation also includes a small wall-mounted satellite dish, two downspouts, and various utility-related conduit/boxes. In addition, a utility pole and two air conditioning units are adjacent to the building wall.

As previously noted, in addition to the historic-period office building, there are numerous oil industry related structures and features as shown in Figures 12 through 17.
Figure 11: Office Building South Elevation

View to the northwest.

Figure 12: Hoist and Well Pipe Storage Area

Figure 13: Tanks, Shed, and Aboveground Pipes
Figure 14: Partially Dismantled Oil Pump

Figure 15: Active Rod Pump

Figure 16: Marston Matting and Valve Assembly

Figure 17: Out of Service Oil Tanks
SIGNIFICANCE EVALUATION

Based on the research results discussed above, the following sections present the historical significance evaluation for the Bixby Ranch Field Office and the conclusion on whether it qualifies as a “historical resource” as defined by CEQA.

DEFINITIONS

CEQA (PRC Chapter 2.6, Section 21083.2 and CCR Title 14, Chapter 3, Article 5, Section 15064.5) calls for the evaluation and recordation of historical resources. The criteria for determining the significance of impacts to historical resources are based on Section 15064.5 of the CEQA Guidelines and Guidelines for the Nomination of Properties to the California Register. Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, National Register of Historic Places (National Register), or designation under a local ordinance.

California Register of Historical Resources

The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the Nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource’s period of significance to “obtain a scholarly perspective on the events or individuals associated with the resource.” Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource’s significance (CCR 4852 [d][2]).

The California Register also requires that a resource possess integrity, which is defined as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” (California Office of Historic Preservation 1999:2). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California Office of Historic Preservation 1999).
City of Long Beach Cultural Heritage Commission

The City of Long Beach recently adopted an amended Cultural Heritage Commission ordinance (Chapter 2.63 of the Long Beach Municipal Code). Prior to adoption of the revised ordinance, the City included several evaluation criteria (A–K) for the local Landmark designation. These were referenced earlier in this report as part of the registration requirements for the various themes and subthemes (refer to Research Results section above). These previous criteria have been incorporated into the current Landmark criteria and are addressed in the analysis below. The current criteria for Landmark designation are nearly identical to the California Register criteria and now specifically address integrity.

2.63.050 Criteria for designation of Landmarks and Landmark Districts.

Landmarks. A cultural resource qualifies for designation as a Landmark if it retains integrity and manifests one (1) 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; or
d. It has yielded, or may be likely to yield, information important in prehistory or history.

EVALUATION

In summary, the project area is developed with the Bixby Ranch Field Office. The year built is circa 1924–1928. The building was moved a short distance (one-third of a mile) to its present location sometime between 1929 and 1947 (Figure 18). The building has undergone substantial alteration over the years, but it retains sufficient integrity with respect to location, setting, materials, and design to convey its significance.

The building is evaluated below for historical significance under the criteria for listing in the California Register and for designation under the City’s ordinance. Because the City’s criteria for designation are similar to those of the California Register, the evaluations have been combined:

- California Register Criterion 1 and City of Long Beach Criterion A.

The Bixby Ranch Field Office is a historic resource, an accessory building, constructed by the Marland Oil Company of California between 1924 and 1928 to provide office space and housing for its employees operating the Seal Beach Oil Field lease owned by McGrath & Selover while it was at its original location, and a lease owned by Fred H. Bixby and the Bixby Ranch while at its current location, during the historic period for the Long Beach oil industry, 1921–1945. The Bixby Ranch Field Office is a rare example, perhaps the only extant example, of a building used for office space/worker housing by an oil company producing oil and gas in a Long Beach field.
during the peak years of early oil production in Long Beach. It retains sufficient integrity with respect to Location, Setting, Feelings and Association to convey its original use. As such, it is individually eligible for listing in the California Register and for designation under the City’s ordinance, at a local level of significance, under Criterion 1 and Criterion A, respectively. The Bixby Ranch Field Office does not appear to be part of a potential historic district.

- California Register Criterion 2 and City of Long Beach Criterion B.
  The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion 2 or Criterion B, respectively. The historic resource is associated with a person about whom a scholarly judgement can be made, Jan Law, but research has not revealed specific information about the person’s activities and impact. The historic resource has not been directly associated with the activities of Fred H. Bixby. Even if it were documented that Fred H. Bixby did frequent the field office on occasion, the ranch house at Rancho Los Alamitos would retain by far the strongest association with the activities for which this person is important to the history of Southern California and the nation.

- California Register Criterion 3 and City of Long Beach Criterion C.
  The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion C or Criterion 3, respectively. The historic resource is a typical example of a common design and construction techniques. It does not embody the distinctive characteristics of a style, period or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction, i.e., contribute to a potential historic district.

- California Register Criterion 4 and City of Long Beach Criterion D.
  The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion D or Criterion 4, respectively. The historic resource has not yielded and is not likely to yield information important to prehistory or history.

In summary, the Bixby Ranch Field Office appears eligible for listing in the California Register under Criterion 1 and for designation under the local ordinance under Criterion A for its association with the Long Beach Oil Industry, 1921-1945. It is a “historical resource” under CEQA.

The DPR Forms for the Bixby Ranch Field Office are attached to this report as Appendix C.
IMPACTS ASSESSMENT

As discussed in the previous section, the Bixby Ranch Field Office has been evaluated as appearing eligible for listing in the California Register under Criterion 1 and for designation as a Landmark under Criterion A of Chapter 2.63 of the City’s Municipal Code. As such, it is a “historical resource” as defined by CEQA. Therefore, the potential project impacts to the historical resource must be assessed.

Section 15064.5(b) of the CEQA Guidelines provides that “[s]ubstantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” Material impairment occurs when a project alters or demolishes 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” in a State or local historic registry.

CHARACTER-DEFINING FEATURES

In this case, the physical characteristics of the historical resource that convey its significance include the following character-defining features:

- The simple rectangular plan (Figure 19);
- Original roof form with gravity vents;
- The inset front porch;
- The attic vents in the west and east front gables;
- The framed board sign;
- Stucco wall surfaces;
- Windows with original wood trim and openings of original position and dimensions;
- Gutters and original downspouts; and
- The raised foundation.

It is worth noting that the setting for this building, which would include the oil field with its aboveground infrastructure (pumps, pads, pipes, etc.), is not a character-defining feature of the historical resource because it has been extensively altered and does not retain temporal cohesion.

PROJECT DESCRIPTION

The project proposes to rehabilitate the Bixby Ranch Field Office for reuse as a visitors’ center. The potential project impacts are being analyzed based on a review of the proposed conceptual design.
Los Cerritos Wetland Restoration and Oil Production Project

Floor Plan, 1996

Bixby Ranch Field Office
submitted by Bryant, Palmer, Soto, Inc. (BPS), dated October 20, 2015, and attached to this report as Appendix D.

The entire project encompasses approximately 200 acres and there are numerous project components. For purposes of this analysis, LSA is focusing only on those components that relate directly to the historical resource (Bixby Ranch Field Office). Those components, which represent alterations to the historical resource, are described below and can be found on sheet CC-A-1 (Appendix D).

- Installation of a new concrete ADA ramp, stair, and landing at the southwest corner of the building, with the ramp along the south elevation;
- Installation of a new raised deck and stairs on the north elevation;
- Removal of existing stairs at the northeast corner of the building;
- The existing composition roof will be replaced if required;
- Removal of existing channel letters and back board on the south elevation;
- Installation of new signage on a new poured-in-place concrete wall adjacent to the ADA ramp on the south elevation;
- Installation of a new painted or stained wood baluster guardrail to match the existing. (The West Elevation indicates that this will be along new stairs at the northwest corner of the building; however, these are not shown on the Floor Plan.);
- Repair of the exterior cement plaster where needed. The color is proposed to remain the same; and
- A ramp or lift may be constructed in conjunction with the proposed new deck on the north elevation.

It should be noted that the plans do not indicate any changes to the existing windows or doors.

IMPACTS ASSESSMENT

The SOIS for the Treatment of Historic Properties are typically used to analyze project impacts. Projects that meet the SOIS are considered to be mitigated to a level that is less than significant. The SOIS are divided into four categories: preservation, restoration, rehabilitation, and reconstruction. In this case, application of the Standards for Rehabilitation is most appropriate for the proposed project.

As stated previously, the appropriate treatment for the Bixby Ranch Field Office is Rehabilitation. The building is associated with the discovery and production of oil in Long Beach during the period 1921-1945. It can easily be given an efficient contemporary use through alterations and additions (Rehabilitation) in a way that will convey its historic significance. The SOIS for Rehabilitation are given below, together with an assessment of the proposed project’s impacts as shown on the plans for the “Los Cerritos Wetlands Visitor Center” submitted by BPS dated October 20, 2015 (Appendix D).
Standards for Rehabilitation

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships. The specific use will be changed but it has been a commercial use historically and it will remain a commercial use. The project is in conformance with this Standard.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided. The historic character of the building may or may not be retained and preserved. Plans reviewed for the proposed project do not state explicitly whether materials and features from the period of significance will be retained and preserved. To ensure compliance with this Standard, a note should be added to the project plans stating that:
   a. The removal of historic materials or alteration of features that characterize the building shall be avoided. Repair/replacement of materials shall be made in kind.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken. No elements that create a false sense of historical development are proposed. The project is in compliance with this standard.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved. The only change that has gained significance is the signage on the front (west elevation) of the building. The plans do not indicate any changes to this sign, but to ensure compliance with this Standard the following is recommended.
   a. The following note shall be added to the plans: The sign located below the front-gable on the west elevation will be retained and preserved.

5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved. The property has a distinctive feature that must be preserved: the existing framed board beneath the gable on the primary elevation is a painted-over sign, referred to above as the Continental Oil Co. sign. In addition to that, there are materials such as the original wood window trim, features such as window and door openings, and finishes such as the stucco wall cladding, which are original and should be preserved if possible. To ensure compliance with this Standard, a note should be added to the project plans stating that:
   a. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize the building shall be preserved and/or repaired/replaced in kind.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence. During the field survey some deterioration, specifically cracks, were observed. In order to address this deterioration, it is likely that at least some of the exterior stucco cladding will be replaced. Therefore, to ensure compliance with this Standard, the following note should be added to the plans:
   a. Any deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a character-defining feature, the new feature shall match the old in design, color, texture, and other visual qualities, and where possible,
materials. Replacement of missing features shall be substantiated by documentary, physical or pictorial evidence.

7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible.* Treatments that cause damage to historic materials will not be used. No chemical or physical treatments such as sandblasting are specifically proposed, however, to ensure compliance with this standard, the following note should be added to the project plans:

   a. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

8. *Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.* No significant archaeological resources have been identified within the boundaries of the proposed project, the likelihood of encountering any is low to none, and this building has no potential archaeological significance. The project is in compliance with this Standard.

9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*

The project proposes the addition of an ADA ramp and a wall with signage on the south side of the building, a new deck and stairs on the north side of the building, and possibly new stairs at the northwest corner of the building. These additions may or may not destroy features and materials that characterize the building. The size, scale, proportion and massing for the new additions and exterior alterations appear to be compatible with the property and its environment. To ensure that the ADA ramp and other exterior alterations for the proposed visitor center are compatible with this 1920s historical resource, the following mitigation measure is recommended:

   a. The design plans and elevations for the new visitor center associated with the Bixby Ranch Field Office should be reviewed and approved by City staff prior to issuance of building permits.

10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.* The project proposes the addition of an ADA ramp and a wall with signage on the south side of the building, a new deck and stairs on the north side of the building, and possibly new stairs at the northwest corner of the building. All of these proposed additions could be removed without damaging the essential form and integrity of the historical resource. However, some minor repairs, such as new plaster/stucco, may be needed. As stated above, the setting has already been altered and is no longer a character-defining feature. Therefore, additional changes to it, such as the provision of a parking lot or the removal of above-ground oil industry infrastructure, will not impact the building.

**Other Considerations**

At the City’s request, consideration has been given to the location of the Bixby Ranch Field Office. The conceptual plans (Appendix D, Sheet AA-1, Vicinity Map) indicate that the proposed visitors’ center will remain in its current location. If plans change and the proposed visitors’ center is moved to
another location within the site, the move per se will not trigger any significant impact because significant impacts are by definition impacts to character-defining features of the historical resource, and the oil field setting is not a character-defining feature of the historical resource (Bixby Ranch Field Office). Likewise, the proposed removal of above-ground infrastructure associated with 50 oil wells at the Synergy Oil Field Site will not trigger any significant impact to the Bixby Ranch Field Office. The property would continue to possess a sufficient level of integrity to convey its significance, even with respect to integrity of location and integrity of setting, providing it is not moved outside the Synergy Oil Field Site. The historical resource would retain a high level of integrity with respect to association because the direct association of the building with the Seal Beach Oil Field would remain intact.
RECOMMENDATIONS

Based on the research and the field surveys, the Bixby Ranch Field Office appears to be eligible for listing in the California Register under Criterion 1 and for Landmark designation under Criterion A of Chapter 2.63 of the City’s Municipal Code. Therefore, it is a “historical resource” as defined by CEQA. In order to determine whether the proposed project will result in any substantial adverse changes to the significance of the historical resource (the Bixby Ranch Field Office), an impacts assessment was completed using the Secretary of the Interior’s Standards (SOIS) for the Treatment of Historic Properties (Rehabilitation). As a result of that analysis, mitigation measures are recommended to ensure compliance with the SOIS. Projects that meet the SOIS are considered to be mitigated to a level that is less than significant. In addition to the mitigation measures, conditions of approval are also recommended in order to ensure the new visitors’ center is compatible with the early twentieth-century industrial historic period.

RECOMMENDED MITIGATION MEASURES

1. The following notes shall be added to the project plans to ensure compliance with the SOIS:
   - The removal of historic materials or alteration of features that characterize the building shall be avoided. Repair/replacement of materials shall be made in kind.
   - Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize the building shall be preserved and/or repaired/replaced in kind.
   - Any deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a character-defining feature, the new feature shall match the old in design, color, texture, and other visual qualities, and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical or pictorial evidence.
   - Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.

2. The design plans and elevations for the new visitors’ center should retain the feeling of a utilitarian building associated with the early twentieth-century oil industry, and must be reviewed and approved by City staff prior to the issuing of building permits.

RECOMMENDED CONDITIONS OF APPROVAL

3. Revise the proposed project plans to eliminate the inconsistency between the West Elevation view and the Floor Plan (sheet CC-A-1) regarding the new stairs and guardrail at the northwest corner of the building.
4. Rehabilitate the primary (west) elevation and the south elevation in a manner consistent with the panoramic photograph of the Seal Beach Oil Field (Figures 5 and 6) by:

- Removing the metal fabricated sign from the south elevation
- Relocating the utility pole, air conditioners on pads, and electrical conduit on the south elevation to the rear elevation;
- Replacing and/or adding downspouts as they appear in the panoramic photograph (Figure 5);
- Removing the satellite dish from the roof;
- Replacing or repairing the roof and exterior walls in a way that preserves the size, color, and pattern of the original roofing material and exterior wall cladding;
- Gently removing the paint that covers up the restoration period sign on the framed board above the porch and entry on the primary elevation;
- Reconstructing the porch, stairs flanked by piers and walkway leading to the entry on the primary elevation, in a way compatible with the massing size scale and architectural features of the original, as seen in Figures 5 and 6; and
- Constructing the ADA ramp, stair, and landing on the rear elevation.

STANDARD CONDITIONS

If buried cultural materials are encountered during earthmoving operations associated with the project after the removal and relocation of the above-ground oil field infrastructure or during the moving of the building, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

FINDING

LSA recommends to the City a finding of Less Than Significant with Mitigation Incorporated with regard to the historical resource (the Bixby Ranch Field Office) in the project area. No further cultural resources analysis is recommended for the project unless the development plans change in a manner that might result in potential impacts not covered by this study.
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APPENDIX A

CORRESPONDENCE
January 14, 2016

Mr. Eugene Heck
LSA Associates, Inc.
1500 Iowa Avenue, Ste. 200
Riverside
California 92507

Dear Eugene:

It was a pleasure to meet with you today, and thank you for so generously sharing some of your historical research and information. I hope that our meeting was useful to you and that you will not hesitate to contact me if you feel we can be of additional assistance.

Incidentally, I ended up with two copies of the attached oil recovery statistics and so I assume that one copy is yours and therefore I am returning it to you – I know how annoying it can be to lose track of information!

With best regards and good wishes on your nomination process,

Cordially,

Pamela Seager
Executive Director
RANCHO LOS ALAMITOS FOUNDATION
MEMORANDUM

Date: January 13, 2016

To: PBH File/Bixby Ranch Company

From: Pamela Seager - 562-431-3541
      pamela@rancholosalamitos.org

Subject: Historical Information from Tim King regarding Bixby Ranch
         Building in the Oil Field at 2nd Street opposite the Market Place

Tim indicated that the building had been there at least twenty five years and
was not moved in that period. Pres had said that it was just an oil field
structure “thrown together by Continental Oil Company to house their oil field
staff operating the Bixby “A” Lease and that it had no historic merit.

Tim said that as far as it being available for the National Register, there had
been comments when the oil field operator wanted to make improvements, it
did not meet Osha standards, the oil company spoke to the City about making
repairs and they were told it would have to go through an historic architectural
review. Because of the age of the structure, there were some plaques on the
outside of the building and it was not on the register at that time and so the oil
company chose not to do anything. Bixby Ranch Company did not use the
building, it was always used by the Lessee.

The other item, the Bixby Ranch Sign, that was put on the building around
2005 and was not original to that building. When Bixby Ranch Company
moved out of their old building and moved back down to the Market Place, they
had the sign taken down and put on the building in the oil field.

At that time Tom Dean had purchased the field around 2005 but he did not
mind having the sign on the building because it somewhat protected him from
people knowing who now owned the land and building (Tom was later killed in
an airplane crash before much was done).

Following Tom’s death the widows of the two partners involved in the oil field
ownership, eventually contracted with Synergy and a Chinese development firm
to clean up and then develop the oil field, making the building a Visitor Center.
The Foundation had a long meeting with John KcKeown of Synergy on January
12th because the Foundation owns the mineral rights to some of the fields.
John shared the drawings for the development of the field and the drilling
(horizontal and vertical) that will take place there and at the Pumpkin Patch
and Market Place.
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PHOTOGRAPH(S) REQUESTED
Information can be found on the LBPL Digital Archive at http://encore.lbpl.org/iii/cpro/

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<td></td>
<td>Image will be use for the CEQA Report</td>
<td>REQUESTED BY (Your Information)</td>
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</table>

The City of Long Beach

LAUREN NGUYEN
Librarian
Main Library

Long Beach Public Library
101 Pacific Avenue, Long Beach, CA 90822
Telephone: 562-570-6837 Fax: 562-570-6956
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Updated October 2012
APPENDIX B

U.S. GEOLOGICAL SURVEY BULLETIN 2172-H
Growth History of Oil Reserves in Major California Oil Fields During the Twentieth Century

Chapter H of
Geologic, Engineering, and Assessment Studies of Reserve Growth

Cover. This map represents historical oil and gas exploration and production data for the conterminous United States and Alaska. It was derived from data used in U.S. Geological Survey Geologic Investigations Series I-2582.* The map was compiled using Petroleum Information Corporation’s (currently IHS Corporation) database of more than 2.2 million wells drilled in the U.S. as of June 1993. The area of the U.S. was subdivided into 1 mi² grid cells for which oil and gas well completion data were available. Each colored symbol represents a 1 mi² cell (to scale) for which exploration has occurred. Each cell is identified by color as follows: red, a gas-producing cell; green, an oil-producing cell; yellow, an oil- and gas-producing cell; gray, a cell that has been explored through drilling, but no production has been reported. Mast and others (1998) gives details on map construction.

Growth History of Oil Reserves in Major California Oil Fields During the Twentieth Century

By M.E. Tennyson

Chapter H of Geologic, Engineering, and Assessment Studies of Reserve Growth
Edited by T.S. Dyman, J.W. Schmoker, and Mahendra Verma


U.S. Department of the Interior
U.S. Geological Survey
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Growth History of Oil Reserves in Major California Oil Fields During the Twentieth Century

By M.E. Tennyson

Abstract

Oil reserves in 12 of California’s 52 giant fields (fields with estimated ultimate recovery >100 million barrels of oil) have continued to appreciate well past the age range at which most fields cease to show significant increases in ultimate recovery. Most of these fields were discovered between 1890 and 1920 and grew to volumes greater than 500 million barrels in their first two decades. Growth of reserves in these fields accelerated in the 1950s and 1960s and is mostly explained by application of secondary and tertiary recovery techniques, primarily waterflooding and thermal recovery. The remaining three-fourths of California’s giant fields show a pattern of growth in which fields cease to grow significantly by 20–30 years following discovery. Virtually all of these fields have estimated ultimate recoveries less than about 500 million barrels and most are in the 100–200 million barrel range. Three of six offshore giant fields, all discovered between 1966 and 1981, have shown decreases in their estimated ultimate sizes within about the first decade after production began, presumably because production volumes failed to match initial projections.

The data suggest that:

1. Only fields that attain an estimated ultimate size of several hundred million barrels shortly after discovery and have geologic characteristics that make them susceptible to advanced recovery techniques are likely to show substantial late growth.

2. Offshore fields are less likely to show significant growth, probably because projections based on modern seismic reflection and reservoir test data are unlikely to underestimate the volume of oil in the field.

3. Secondary and tertiary recovery programs rather than field extensions or new pool discoveries are responsible for most of the significant growth of reserves in California.

4. Field size data collected over many decades provide a more comprehensive context for inferring reasons for reserve appreciation than shorter data series such as the Oil and Gas Integrated Field File (OGIFF) from the U.S. Department of Energy’s Energy Information Administration (EIA).

5. Efforts to project future growth in California fields, and perhaps fields in other regions, should focus on evaluating the potential for enhanced recovery in fields with current estimated ultimate recoveries of about 250–500 million barrels.

6. By analogy with oil, attempts to project growth in gas reservoirs, in California and perhaps elsewhere, should focus on larger fields with lower permeability reservoirs where advances in recovery technology, such as perhaps horizontal drilling, are more likely to add substantial reserves.

Introduction

California oil fields have contributed a very large proportion of additions to domestic reserves in recent years. Almost half of additions to U.S. proved oil reserves in 1997 came from old fields in California (Anonymous, 1998). These fields were discovered between about 1890 and 1930 and contain mostly (but not exclusively) relatively heavy oil (≤20° API). In the San Joaquin Basin (fig. 1), California’s most prolific basin and the only one in which much exploration has taken place since the mid-1980s, analysis of the Oil and Gas Integrated Field File (OGIFF) of the Department of Energy’s Energy Information Administration (EIA) indicates that 97 percent of additions to reserves in the 1980s came from reserve appreciation rather than discoveries (Caroline Isaacs, unpub. data, 1993). Methodology used in previous USGS national oil and gas assessments (Root and Mast, 1993; Attanasi and Root, 1994; Gautier and others, 1995) has not been entirely successful in projecting this growth. Without at least a qualitative understanding of the factors responsible for the late growth in these old fields, future assessments risk continued imprecise prediction of additions to reserves in this important region, along with perhaps undue influence on other regions stemming from failure to isolate factors peculiar to California.
The long-term growth history of the 52 giant oil fields in California provides a basis for determining what factors have contributed to growth of reserves and for observing styles in growth patterns that are functions of geologic or other characteristics of the fields. Comprehensive field chronologies, including annual data on cumulative production, reserves, and number of producing wells for each field, along with the history of discovery of new pools and areas (a term used in California for field extensions), abandonments of pools or areas, combination of multiple fields into single fields, and chronology of application of secondary and tertiary recovery techniques, provide a basis for inferring influences on reserve appreciation. In addition, growth histories can be examined to search for potential influences common to many fields, either geologic (for example, development of waterflooding technology in fields with good porosity and permeability and sufficiently light oil, or application of newly developed seismic reflection technology at mid-century to find stratigraphic traps) or strategic/economic (such as World War II, increases in the price of oil, or real estate value exceeding oil value), or, conceivably, regulatory (spacing rules, environmental policies).

The information presented in this study, based on data compiled by Tennyson (1998), consists mostly of graphical displays of annual ultimate recovery estimates for California’s 52 giant fields, supplemented with additional data for the relatively few fields that have grown more than about 200 million barrels after 30 years since discovery. For two fields that show marked growth, additional information was compiled, quantifying the
extent to which secondary and tertiary recovery techniques were applied, in order to evaluate the association between reserve growth and enhanced recovery.

Data

Cumulative production volumes, reserve estimates, and numbers of producing wells were compiled annually as available, along with the chronology of discovery or abandonments of pools or areas and application of secondary recovery technology. The principal sources of production and reserves data were:

1. An early paper containing the first published estimates of field sizes in California (Collum and Barnes, 1924)
2. Production and reserves data published by the American Institute of Mining and Metallurgical Engineers (AIME) in the 1930s (Wilhelm, 1932, 1936, 1937, 1938, 1939; Wilhelm and Miller, 1933, 1934)
3. Annual production and reserves data published by the Oil & Gas Journal beginning in the mid-1940s (Oil & Gas Journal, 1946 to 1978)
4. Annual production and reserves data published by the California Division of Oil and Gas (1977 to 1992) and California Division of Oil, Gas, and Geothermal Resources (1993 to 1999)

The history of pools discovered within the fields and the chronology of secondary recovery programs undertaken in each pool were compiled from California Division of Oil and Gas (1991b) and California Division of Oil, Gas, and Geothermal Resources (1998).

Data were organized as tables and plots, both for individual fields (Tennyson, 1998), and for all the giant fields in three general areas of the State—Los Angeles Basin, San Joaquin Basin, and coastal basins, as well as the six offshore fields (fig. 1). The plots were used to identify fields that showed unusual growth patterns. The exploration, development, and advanced recovery histories of these less typical fields were briefly investigated in order to hypothesize responsible factors.

Analysis of Growth Patterns

San Joaquin Basin

Of the 21 giant fields in the San Joaquin Basin, five stand out as having shown substantial growth, late in their histories—Coalinga, South Belridge, Elk Hills, Kern River, and Midway-Sunset (fig. 2). These fields, all discovered between 1887 and 1919, grew by factors of 1.8 to 17 between 1950 and 1995, with increases in estimated ultimate recovery (EUR) ranging from 400 million barrels to 1.8 billion barrels. Each of the other giant fields in the San Joaquin Basin grew by less than 233 million barrels during the period 1950–1995: four fields (Cymric, Lost Hills, M CK'trick, and Mount Poso) grew by volumes ranging from 180 to 233 million barrels, and the remainder grew by volumes generally less than 100 million barrels. Seven grew very little; of these, four are fields that barely exceed 100 million barrels of estimated ultimate recovery.

Midway-Sunset, discovered in the 1890s, is by far the largest of these fields that show late growth. The first published estimate of its size was just under 1 billion barrels in the 1930s. New pools continued to be discovered into the 1950s, and minor pools were discovered as late as 1983 (table 1). The Buena Vista area of the field was split off as a separate field in the 1950s. In the early 1960s, operators began pilot cyclic steam projects, which proved sufficiently successful that cyclic steam recovery operations became widespread throughout the field (Rintoul, 1995). Fireflooding was attempted in several pools in the 1970s with some success. The development of steamflooding in the 1960s and 1970s, however, was clearly the most significant cause of reserve growth. Reserves were revised upward repeatedly beginning in the late 1960s (fig. 3), at a much greater rate than had typified the earlier period of growth by new pool discovery. An upward revision in 1991 of 500 million barrels of oil was followed in 1999 by another jump in reserves of more than 700 million barrels. From 1988 to 1998, about 80 percent of the oil produced at Midway-Sunset (477 million of 600 million barrels produced) was “incremental” production attributable to enhanced recovery. In the last several years, operators have been experimenting with horizontal wells within steamfloods, but no clear results have yet emerged; a new era of reserve additions is possible if these experiments prove successful.

Oil gravities reported from the pools in Midway-Sunset field where steamflood operations are in progress range from 8° to 14° API; most are 11°–13° API. Porosity in reservoir sands is typically 30–35 percent and permeabilities range from a few hundred to several thousand millidarcies. The field is quite shallow for such an immense accumulation—few wells penetrate below about 7,000 ft (Lennon, 1990), so reservoir temperatures are relatively low, some under 100°F. Thus, the field presents an ideal situation for thermal recovery: excellent reservoir properties but heavy, relatively cool oil.

The Kern River field is another old field containing dominantly heavy oil (10°–16° API). It was discovered in 1899; a gradual decline in production rates over the next 60 years was suddenly reversed in the 1960s when steamflooding was introduced. By the early 1980s, the field’s daily production was almost three times what it had been in the initial decade after discovery (Rintoul, 1999).

The striking growth in South Belridge field has been driven by two independent advances in recovery technology: steamflooding and diatomite fracturing. The field produces from two principal reservoirs, shallow Pleistocene deltaic sands that contain heavy oil (13°–14° API), and deeper diatomaceous mudstone in which the oil is lighter (20°–32° API). From discovery in 1911 until about 1950, the field grew by areal expansion, to an EUR of about 80 million barrels, mainly from the
Figure 2. Estimated ultimate recovery (EUR) over time for giant fields in the San Joaquin Basin, plotted A, by calendar year, and B, by number of years since discovery. Most fields achieved their giant status within two or three decades of discovery and did not grow significantly thereafter. A few larger fields, however, most of which achieved EUR’s of close to 500 million barrels within a few decades of discovery, have shown substantial increases in EUR beginning about age 60–70. This “late” growth is largely accounted for by improvement in recovery efficiency attributable to enhanced recovery programs.
Table 1. Chronology of discoveries of pools and application of secondary and tertiary recovery programs in Midway-Sunset oil field.

<table>
<thead>
<tr>
<th>Year</th>
<th>Discoveries</th>
<th>Secondary and tertiary recovery</th>
</tr>
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<tbody>
<tr>
<td>1894</td>
<td>Tulare pool discovered</td>
<td>Waterflood started- Calitroleum pool</td>
</tr>
<tr>
<td>1902</td>
<td>Monarch pool discovered</td>
<td>Waterflood started- Monarch pool</td>
</tr>
<tr>
<td>1909</td>
<td>Gusher pool discovered</td>
<td></td>
</tr>
<tr>
<td>1910</td>
<td>Potter and Lakeview pools discovered</td>
<td>Fireflood started- Monarch pool; steamflood, cyclic steam started- Top Oil pool; cyclic steam started-Kinsey and Letholtz pools; waterflood discontinued- Monarch pool; cyclic steam discontinued- Kinsey pool</td>
</tr>
<tr>
<td>1913</td>
<td>Webster pool discovered</td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td>Mya Tar pool discovered</td>
<td>Flowflood started- Tulare, M ya Tar, Top Oil, sub-Lakeview, Potter, M arvic, and Webster pools</td>
</tr>
<tr>
<td>1922</td>
<td>Calitroleum pool discovered</td>
<td></td>
</tr>
<tr>
<td>1925</td>
<td>Obispo pool discovered</td>
<td>Fireflood started- Top Oil pool</td>
</tr>
<tr>
<td>1928</td>
<td>Republic pool discovered</td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>Sub-Lakeview pool discovered</td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>M arvic pool discovered</td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>Leutholtz pool discovered</td>
<td></td>
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<tr>
<td>1947</td>
<td>Pacific pool discovered</td>
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<tr>
<td>1954</td>
<td>M oco pool discovered</td>
<td></td>
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<tr>
<td>1957</td>
<td>M oco pool discovered</td>
<td></td>
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<tr>
<td>1960</td>
<td>Fireflood started- M oco pool</td>
<td></td>
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<tr>
<td>1961</td>
<td>Fireflood started- Top Oil pool</td>
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<tr>
<td>1962</td>
<td>Firefloods started- Webster, Monarch, and Tulare pools; waterflood started- Kinsey pool</td>
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<td>1963</td>
<td>Steamfloods, cyclic steam started- Tulare, M ya Tar, Top Oil, sub-Lakeview, Potter, M arvic, and Webster pools</td>
<td>Steamfloods started- Tulare and Kinsey pools; waterflood started- Top Oil pool; waterflood discontinued- Kinsey pool</td>
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<tr>
<td>1964</td>
<td>Waterflood discontinued- Calitroleum pool</td>
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<td>1965</td>
<td>Steamfloods started- Top Oil and M oco pools; steamflood, cyclic steam started- Monarch pool; waterflood discontinued- Monarch pool; cyclic steam discontinued- Kinsey pool</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>Steamfloods started- Tulare and Kinsey pools; waterflood started- Top Oil pool; waterflood discontinued- Kinsey pool</td>
<td></td>
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<tr>
<td>1968</td>
<td>Steamflood and fireflood started- Potter pool</td>
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<tr>
<td>1969</td>
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<td></td>
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<tr>
<td>1970</td>
<td>Steamflood started- Letholtz pool</td>
<td></td>
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<tr>
<td>1972</td>
<td>Steamflood started- sub-Lakeview pool; waterflood discontinued- Top Oil pool</td>
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</tr>
<tr>
<td>1975</td>
<td>Antelope Shale pool discovered</td>
<td></td>
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<tr>
<td>1976</td>
<td>Pioneer pool discovered</td>
<td></td>
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<tr>
<td>1977</td>
<td>Pulv pool discovered</td>
<td></td>
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<td>1980</td>
<td>Pulv pool abandoned (one well)</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>Pulv pool abandoned (one well)</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>Pioneer pool abandoned (one well)</td>
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</tr>
<tr>
<td>1983</td>
<td>McDonald Shale pool discovered</td>
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<tr>
<td>1985</td>
<td>Waterfloods started- Tulare and Monarch pools</td>
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<td>1986</td>
<td>Waterflood started- M arvic pool</td>
<td></td>
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<tr>
<td>1990</td>
<td>Waterflood started- sub-Lakeview pool; waterflood discontinued- Tulare pool</td>
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<td>1992</td>
<td>Waterflood discontinued- Monarch pool</td>
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<td>1994</td>
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<td></td>
</tr>
<tr>
<td>1996</td>
<td>Fireflood discontinued- Webster pool</td>
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shallow heavy oil reservoir; the diatomite reservoir had been discovered but did not produce at economic rates. In the 1950s, a pilot in-place combustion project demonstrated that 40–60 percent of the oil in place in the heavy oil reservoir could be recovered (Miller and M cPherson, 1992). A cyclic steam project began in the early 1960s, and steamfloods in the 1970s and 1980s pushed EUR to about 400 million barrels—about 40 percent of the oil in place in the shallow reservoir. During the 1970s, methods of successfully fracturing the diatomite were developed. A new operator bought the field in 1979 and began major redevelopment, including intensive development of the diatomite. EUR almost tripled, to about 1.1 billion barrels by 1990, as the previously unrecoverable oil in the diatomite was added to reserves. During the 1990s, expansion of steamflooding, waterflooding in the diatomite, and infill drilling combined to drive expected recovery to 1.9 billion barrels.

The histories of the other old San Joaquin fields in which significant late growth has taken place were not studied in any
Figure 3. Plots for Midway-Sunset field showing A, number of producing wells, cumulative production, and estimated ultimate recovery by year, and B, volumes of steam injected, cumulative oil produced, estimated ultimate recovery, reserves, number of injection wells, cumulative injection volume, and volume of oil production directly attributable to thermal recovery ("incremental oil"). Reserves began to be added after thermal recovery was started. (Data on thermal recovery from California Division of Oil, Gas, and Geothermal Resources annual publications.)
Los Angeles Basin

In the Los Angeles Basin (fig. 4), 12 of the 16 giant fields reached ultimate sizes between 100 and 500 million barrels within the first few decades after discovery and did not grow significantly thereafter. Two fields, Santa Fe Springs and Long Beach, attained sizes significantly larger than most of the rest, but did not grow very much after age 25–30. One field, Huntington Beach, grew past the 1 billion barrel mark at about age 50 and continued to grow in increments totaling almost 300 million barrels until about age 65; waterflooding was begun in this field at about age 40 and appears to be the most probable cause of this late growth. By far the most spectacular example of field growth in the Los Angeles Basin is the Wilmington field (fig. 5; see Mayuga, 1970, for details of field history). Discovered in 1932, this field grew for its first two decades as 12 pools were discovered and developed (table 2), reaching an estimated ultimate recovery of 1 billion barrels at age 20 in 1952. A pilot waterflooding program began the following year in an attempt to halt rapid ground subsidence that had developed over the previous decade as a result of high production rates related to wartime needs; the ground surface had subsided about 30 ft during the 1940s. By the mid 1950s, the results of the waterflooding pilot programs indicated that subsidence had slowed to virtually negligible rates, so unitization agreements were negotiated during the 1950s that would allow for field-wide waterflooding projects. A 1954 seismic survey of the offshore area adjacent to the field showed that the trapping anticline continued several miles offshore, but expansion could not proceed until local authorities were satisfied that subsidence could be avoided. By 1960, it was clear that waterflooding was effective in stopping and preventing subsidence; between 1960 and 1965, the City of Long Beach developed contractual arrangements for offshore expansion, which began in 1965. In 1963, the estimated ultimate recovery of the previously developed part of the field was 1.16 billion barrels of oil; 3 years later, in 1966, as the increase in oil recoverability caused by waterflooding became evident and the reserves due to offshore expansion were added, the estimated ultimate size of the field approached 3 billion barrels (fig. 5). This included 1.16 billion barrels already produced from the onshore area, an additional 0.5–0.7 billion barrels projected in the onshore area as a direct consequence of waterflooding, and an additional 1.0–1.2 billion barrels from the offshore expansion (M ayuga, 1970). Steamflooding was introduced in a few pools in the 1980s. Since 1988, two-thirds of the oil produced at Wilmington has resulted from waterflooding and steamflooding (California Division of Oil, Gas, and Geothermal Resources, 1988–1998)—150.8 million barrels of the 226.1 million barrels produced between 1988 and 1998; waterflooding accounted for 93 percent of this incremental oil. The success of waterflooding at Wilmington is apparently attributable to good reservoir character along with lack of a natural water drive. Porosities in these weakly consolidated submarine fan sands are mostly in the 26–32 percent range; permeabilities vary widely, from about 80 mD in one pool to 1,000–1,600 mD in two of the larger pools (Ranger and Tar). Oil gravity varies considerably: oils in shallower pools have gravities as low as 12°–14° API, and some oils in the field are as light as 25°–32° API. The oil in the biggest pools onshore (Ranger and Tar) ranges from 12° to 25° API (California Division of Oil and Gas, 1991b), and the offshore Ranger pool, which contains three-fourths of the oil in the offshore unit, ranges between 15° and 20° API (Berman and Clarke, 1987). Thus, although these oils are somewhat heavy, they are apparently light enough that the artificial water drive supplied by waterflooding brought about a substantial increase in recovery.

The original volume of oil in place (OOIP) at Wilmington was about 9 billion barrels (B bbl). (Available estimates are 9.6931 B bbl (A nymous, 1980), and 8.8 B bbl (M ontgomery, 1998).) Thus the current EUR of almost 2.8 B bbl represents a recovery efficiency of about 29–32 percent for the field as a whole. Berman and Clarke (1987) estimated that the OOIP in the offshore part of the field (L ong Beach U nit) was 3.8 billion barrels, so the OOIP in the onshore part of the field was evidently about 5–6 B bbl. By the 1990s, cumulative production plus proved reserves were about 1.3 B bbl in the onshore part and about 1.5 B bbl in the offshore part, which suggests recovery efficiencies of as much as 26 percent for the onshore and 40 percent for the offshore. It seems likely that the higher recovery efficiency for the offshore is due to the inclusion of waterflooding from the beginning of development. The 1952 pre-waterflooding EUR for the onshore part of the field was about 1 B bbl; waterflooding has added about 300 M M bbl (million barrels) to the ultimate recovery (about 6 percent of OOIP). This is less than the 500–700 M M bbl projected by M ayuga (1970) and is a relatively minor part of the overall increase since the mid-1960s; most of the fieldwide increase in EUR came from the addition of the oil in the offshore unit with its higher recovery efficiency.

Coastal Basins

Two fields in the coastal province have grown by more than about 200 million barrels—the V entura field and the S an A rdo field (fig. 6). The V entura field in the V entura-Santa Barbara Basin, discovered in 1919, grew by seven new pool discoveries between 1922 and 1952, reaching an estimated size of about 800 million barrels at the end of this period. The first waterflooding project was begun in 1956. Five more of the total of eight pools were waterflooded in the 1960s and 1970s; all are still active. These waterflooding projects appear to have accounted for much of the additional 200 million barrels of reserves that the field gained in the 1970s and 1980s; about 21 million barrels in reserves were added as recently as the 1990s. Over the last decade, 89 percent (49 million barrels) of the 56 million barrels produced was incremental oil from waterflooding. Oil gravity is around 30° API in all pools. Porosity is about 15–20 percent
Figure 4. Estimated ultimate recovery (EUR) over time for giant fields in the Los Angeles Basin, plotted A, by calendar year, and B, by number of years since discovery. Most fields achieved nearly their current ultimate sizes within two or three decades of discovery. Wilmington field, in contrast, approximately doubled in estimated ultimate size, beginning at about age 30, because of widespread application of waterflooding technology, originally applied to halt surface subsidence. Huntington Beach field also grew appreciably during its fourth, fifth, and sixth decades, apparently also as a result of successful waterflooding programs.
<table>
<thead>
<tr>
<th>Year</th>
<th>Onshore area discoveries</th>
<th>Offshore area discoveries</th>
<th>Secondary and tertiary recovery</th>
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<tbody>
<tr>
<td>1932</td>
<td>Ranger pool discovered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>Upper Terminal pool discovered</td>
<td></td>
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<tr>
<td>1937</td>
<td>Ford, Tar pools discovered</td>
<td>Ranger, Upper Terminal</td>
<td></td>
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<tr>
<td>1938</td>
<td>Lower Terminal pool discovered</td>
<td>pools discovered</td>
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</tr>
<tr>
<td>1939</td>
<td>Union Pacific pool discovered</td>
<td>Tar pool discovered</td>
<td></td>
</tr>
<tr>
<td>1942</td>
<td>237, Schist pools discovered</td>
<td>237, Schist, Ford pools</td>
<td></td>
</tr>
<tr>
<td>1946</td>
<td></td>
<td>Union Pacific pool</td>
<td>Waterflood started-</td>
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<tr>
<td>1947</td>
<td></td>
<td></td>
<td>Upper Terminal/Onshore</td>
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<td>1948</td>
<td></td>
<td></td>
<td>Waterflood started-</td>
</tr>
<tr>
<td>1949</td>
<td></td>
<td></td>
<td>Tar/Onshore</td>
</tr>
<tr>
<td>1950</td>
<td></td>
<td></td>
<td>Waterfloods started-</td>
</tr>
<tr>
<td>1951</td>
<td></td>
<td></td>
<td>Ranger and Lower Terminal</td>
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<tr>
<td>1952</td>
<td></td>
<td></td>
<td>/Onshore; Lower Terminal/Offshore</td>
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<td></td>
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<td></td>
<td>237/Onshore and Offshore</td>
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<td></td>
<td>Steamflood started-</td>
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<td>1960</td>
<td></td>
<td></td>
<td>Ranger/Onshore</td>
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<tr>
<td>1961</td>
<td></td>
<td></td>
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<td></td>
<td>Ranger/Onshore; waterflood</td>
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<td>1963</td>
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<td></td>
<td>discontinued- 237/Offshore</td>
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<td></td>
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<td></td>
<td>Terminal/Onshore and Offshore</td>
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<td></td>
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<td>1972</td>
<td></td>
<td></td>
<td>Steamflood started-</td>
</tr>
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<td>1973</td>
<td></td>
<td></td>
<td>Tar/Onshore; CO₂ WAG flood</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>started- Tar/Offshore</td>
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<tr>
<td>1975</td>
<td></td>
<td></td>
<td>CO₂ WAG flood discontinued-</td>
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<tr>
<td>1976</td>
<td></td>
<td></td>
<td>Tar/Offshore</td>
</tr>
</tbody>
</table>

The ultimate recovery of the field was estimated to be about 200 million barrels, but after thermal recovery programs were begun in the 1960s, its ultimate size more than doubled to about 530 million barrels by the mid-1970s.

Offshore Fields

The six California giant fields that lie offshore were all discovered between 1966 and 1981. They are thus just emerging from the 2–3 decade-long interval in which older onshore fields tended to show rapid growth, although delays were unusually long between discovery and initial production at Hondo, Pescado, and Point Arguello fields. These delays were in part due to lengthy field delineation programs and in part to permitting delays stemming from environmental issues. Hondo and Dos Cuadras have grown irregularly, Pescado has not been on production long enough for a trend to emerge, and Point Arguello’s oil sale in the late 1990s after disclosing that production had declined faster than anticipated, despite attempts to slow the decline by re-injection of produced gas. The rate at which production would
Figure 5. Plot for Wilmington field showing number of producing wells, cumulative production, estimated ultimate recovery, reserves, volumes of water injected, and number of injection wells. Breaks in curves represent years for which data were not available.

Figure 6. Estimated ultimate recovery (EUR) over time for giant fields in coastal California basins. Late growth in Ventura field (oil gravity 30° API) is attributable to waterflooding and in San Ardo field (10°–13° API) to development of thermal recovery technology.
Twentieth Century Reserve Growth in Major California Oil Fields

![Figure 7. Estimated ultimate recovery for offshore fields, all discovered between 1966 and 1981, plotted against number of years since discovery.](image)

Discussion

The data presented here show that roughly three-quarters of the 52 giant fields in California have followed a pattern of rapid growth in the first two or three decades after discovery, followed by decelerating growth in subsequent decades. Most of these are the smaller fields in the data set, those whose estimated ultimate recoveries do not greatly exceed 100 million barrels. In contrast, the largest fields have continued to exhibit significant jumps in reserves. Increases early in the fields' histories were typically associated with discovery of new pools and field extensions, whereas most of the abrupt increases in estimated ultimate recovery since the 1950s were associated with application of secondary recovery technology, primarily waterflooding and steamflooding. These “late” increases are generally much larger than contributions made by new pool discoveries—some fields have doubled in estimated ultimate recovery as enhanced recovery programs were applied. Offshore fields discovered in the last 30 years have not generally shown the rapid growth typical of older onshore fields, perhaps because extensive studies of ultimate recovery preceded the operator’s decisions to develop the fields.

The element responsible for “late” reserve growth, then, is an increase in recovery efficiency. In California, recovery efficiencies are generally low, estimated at 5–30 percent without enhanced recovery programs (California Division of Oil, Gas, and Geothermal Resources, 1993b). Data from individual fields on volumes of oil originally in place or recovery efficiencies are not generally available, but the few published estimates imply 50–100 percent increases in recovery. Estimates referred to in the discussion of the Wilmington field suggest an increase in recovery efficiency from about 26 percent to 40 percent. Lennon (1990) reported estimates for Midway-Sunset field of approximately 4.4 billion barrels of oil originally in place, with...
2.25 billion barrels (51 percent) ultimately recoverable; he attributed about half of cumulative production as of 1986 to primary recovery and half to secondary recovery. Schamel and others (1998) referred to typical heavy oil recovery efficiencies of 40–70 percent in steamflooded Midway-Sunset reservoirs. The doubling in EUR in several fields after enhanced recovery began suggests that recovery efficiencies must have roughly doubled, because there are no other apparent causes for the increases in EUR.

The price of oil does not appear to have been directly responsible for the more significant reserve increases in the largest fields, because big jumps in estimated ultimate recovery that were clearly associated with enhanced recovery programs begun in the 1950s and 1960s (at Midway-Sunset, Kern River, Wilmington, and Ventura) preceded inflation of oil prices in the 1970s. Furthermore, substantial increases in ultimate recovery have continued through the late 1980s and 1990s despite the weakening of oil prices during that interval.

The data do not, in any obvious way, point to other controlling influences on reserve appreciation patterns, such as developments in exploration technology, changes in social priorities, economic developments, or strategic needs. Most fields for which reserves data from the 1930s and 1940s exist show some increase in size during the war years of the 1940s, but these increases were relatively minor compared to those associated with secondary or tertiary recovery programs initiated since the 1950s in the largest fields. No effects are apparent of more stringent environmental regulations that began to be imposed in the 1970s, unless one speculates that more fields would have shown significant late growth from enhanced recovery if environmental regulations had not been tightened. The use of seismic reflection technology to improve the understanding of subsurface stratigraphy and structure does not appear to have been associated with any particular episodes of reserve growth; as the quality of seismic data has improved over the last several decades, the number of new pools discovered in existing fields has dwindled, and most of those discovered have not had a significant effect on the field size.

The data summarized here provide a different perspective on reserve appreciation from that of another principal source of data on field size, the confidential Oil and Gas Integrated Field File (OGIFF) maintained by the Energy Information Administration of the U.S. Department of Energy. In addition to its unavailability to most workers, a major shortcoming of the OGG1F database is that it dates only from 1977—after the 1950s and 1960s development of major secondary and tertiary recovery programs and the mid-1970s jump in oil prices—so it provides little information that can be used to infer influences on earlier growth in old or even moderately old fields.

A major increase in recovery efficiency appears to be the principal cause of the extreme growth shown by a handful of old California fields, future studies of reserve growth potential should include attempts to identify the geologic characteristics responsible for reservoirs in which primary recovery produces only a low fraction of the oil in place. The most obvious of these is oil gravity, but depositional setting may also be important—most of the late-growth California reservoirs are submarine fan turbidites, for instance. In addition, fields that achieve sizes of at least several hundred million barrels of oil within the first three decades after discovery appear to be the ones in which late growth is most likely to occur.

Whether or not reserve growth in California—which is a very large proportion of such growth nationally in the United States—will continue at its recent rapid pace is not clear. Obviously, increases in recovery efficiency cannot continue indefinitely, so if we assume that the currently achieved recovery efficiencies are approaching their limits, the principal potential for increases in reserves should lie in parts of fields where current enhanced recovery techniques have not yet been applied. We can speculate that growth in California fields may begin to slow soon, as enhanced recovery programs are fully deployed and sweep the last recoverable volumes of oil from the reservoirs.

California’s giant heavy oil fields offer little insight into the potential for reserve appreciation in other regions or in gas accumulations, but if, as shown here, improvement in recovery efficiency has as much as doubled estimated ultimate recovery in individual California fields, the identification of oil or gas reservoirs with low primary production recovery efficiencies should be a key to improving our ability to estimate future reserve growth. These presumably include mainly low permeability oil and gas accumulations and heavy oil accumulations.

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APPENDIX C

DEPARTMENT OF PARKS AND RECREATION (DPR) 523 FORMS
### Resource Name or #:
Bixby Ranch Field Office

#### P1. Other Identifier:

**P2. Location:**
- Not for Publication
- Unrestricted

- **a. County:** Los Angeles
- **b. USGS 7.5' Quad:** Los Alamitos
- **c. Address:** 6433 East Second Street
- **d. UTM:** Zone: 11
- **e. Other Locational Data:** APN: 7237-017-013

#### P3a. Description:
This one-story office building has a simple rectangular plan (32.5 feet wide, 113 feet long) and rests on a raised foundation with rectangular underfloor vents. Based on a previous LSA report, "the building is supported on heavy wooden posts (4" × 4" or perhaps 6" × 6"), which rest on cement foundations; the foundations appear to run the length of the building and are spaced approximately four feet apart. A glimpse through an open crawl space revealed a deep subarea" (Strudwick et al. 1996: 21). The building is surmounted by a medium-pitched hip and gable roof sheathed with composition shingles and has no eaves. The west end features a small, steeply-pitched gable with an attic vent above the porch. The roof also includes four rooftop gravity vents on both the north and south sides, three stacks or masts, and a satellite dish. The exterior walls are covered with modern stucco/cement plaster.

The west elevation, which is the primary facade, is symmetrical and includes a full inset porch supported by paired vinyl posts and accessed by steps at the north and south ends. The vinyl porch railing is unembellished. The glazed entry door does not appear to be original. It is flanked symmetrically by two ribbon windows with vinyl-framed, double-hung end vents on either side of large fixed windows. A “framed board” in the frieze beneath the small gable once included historic signage reading “Continental Oil Co.,” but it has been obliterated by the current coat of paint. Based on a circa 1928 panoramic photograph (see related report), the porch appears to have been extensively altered.

#### P3b. Resource Attributes:
HP4, Ancillary building

#### P4. Resources Present:
- Building
- Structure
- Object
- Site
- District
- Element of District
- Other (Isolates, etc.)

#### P5a. Photo or Drawing:
See Continuation Sheet

#### P6. Date Constructed/Age and Sources:
- Historic
- Prehistoric
- Both
- Circa 1924-1928

#### P7. Owner and Address:
Los Cerritos Wetlands, LLC

#### P8. Recorded by:
Eugene J. Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

#### P9. Date Recorded:
February 3, 2016

#### P10. Survey Type:
Intensive-level CEQA compliance

#### P11. Report Citation:

#### Attachments:
- NONE
- Location Map
- Sketch Map
- Continuation Sheet
- Building, Structure, and Object Record
- Archaeological Record
- District Record
- Linear Feature Record
- Milling Station Record
- Rock Art Record
- Artifact Record
- Photograph Record
- Other (List):
**State of California — The Resources Agency**

**DEPARTMENT OF PARKS AND RECREATION**

**BUILDING, STRUCTURE, AND OBJECT RECORD**

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<table>
<thead>
<tr>
<th>Resource Name or # (Assigned by recorder)</th>
<th>Bixby Ranch Field Office</th>
</tr>
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</table>

**B1. Historic Name:**

**B2. Common Name:** Bixby Ranch Field Office

**B3. Original Use:** Office space/Employee housing

**B4. Present Use:** Office space

**B5. Architectural Style:** Craftsman elements

**B6. Construction History:** (Construction date, alterations, and date of alterations)

See Continuation Sheet.

**B7. Moved?** ☑ No ☐ Yes ☐ Unknown

**Date:** unknown

**Original Location:** 1/3 mile southwest of current, on the McGrath & Selover lease (operated by Marland Oil Company of California then Continental Oil Co.), Tract 1077

**B8. Related Features:**

See Continuation Sheet

**B9a. Architect:** unknown

**Builder:** unknown

**B10. Significance:**

**Theme:** Industrial Development: Oil Industry

**Area:** City of Long Beach

**Period of Significance:** 1921-1945

**Property Type:** Worker housing/Office space

**Applicable Criteria:** 1/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

See Continuation Sheet.

**B11. Additional Resource Attributes:** (List attributes and codes)

**B12. References:**


**B13. Remarks:**

---

**B14. Evaluator:** Eugene Heck, M.A., LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

**Date of Evaluation:** February 3, 2016

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(Sketch Map with north arrow required.)

(This space reserved for official comments.)
P5a. Photo or Drawing (continued from page 1)

North elevation, view south (12/11/15).

Rear elevation, view to the west (12/11/15).

See Continuation Sheet
P5a. Photo or Drawing (continued from page 3)

South elevation. View to the northwest (12/11/15).

Detail of the field office building (on right) shown in circa 1928 photograph. Source: Petroleum Collection, Long Beach Public Library.

See Continuation Sheet
B6. Construction History (continued from page 2). The research effort to document the construction date, alterations, and dates of alterations did not result in any direct documentation, such as County Assessor’s records or City building permits. These records either never existed or were not archived for long-term retention. (Telephone contacts with the Signal Hill Field Office of the Los Angeles County Assessor; and Craig Chalfant, Senior Planner, City of Long Beach). Alterations may be inferred by comparing field observations with the previous study by Strudwick et al. in 1996 and the circa 1928 panoramic photograph of the Seal Beach Oil Field (Figures 15 and 16).

The following alterations are noted:
- The building has been moved from its original location, which was 1/3 mile southwest of the current location on the McGrath & Selover lease (operated by Marland Oil Company of California and then the Continental Oil Co.; Tract 1077).
- The porch has been altered. Central steps flanked by piers have been removed. Stairs have been added at the north and south ends of the porch. A baluster has been added between paired posts supporting the porch roof. Baluster and posts were observed to be vinyl, not wood, although they certainly look like wood.
- A sign reading “Continental Oil Co.” in metal letters affixed to a framed board above the center of the porch has been painted over.
- A metal sign reading “Bixby Ranch Company” was added to the south elevation in 2005 (Pamela Seager, Memo of January 13, 2016).
- All windows have frames of similar vinyl material, not wood.
- A pair of windows on the north elevation appears to have been altered, the window on the right was replaced by a door, and wood stairs with metal railing were added.
- A concrete loading dock in the rear elevation was removed and a raised deck covered by a trellis was added.
- A small window opening was added to the left of an existing small window on the south elevation.
- A downspout was removed from the south elevation.
- A satellite dish was added to the roof.
- The interior spaces have been substantially altered since 1996. (Figure 19). The previous study states: “Inside, a long central hall provides access to the offices, restrooms, locker room, washroom, and lunch room/storage area. The floor is wood covered with linoleum or tile; the walls and ceiling are lath and plaster. Water damage to the walls and ceiling has caused the plaster to separate from the wooden lath in some areas. Several interior features are of particular interest. In the washroom, a long porcelain sink with several faucets provides facilities for six or eight men to scrub their hands. In the lunch area, a table with an aluminum edged Formica top sits on oak legs. A brass tag nailed to one of the legs bears the inscription “Mar. O. Co.” and appears to have been an asset tag for the Marland Oil Company.” (Strudwick et al., 1996: 21-27).

B8. Related Features (continued from page 2). Related features include a pipe storage area, hoist, tanks, sheds and above-ground pipes, partially dismantled oil pumps and equipment, rod pumps - both active and inactive, Marston matting and valve assemblies, groups of out-of-service oil tanks, a large wetland area in the northern portion of the parcel, a network of non-public access dirt roads, and a surficial trash scatter containing miscellaneous industrial and domestic debris that was identified during the archaeological survey (December 15 and 16, 2015) as extending along the southern edge of Steamshovel Slough. Artifacts noted appear to date from the 1930s to approximately the 1970s. Associated with the historic oil field, the trash scatter contains a wide diversity of artifacts, none of which are unique and most of which are consistent with the sort of trash that would be deposited in association with the oil field business. The trash scatter is a typical example of a common resource type; it represents minimal, if any, archaeological data and, therefore, is highly unlikely to qualify as a “historical resource” under CEQA. It need not be considered further for this or future projects within the Synergy Oil Field.

See Continuation Sheet
B10. Significance (continued from page 2)

The Historic Context Statement prepared by Sapphos Environmental, Inc. for the City of Long Beach in 2009 has been used to identify two subthemes directly associated with the Bixby Ranch Field Office:

- 6.5.1 Industrial Subtheme: Oil Industry, 1921–1945
- 5.1.1 Oil and Industry

The 6.5.1 subtheme is better than the 5.1.1 subtheme for evaluating the historic significance of the Bixby Ranch Field Office because the Associated Property Type: Oil Associated Buildings and Structures, includes office spaces, which is one of the two historic uses for this building (the other is Worker housing).

A memo from the Executive Director of the Rancho Los Alamitos quotes a knowledgeable source as stating that the building is just an oil field structure “thrown together by Continental Oil Company to house their oil field staff operating the Bixby “A” Lease”, and that it had no historic merit. (Appendix C).

The Registration Requirements for 6.5.1 state, “If identified through primary-source research, properties with a direct association to the discovery of oil in Long Beach and its impact on the city’s history and built environment would be considered rare and should be considered significant if identified.” (Sapphos Environmental, Inc.:87).

Integrity is the ability of a property to convey its significance. There are seven aspects of integrity:

- Location
- Design
- Setting
- Materials
- Workmanship
- Feeling
- Association

When evaluating historic significance under Criterion 1, (Events important in the defined historic context), the aspects of integrity that are most important are Location, Setting, Feeling, and Association. Conversely, Design, Materials and Workmanship are less important under Criterion 1 because the building is important not for its architecture or construction methods, but for its ability to convey a sense of past events. The Bixby Ranch Field Office was moved a short distance within the Seal Beach Oil Field and has remained in its present Location more than 50 years. It has a high level of integrity with respect to Location. The Setting is an oil field with areas of degraded wetland and wetland habitat, with oil industry infrastructure present both today and during its period of significance (1921–1945). It has a high level of integrity with respect to Setting. Feeling and Association require the presence of physical features that convey a property’s historic character. Because Feeling and Association depend on individual perceptions, their retention alone is not enough to qualify a property for the California Register of Historical Resources (California Register). The Bixby Ranch Field Office has enough original features, such as its overall form, massing and details, to say that it retains a high level of integrity with respect to Feeling and Association.

The Bixby Ranch Field Office is a historic resource, an accessory building constructed by the Marland Oil Company of California between 1924 and 1928 to provide office space and housing to its employees operating the Seal Beach Oil Field lease owned by McGrath & Selover while it was at its original location, and a lease owned by Fred H. Bixby and the Bixby Ranch while at its current location during the historic period for the Long Beach oil industry, 1921-1945. The Bixby Ranch Field Office is a rare example, perhaps the only extant example, of a building used for office space/worker housing by an oil company producing oil and gas in a Long Beach field during the peak years of early oil production in Long Beach. It retains sufficient integrity with respect to Location, Setting, Feeling and Association to convey its original use. As such, it is individually eligible both for listing in the California Register and for designation under the City’s ordinance, at a local level of significance under Criterion 1 and Criterion A, respectively. The Bixby Ranch Field Office does not appear to be part of a potential historic district.

See Continuation Sheet
B10. Significance (continued from page 6)
The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion 2 or Criterion B, respectively. The historic resource is associated with a person about whom a scholarly judgment can be made, Jan Law, but research has not revealed specific information about the person’s activities and their impact. The historic resource has not been directly associated with the activities of Fred H. Bixby, and even if it were, the Rancho Los Alamitos ranch house would be a far more significant historical resource to convey the importance of this person to history.

The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion C or Criterion 3, respectively. The historic resource is a typical example of a common design and construction techniques. It does not embody the distinctive characteristics of a style, period or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction, i.e., contribute to a potential historic district.

The Bixby Ranch Field Office does not appear to be eligible for listing in the California Register or designation under the City’s local ordinance under Criterion D or Criterion 4, respectively. The historic resource has not yielded and is not likely to yield information important to prehistory or history.

In summary, the Bixby Ranch Field Office appears eligible for listing in the California Register under Criterion 1 and under the local ordinance under Criterion A for its association with the Long Beach Oil Industry, 1921–1945. It is a “historical resource” under CEQA.
APPENDIX D

SYNERGY OIL FIELD SITE PLANS
KEY NOTES

1. NEW CONCRETE ADA RAMP, STAIR AND LANDING
2. NEW RAISED SLOPE
3. NEW STAIR
4. EXISTING STAIR TO BE REMOVED
5. EXISTING STAIR TO REMAIN
6. EXISTING COMPOSITION SINGLE ROOF / REPLACE IF REQUIRED
7. EXISTING TRELIS
8. EXISTING RAIN GUTTER WITH DOWNSPOUTS
9. EXISTING ATTIC VENT
10. EXISTING FRAMED BOARD
11. EXISTING DOOR, TYPICAL
12. EXISTING WINDOW, TYPICAL
13. EXISTING PAINTED WOOD POST AND BALUSTERS
14. EXISTING WINDOW, TYPICAL
15. EXISTING UNDERFLOOR VENT
16. EXISTING CHANNEL LETTERS AND BACK BOARD TO REMOVED
17. PROPOSED VISITORS CENTER SIGNAGE OVER POURED IN PLACE CONCRETE WALL WITH CHAMFER AND REVEAL
18. NEW PAINTED (OR STAINED) WOOD BALUSTERS GUARDRAIL TO MATCH EXISTING
19. EXISTING ROOF TOP GRAVITY VENTS, STACKS, ETC...
20. EXISTING EXTERIOR CEMENT PLASTER / COLOR TO REMAIN, REPAIR AS REQUIRED

NOTE: DECK ALSO IS A SECOND EXIT, MAY REQUIRE A RAMP OR LIFT
PLANT LEGEND

Trees

- Acacia (such as)
- Cassia
- Cupressus sempervirens
- Ficus microcarpa 'Green Gem'
- Karo
- Koa
- Mediterranean Fan Palm
- Neodypsis decaryi
- Pindo Palm
- Phoenix dactylifera 'Medjool'
- Pindo Palm
- Pindo Palm
- Podocarpus
- Pohon
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- Podocarpus
- Prunus serrula
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APPENDIX E

ADDENDUM TO ADDRESS THE NATIONAL REGISTER OF HISTORIC PLACES
May 13, 2016

Mr. Ken Coulter  
Executive Vice President  
NCA Real Estate  
3 Corporate Plaza, Suite 230  
Newport Beach, CA 92660

Subject: Addendum to Address the National Register of Historic Places for the Historic Resources Assessment for the Los Cerritos Wetland Restoration and Oil Consolidation Project, City of Long Beach, County of Los Angeles, California (LSA Project No. LYC1501)

Dear Mr. Coulter:

In May 2016, LSA Associates, Inc. (LSA), prepared a Historic Resources Assessment (HRA) for the above-referenced project, located in the City of Long Beach (City), Los Angeles County, California (HRA Figure 1). The City, as Lead Agency for the project, required the study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA). The assessment included archival research, a field survey, an impacts assessment, and the HRA report. The subject property is approximately 199 acres and is currently developed with an office building, outbuildings, and oil and gas industry infrastructure, such as pumps, pipes, and storage tanks.

This Addendum is being prepared because the project requires a permit pursuant to Section 404 of the Federal Clean Water Act (CWA) administered by the United States Army Corps of Engineers (USACE), Los Angeles District, and is therefore a federal “undertaking” subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code [USC] 470), and its implementing regulations, published as Title 36, Part 800, of the Code of Federal Regulations (36 CFR 800).

The May 2016 study concluded that one of the buildings in the project area qualifies as a “historical resource” under CEQA and that the conversion of the building to a visitors’ center would constitute “a substantial adverse change in the significance of a historical resource.” As a result, mitigation measures were recommended. Because of the federal nexus for the proposed undertaking, this Addendum will apply the National Register of Historic Places (National Register) criteria,¹ to the property identified within the project’s Area of Potential Effects (APE) and discuss mitigation measures whose adoption will result in a Finding of No Adverse Effect to the historic property or for the proposed undertaking, overall.


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EVALUATION

The term “historic property,” according to the Advisory Council on Historic Preservation, “means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior” (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the Secretary of the Interior’s criteria, developed by the National Park Service as per provision of the National Historic Preservation Act. 36 CFR 60.4 provides the criteria as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
(b) That are associated with the lives of persons significant in our past; or
(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(d) That have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

Against these criteria, the Bixby Ranch Field Office, which was identified within the APE of the proposed undertaking during the May 2016 HRA, is evaluated as to its qualifications as a historic property. The results of the evaluation are discussed below.

Under Criterion A, the Bixby Ranch Field Office appears eligible for listing in the National Register for its association with the production of oil and gas in Long Beach between 1921 and 1945. It is an accessory building, constructed by the Marland Oil Company of California between 1924 and 1928 to provide office space and housing for its employees operating the Seal Beach Oil Field lease owned by McGrath & Selover while at its original location, and a lease owned by Fred H. Bixby and the Bixby Ranch while at its current location, during the historic period for the Long Beach oil industry, 1921–1945. The Bixby Ranch Field Office is a rare example, perhaps the only extant example, of a building used for office space/worker housing by an oil company producing oil and gas in a Long Beach field during the peak years of early oil production in Long Beach.

Under Criterion B, the Bixby Ranch Field Office does not appear to be eligible for listing in the National Register for its association with a person. It is associated with Jan Law, but research has not revealed specific information about this person’s activities and impact. The Bixby Ranch Field Office has not been directly associated with the activities of Fred H. Bixby, and even if it were documented that Fred H. Bixby did frequent the field office on occasion, the ranch house at Rancho Los Alamitos would retain by far the strongest association with the activities for which this person is important to the history of Southern California and the nation.
Under Criterion C, the Bixby Ranch Field Office does not appear to be eligible for listing in the National Register for its architecture or engineering. It is a typical example of common design and construction techniques. It does not embody the distinctive characteristics of a style, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction, i.e., contribute to a potential historic district.

Under Criterion D, the Bixby Ranch Field Office does not appear to be eligible for listing in the National Register for its potential to yield important information about prehistory or history. This criterion usually pertains to archaeological sites.

**INTEGRITY DISCUSSION**

Integrity is an important consideration in determining the significance of a historic property. It is a requirement for eligibility for listing in the National Register.

The National Register requires that a property possess integrity, which is defined as “the ability of a property to convey its significance.” The aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. The aspects of integrity that are most important to a property depend on the particular National Register criterion under which the property is considered eligible for listing. The Bixby Ranch Field Office appears eligible for listing in the National Register under Criterion A; location, setting, feeling, and association are the most important aspects of integrity for the Bixby Ranch Field Office. Although it was moved a short distance within the Seal Beach Oil Field sometime between 1929 and 1945, and it has undergone alterations, the Bixby Ranch Field Office retains sufficient integrity with respect to location, setting, feelings and association to convey its original use.

A building’s association with its period of significance is most often conveyed by its façade. The façade is defined as “the exterior of a building which is the architectural front” and is usually distinguished from other elevations by elaboration of architectural or ornamental details. The façade usually faces a public thoroughfare and provides the primary public entrance. The façade (west elevation) of the Bixby Ranch Field Office did not face a thoroughfare; it faced a dirt road in the oil field. The rear elevation (east) faced a parking area and provided secondary or service entrances. The rear of the building, when evaluating historic significance, is typically less important to the overall historic character of the building. This hierarchy is further supported by the *Secretary of the Interior’s Standards for Rehabilitation* and *Illustrated Guidelines for Rehabilitating Historic Buildings*, which specifies that additions to historic buildings should be located “at the rear or on an inconspicuous side of a historic building.”

**EFFECTS TO HISTORIC PROPERTIES**

Title 36 CFR Section 800.5(a)(1) states that:

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

Several examples of adverse effect are provided in 36 CFR Section 800.5(a)(2), which include, but are not limited to:

1. Physical destruction of or damage to all or part of the property;
2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
3. Removal of the property from its historic location;
4. Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features;
6. Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
7. Transfer, lease or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance.

The proposed undertaking proposes additions and alterations to the Bixby Ranch Field Office, which would result in an adverse effect to the historic property, as described in Item ii, above. Therefore, the adverse effect needs to either be reduced to a level that is less than significant by applying appropriate mitigation measures, or the proposed undertaking must be addressed in an environmental impact study. This would involve either preserving the building as is or extensively revising the proposed design. The potential effects have been analyzed after completing a review and plan check for the proposed design submitted by Bryant, Palmer, Soto, Inc. (BPS), dated October 20, 2015 (HRA Appendix D).

The appropriate treatment for the Bixby Ranch Field Office is Restoration. The building is a rare example of a type, a building associated with the production of oil in the City of Long Beach during the period from 1921–1945. It can easily be made to appear as it did during this particular, most significant time in its history (Restoration), and given a new use. If it is simply maintained and preserved as it has evolved over time (Preservation) or given an efficient contemporary use through alterations and additions (Rehabilitation), it would not convey its historic significance. The Secretary of the Interior’s Standards for Restoration are given below, together with an assessment of the proposed undertaking’s effects as shown on the plans for the “Los Cerritos Wetlands Visitor Center” submitted by BPS and dated October 20, 2015 (HRA Appendix D).
Standards for Restoration

1. *A property will be used as it was historically or be given a new use which reflects the property’s restoration period.* The restoration period is 1924–1945. The specific use will be changed but it has been a commercial use historically and it will remain a commercial use. The project is in conformance with this standard.

2. *Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces, and spacial relationships that characterize the period will not be undertaken.* Plans reviewed for the proposed project do not indicate whether materials and features from the restoration period will be retained and preserved. The proposed addition of a concrete American with Disabilities Act (ADA) ramp, stair, and landing will alter the spatial relationships that characterize the porch and entry on the primary elevation. The proposed addition of a poured in place concrete wall with chamfer and reveal will introduce a feature inconsistent with the property’s restoration period.

3. *Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve materials and features from a restoration period will be physically and visually compatible and identifiable on close inspection.* To comply with this guideline, specifications should embody the approach outlined by the appropriate Preservation Brief published by the National Park Service for the particular type of work needed to stabilize, consolidate, and conserve materials and features from the period 1924–1945 for this building.

4. *Materials, features, spaces, and finishes that characterize other historical periods will be documented prior to their removal.* Bixby Ranch Field Office has only one historical period, 1924–1945.

5. *Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.* The property has a distinctive feature that must be preserved: the existing framed board beneath the gable on the primary elevation is a painted-over sign dating to the restoration period. In addition to that, there are materials such as the original wood window trim, features such as window and door openings, and finishes such as the stucco wall cladding, which are either original and must be preserved or altered and must be restored to appear as they did during the period of significance, 1924–1945.

6. *Deteriorated features from the restoration period will be repaired rather than replaced.* Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and where possible, materials. The proposed plan follows this standard with respect to new painted (or stained) wood baluster guardrail. The specifications for repair of exterior cement plaster and the replacement of the shingle roof need to be rewritten to follow this standard.

7. *Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence.* A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically. The original plans and drawings for the building have been lost and the construction history cannot be documented because permits and assessor’s records do not exist. The panoramic photograph of the Seal Beach Oil Field and the Field Office Building detail photograph (HRA Figures 5 and 6) document the primary and southern elevations during the restoration period. Minimally invasive diagnostic tests may be used to obtain physical evidence of the period, e.g., original paint colors on external wall surfaces, window trim, and signage.
8. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used. The removal of paint from the sign on the framed board must follow this guideline.

9. Archeological resources affected by a project will be preserved in place. If such resources must be disturbed, mitigation measures will be undertaken. Not applicable to this project.

10. Designs that were never executed historically will not be constructed. The provision of an ADA ramp is exempt from this standard. It is recommended that the ADA ramp, stair, and landing be placed on the rear elevation. It should be noted that, until revised plans that incorporate some or all of these recommendations are submitted, a determination cannot be made for certain that these changes would mitigate the project to a less than significant level.

CONCLUSION

LSA has applied the National Register criteria to the Bixby Ranch Field Office and has determined it to be eligible for listing in the National Register under Criterion A at a local level of significance. With regard to effects to historic properties within the APE for the proposed undertaking, the proposed conversion of the Bixby Ranch Field Office into a visitors’ center will result in a Finding of Adverse Effect unless appropriate mitigation measures are taken, such as Restoration consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.

Sincerely,

LSA ASSOCIATES, INC.

Eugene Heck
Cultural Resources Manager
Historian/Architectural Historian
REFERENCES

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