

SECTION 2.0 ENVIRONMENTAL SETTING

2.1 PROJECT BACKGROUND

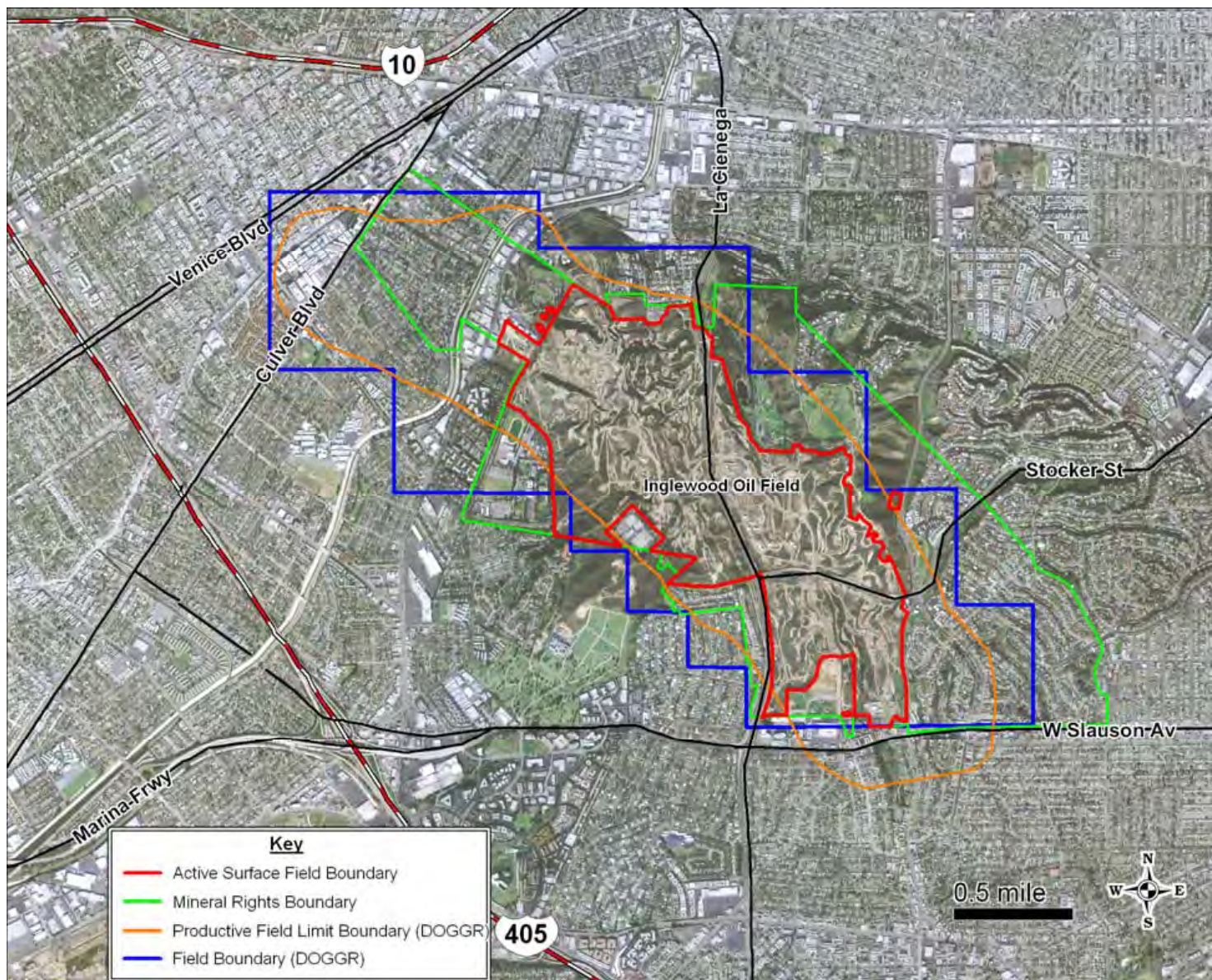
The Inglewood Oil Field Specific Plan (Specific Plan or Project) is located within a portion of the currently active Inglewood Oil Field. The Inglewood Oil Field covers approximately 1,000 acres within the unincorporated area of Los Angeles County and the City of Culver City (LACDRP 2008). The majority of the Inglewood Oil Field is in the County, with approximately 77.8 acres of the northwestern portion of the Inglewood Oil Field within Culver City's jurisdiction (City IOF or Project Site).

The first oil-producing well was drilled in the Inglewood Oil Field in 1924 and, by 1925, over 50,000 barrels of oil were produced per day. By the early 2000s, as many as 368 million barrels of oil and 269 billion cubic feet of natural gas (principally methane) were being produced by the Inglewood Oil Field (CDPR 2002). As of January 20, 2017, the California Department of Conservation's Division of Oil, Gas and Geothermal Resources (DOGGR) reports that there are 1,550 wells on the Inglewood Oil Field (DOGGR 2017). Based on the annual report for 2015, the Inglewood Oil Field produced nearly 2.38 million barrels of oil; 1.07 million cubic feet of gas; and 124.00 million barrels of water (DOGGR 2015b).

Exhibit 2-1 shows the general location of Inglewood Oil Field, with the surface field and mineral rights boundaries as defined by the Oil Field Operator, and the productive field limits and field boundary as defined by DOGGR. The "productive field limit boundary" as defined by DOGGR is the sub-surface area where oil and gas production is known to have occurred or is currently occurring. The "field boundary" is the surface area which overlies one or more common underground reservoirs where DOGGR believes oil and gas resources exist (LACDRP 2008). The rights to use the land surface for oil and gas drilling and associated activities are governed by applicable laws and regulations and by the agreements between the Oil Field Operator and the landowners. The underlying mineral rights are defined by the deed for the individual property parcels located within the Inglewood Oil Field.

In the late 1990s and early 2000s, the Plains Exploration and Production Company (PXP) obtained the drilling rights for the Inglewood Oil Field. In 2014, Freeport McMoran Oil & Gas (FM O&G) purchased PXP and became the Oil Field Operator, and was the Operator at the time of the issuance of the Notice of Preparation (NOP) for this Draft EIR. Freeport McMoran Inc. sold its onshore California oil and gas properties (including the Inglewood Oil Field) to Sentinel Peak Resources California LLC. Sentinel Peak Resources is a private energy company focused on acquisitions and development primarily in California (FM O&G 2016a). As such, Sentinel Peak Resources, effective January 2017, is the Oil Field Operator on record for the Inglewood Oil Field.

In October 2008, the Los Angeles County Board of Supervisors adopted the Baldwin Hills Community Standards District (CSD) establishing regulations for oil and gas production activities in the unincorporated County portion of the Inglewood Oil Field (County IOF). A CSD is a supplemental zoning overlay used by the County to address special issues that are unique to certain geographical areas within the unincorporated area of the County. At that time, the County also certified the related Environmental Impact Report (CSD EIR) analyzing the existing (as of 2007) and future environmental impacts from the anticipated operations at the Inglewood Oil Field subject to the CSD. The City IOF is not subject to the CSD regulations.



Inglewood Oil Field

Inglewood Oil Field Specific Plan Project

Exhibit 2-1



Following the approval actions of the County Board of Supervisors, the City of Culver City and other parties joined together in a lawsuit challenging the adequacy of the CSD EIR and its mitigation measures. In July 2011, a settlement of the litigation was reached, formally titled the Settlement Agreement and Mutual Release (hereinafter Settlement Agreement), which provided supplementary mitigation measures for the CSD and provided for enhanced regulations to protect the public health and safety and the environment of the communities surrounding the Inglewood Oil Field. The regulations set forth in the CSD and in the Settlement Agreement are only applicable to the County IOF, and do not apply to the City IOF (Community Health Councils et. al. 2011).

Culver City's current oil drilling regulations were last updated in 2003 and regulate oil and gas drilling activities within the City limits. In April 2013, Culver City released to the public the *Discussion Draft Oil Drilling Regulations for the Culver City Portion of the Inglewood Oil Field* (Discussion Draft Regulations) for public review and comment (City of Culver City 2013). In June 2014, the City Council of the City of Culver City adopted a resolution declaring its intention to initiate preparation of a Specific Plan for the City IOF. The Inglewood Oil Field Specific Plan is included as Appendix B-1 of this Draft EIR. The Specific Plan is based on the Discussion Draft Regulations, but has been modified in response to comments received to date. The Specific Plan and its related Drilling Regulations would regulate oil and gas drilling and associated activities within the identified Specific Plan boundaries (i.e., City IOF).

2.2 ENVIRONMENTAL SETTING

2.2.1 REGIONAL LOCATION

The City of Culver City is located in the western portion of Los Angeles County, southwest of downtown Los Angeles, as shown on Exhibit 2-2, Regional Location. The City of Culver City is bound by the City of Los Angeles to the north, south, and west and by the unincorporated area of Los Angeles County to the east. Various communities in the City of Los Angeles surround the site, including the communities of Cheviot Hills and Beverlywood in the West Los Angeles area to the north; the communities of West Adams and Crenshaw to the northeast; the communities of Mar Vista and Palms to the west; and the community of Playa Vista to the south. East and southeast of the City are the County's unincorporated communities of Ladera Heights, View Park-Windsor Hills, and Baldwin Hills.

The Project Site is located at the northern end of the Inglewood Oil Field (in the eastern section of Culver City) and adjacent to the Blair Hills neighborhood and a small portion of the Jefferson neighborhood. These neighborhoods are bound by the City of Los Angeles to the north and east and the unincorporated area of Los Angeles County to the south.

Regional access to the Project Site is provided by Interstate (I) 10, approximately 1.5 miles to the north and I-405, approximately 2.0 miles to the south. I-10 has an exit on Fairfax Avenue, which turns into La Cienega Boulevard. I-405 has an exit on La Cienega Boulevard, as well. From La Cienega Boulevard, direct access to the Project Site is provided by Stocker Street to South Fairfax Avenue (which is different from the I-10 exit at Fairfax Avenue). Slauson Avenue also connects to South Fairfax Avenue, where gated access points to the Inglewood Oil Field are located.

While there are locked gates surrounding the Inglewood Oil Field where access could be obtained (one gate is accessed through Culver City Park), the main access to the Inglewood Oil Field is located on South Fairfax Avenue, north of Stocker Street. The Fairfax/Stocker entrance provides on-site access to the majority of the Inglewood Oil Field areas through internal roadways and a bridge over La Cienega Boulevard.

2.2.2 PROJECT SITE

The Specific Plan covers approximately 77.8 acres of the Inglewood Oil Field that is within the City's jurisdictional limits. The entirety of the Inglewood Oil Field is approximately 1,000 acres, the majority of which is within the unincorporated area of Los Angeles County known as Baldwin Hills (LACDRP 2008). The Project Site is generally bound by La Cienega Boulevard to the east; the City of Culver City and Los Angeles County line to the south; Culver City Park and College Boulevard to the west; and the Baldwin Hills Scenic Overlook, Stoneview Nature Center, and the Blair Hills residential area in Culver City to the north. The Project Site consists of four non-contiguous areas in the City that are subject to active oil and gas production, as shown in Exhibit 2-3, Specific Plan Boundary and Adjacent Land Uses.

Table 2-1 lists these areas and their individual characteristics.

**TABLE 2-1
AREAS OF THE PROJECT SITE**

Area	General Location	Land Area (acres)	Total Wells	Active/Potentially Active Wells
1	West of La Cienega Blvd, north of the City boundary	68.24	57	33
2	South of Duquesne Ave in Culver City Park	0.22	2	2
3	South of Duquesne Ave in Culver City Park	0.52	3	3
4	Along College Blvd	8.77	7	3
Total		77.75	69	41
Source: DOGGR 2017				

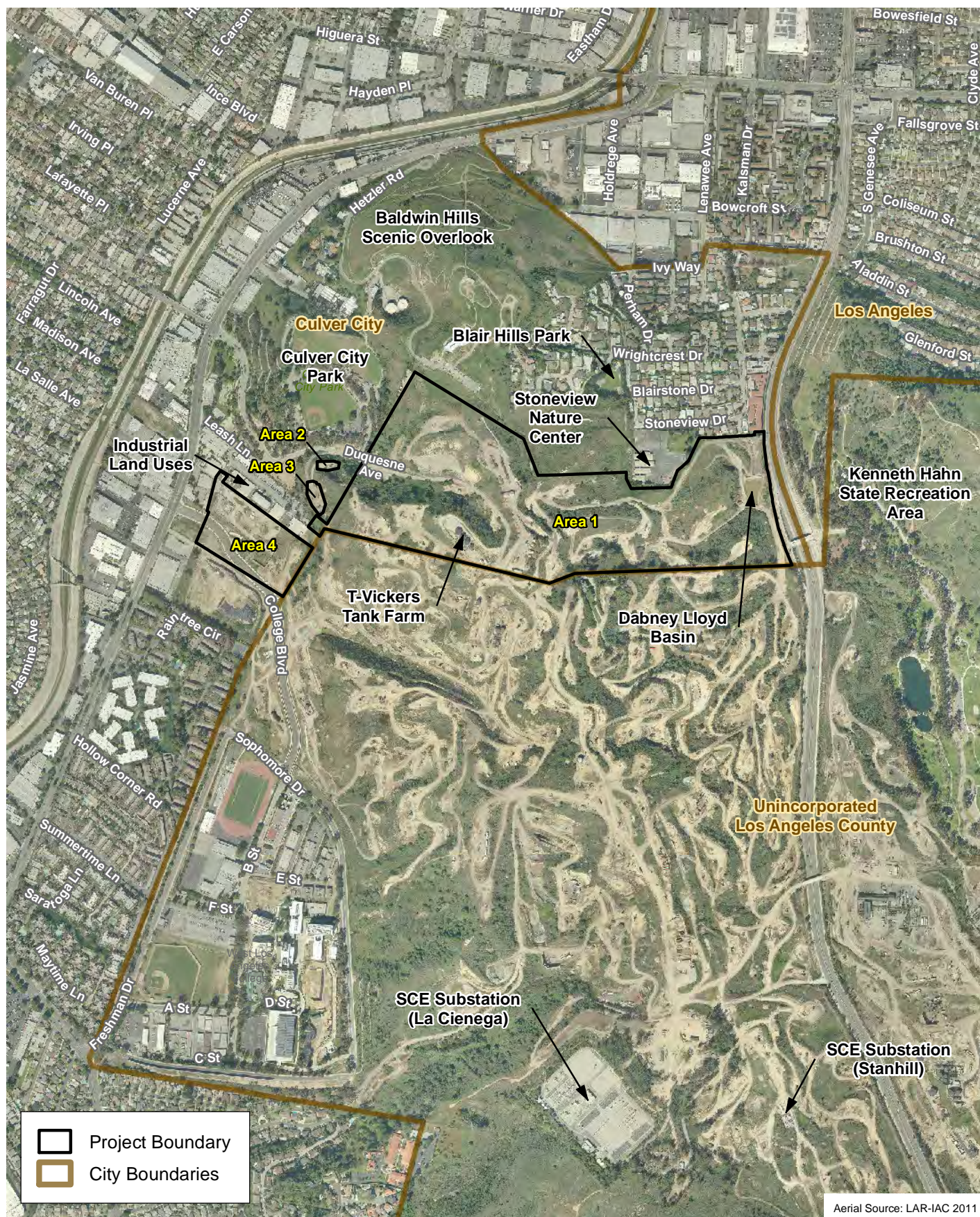
As discussed in more detail in Section 2.4 below, the Project Site is an operating oil and gas production field. On-site activities and facilities include petroleum extraction and storage; produced water injection; and pipelines to convey oil, produced water, and natural gas to the larger processing facilities within the County IOF. Existing facilities are dispersed throughout the Inglewood Oil Field on graded and cleared pads, with meandering dirt roads and patches of vegetation. A number of tanks, several types of wells (i.e., active, idle, production, injection), and pipelines to transport the produced oil and gas are located throughout the Project Site.

While the Productive Field Boundary of the Inglewood Oil Field (see Exhibit 2-1) underlies a larger area of Culver City, the boundaries of the Specific Plan have been formed to include only areas where there are known producing, active, or idle wells. According to DOGGR records available at the time of the issuance of the Notice of Preparation (NOP), there are 69 existing wells having top-hole locations within the City IOF, including 36 active production and injection wells, 28 plugged or abandoned wells, and 5 idle wells (DOGGR 2015a).¹ In addition, DOGGR indicates that 1 well² has been permitted by DOGGR, but never drilled. Because this one well has not been

¹ The number of active and idle wells is representative of a "snapshot" in time at which the NOP was issued. The Oil Field Operator has the ability to alternate well status between active and idle in compliance with DOGGR regulations. For the purpose of characterizing the baseline condition in this Draft EIR, any non-active well that has not been formally plugged or abandoned (in compliance with DOGGR), is assumed to have the potential to become active. Hence, should the number of idle wells increase or decrease from the count of five wells identified at the time of issuance of the NOP, this change in well status would not affect the total number of wells attributed to the City IOF baseline condition, which is based on a count of both operational and potentially operational wells.

² Well NW Extension 920 (API#03726595) is a pending well, permitted by DOGGR but never constructed.

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Aerial Source: LAR-IAC 2011

Specific Plan Boundary and Adjacent Land Uses

Exhibit 2-3

Inglewood Oil Field Specific Plan Project



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permitted by the City of Culver City, and does not physically exist, it is not included in the existing condition.

2.3 SURROUNDING PHYSICAL CHARACTERISTICS AND LAND USES

2.3.1 PHYSICAL CHARACTERISTICS

The Project Site is unique in that it is part of a large operating oil and gas production field that is located in a highly-urbanized area, with little to no room for expansion outside the Oil Field's current boundaries. The Project Site comprises a 77.8-acre portion of the Inglewood Oil Field in the northwestern part of the Baldwin Hills. The Project Site is approximately 300 feet higher in elevation than Ballona Creek, which is a major drainage located approximately 0.13-mile to the west of the Project Site. The Project Site features rolling terrain, with on-site elevations ranging from approximately 90 feet above mean sea level (msl) along the western edge of the site to 420 feet above msl in the center. As such, the Project Site is elevated and can be seen by much of the surrounding community. Rugged and steeply sloped portions of the Inglewood Oil Field have been highly modified over the years by construction of well and tank pads, access roads, treatment plants, oil, water and waste sumps.

The Project Site includes an Alquist-Priolo Earthquake Fault Zone (i.e., the Newport-Inglewood Fault Zone); this fault is seismically active and a part of the San Andreas Fault System. Approximately one to two miles northwest and west of the Project Site are two faults not associated with the Newport-Inglewood fault. They are the Overland Avenue and the Charnock faults, which are considered potentially active. Like all of southern California, there are numerous local and regional active and potentially active faults in the Project vicinity. Refer to Section 4.5, Geology, Soils, and Seismicity, for a description of the geologic setting.

The City of Culver City is located within the approximately 130-square mile Ballona Creek Watershed, which is located on the coastal plain of the Los Angeles basin, with the Santa Monica Mountains on the north and the Baldwin Hills on the south. While no perennial or ephemeral streams are known to be located on the Inglewood Oil Field (LACDRP 2008), six retention basins are within the Inglewood Oil Field that capture surface runoff from the Inglewood Oil Field and ultimately drain to Ballona Creek. There is one retention basin located within the Project Site, the Dabney Lloyd Basin (Basin 002), located on the east side of the Project Site. This Basin discharges to the Los Angeles County storm drain system and ultimately discharges to Ballona Creek (LACDRP 2008). Ballona Creek drains into the Pacific Ocean, approximately 5.25 miles southwest of the Project Site.

The Project Site is located near the intersection of the West Coast, Santa Monica, and Central Subbasins of the Los Angeles Groundwater Basin. Specifically, the Project Site overlies the southeast corner of the Santa Monica Basin. These subbasins meet in an area of subterranean faulting and folding (i.e., the Baldwin Hills), which has resulted in uplift and a shallow and poorly conductive aquifer system below the Inglewood Oil Field. Historical groundwater exploration and pumping data for the Inglewood Oil Field indicates that groundwater typically occurs in relatively thin layers (i.e., 10 feet thick or less) (Kleinfelder 2016). Groundwater exploration within the Inglewood Oil Field has occurred to a maximum depth of 550 feet bgs, and groundwater has been measured at various depths, although a consistent saturated section beneath the Inglewood Oil Field appears to have been present in 2012 in wells within the elevation interval of approximately 120 to 170 feet above mean sea level (msl). In addition, investigations described in the Community Standards District (CSD) EIR indicate that groundwater has been detected at depths of approximately 50 to 70 feet bgs in and near the Inglewood Oil Field. There are no domestic or

industrial water supply wells located within the active surface field boundary of the Inglewood Oil Field (Kleinfelder 2016).

Several types of vegetation are scattered throughout the Inglewood Oil Field and on the Project Site. These include degraded California sagebrush/buckwheat scrub; California sagebrush scrub; eucalyptus naturalized forest; disturbed/degraded scrub; ruderal or weed dominated areas; ornamental; and non-native ice plant dominated areas. Ornamental areas contain landscaped gum tree windrows (*Eucalyptus* spp.) adjacent to roads. Two vegetation types that have been previously mapped on the Project Site are considered special status: California sagebrush scrub, and California sagebrush-California buckwheat scrub. No federally or State listed plant species are expected to occur on the Project Site (LACDRP 2008, Psomas 2016).

The majority of habitat on the Inglewood Oil Field has been fragmented and isolated by oil field operations. Wildlife species that could occur on the site include: Baja California chorus frog (*Pseudacris hypochondriaca*), western toad (*Anaxyrus boreas*), American bullfrog (*Lithobates catesbeiana*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), California pocket mouse (*Perognathus californicus*), California mouse (*Peromyscus californicus*), woodrat (*Neotoma* sp.), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), California ground squirrel (*Spermophilus beecheyi*), cottontail rabbit (*Sylvilagus audubonii*), brush rabbit (*Sylvilagus bachmani*), western gray squirrel (*Sciurus griseus*), eastern fox squirrel (*Sciurus niger*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), common raccoon (*Procyon lotor*), coyote (*Canis latrans*), feral cat (*Felis catus*), and a wide variety of bird species.

2.3.2 SURROUNDING LAND USES

A mix of residential, industrial, office, research, oil production, and recreational land uses are located adjacent to the boundaries of the Project Site. Exhibit 2-3, Specific Plan Boundary and Adjacent Land Uses, shows the Project Site and existing land uses in the surrounding area.

Land Uses to the North

The area immediately north of the Project Site includes the single-family residential neighborhood of Blair Hills in Culver City, a multi-family development, Blair Hills Park, the Stoneview Nature Center, Baldwin Hills Scenic Overlook, and the Overlook's retention basin. The Blair Hills single-family residential neighborhood consists of approximately 182 units, and a portion of that neighborhood is immediately adjacent to the City IOF. The Baldwin Hills Scenic Overlook is a 68-acre State-owned park that has a visitor center and provides a hilltop vantage point of the surrounding communities and the Los Angeles Valley. The Overlook's retention basin and Blair Hills Park are located north of the Project Site. Blair Hills Park is a neighborhood park that covers 1.6 acres on Stoneview Drive, Shedd Terrace, and Wrightcrest Drive. It is developed with a recreation hut, picnic shelter, tot lot, softball diamond, basketball court, barbecue grill, and grass area. The Stoneview Nature Center, which opened in April 2017, is situated on an approximate 5.0-acre site on Stoneview Drive, immediately north of the Project Site. This nature center includes a 4,000-square-foot building, gardens, trails, an observation area, a yoga deck, seating areas, exercise areas, and a parking lot.

In addition, the Park to Playa Trail is a planned 13-mile multi-modal regional trail that will connect the Baldwin Hills parklands to the Pacific Ocean. The western portion of the Park to Playa Trail consists of the existing Ballona Creek Bike Path in Culver City and the Marvin Braude Bike Path in Playa del Rey. The eastern portion of the Park to Playa Trail is an approximate 7.0-mile system of walking, hiking, and bicycle trails running east-southeasterly through parks and open space areas in the Baldwin Hills (including existing trails in Culver City Park, the Baldwin Hills Scenic Overlook, the Kenneth Hahn State Recreation Area [KHSRA], and along the Stocker Street Corridor). The proposed Segment C of the eastern portion of the Park to Playa Trail will run from the KHSRA to the Baldwin Hills Scenic Overlook, passing through the northeastern edge of the Project Site and immediately north of the central and western sections of the Project Site as shown in Exhibit 4.13-1, Adjacent Recreational Areas, in Section 4.13, Recreation.

Land Uses to the East

The eastern boundary of the Project Site is generally defined by La Cienega Boulevard. East of La Cienega Boulevard is the KHSRA, which is a 319-acre State-owned park operated by the County of Los Angeles Department of Parks and Recreation. The KHSRA reflects the rolling terrain of the Baldwin Hills and is developed with large open grass areas, picnic sites, restrooms, tot lots, a lotus pond, a meeting room, and walking trails. Active recreational facilities include playgrounds, a half basketball court, a fishing lake, lighted baseball diamonds, a lit multi-purpose field, and a sand volleyball court. Passive recreation areas include a waterfall, a Japanese Garden, the Olympic Forest, picnic shelters, lookouts, and tables and benches at scattered locations. There are also large and small barbecue pits dispersed throughout the park. Vehicle access to the KHSRA is provided by La Cienega Boulevard and ramps to a bridge over La Cienega Boulevard that leads directly to the park. Pedestrian access is provided by steps and walking paths off La Brea Avenue, Padilla Place, and Cloverdale Avenue.

Land Uses to the West

West of the Project Site is Culver City Park, a 41.6-acre City park that is developed with a skate park (Culver City Skate Park), a dog park (Culver City Bone Yard Dog Park), playgrounds, recreation huts with restroom facilities and picnic areas, barbecues, softball diamonds, half basketball courts, walking trails, a ropes course, and soccer fields. As shown on Exhibit 2-3, Areas 2 and 3 of the Specific Plan are located south of the Culver City Park and east of The Bone Yard. The western boundary of the Project Site abuts industrial land uses that extend to Jefferson Boulevard. Vacant land and a multi-family residential development are southwest of the site, with the West Los Angeles College farther to the southwest.

Land Uses to the South

The southern boundary of the Project Site is the border between Culver City and Los Angeles County. South of this boundary is the remainder of the Inglewood Oil Field, which includes oil and gas exploration; production, processing, storage, and associated facilities; and transmission pipelines and access roads maintained and operated by Sentinel Peak Resources.

2.4 EXISTING SITE OPERATIONS AND BASELINE CONDITIONS

The Project Site is part of an operating oil and gas production field with ongoing activities and facilities associated with the larger operation of the Inglewood Oil Field. Existing facilities on the Project Site include five tanks (three 5,000-barrel tanks; one 3,000-barrel tank; and one 1,000-barrel tank); the Dabney Lloyd Basin (a storm water detention basin); various wells (active, idle, production, injection, and plugged wells); and pipelines to transport the oil, produced water, and

natural gas from on-site wells to other facilities within the County IOF for processing and distribution.

2.4.1 ON-SITE WELLS

The number, location and type of wells within the Project Site is fluid as old wells may be decommissioned/abandoned and active wells may become inactive or idle. Hence the description of on-site wells may change periodically. A number of active, idle, and plugged/abandoned wells are located on the Project Site. Table 2-2, List of On-Site Wells, summarizes the names, operator, and DOGGR status of these on-site wells at the time of the issuance of the NOP for this Draft EIR. DOGGR identified 36 of the wells within the Project Site as being active, including 26 production wells and 10 injection wells. Five wells have been identified as idle and 28 wells are identified as plugged or abandoned, resulting in a total of 69 wells within the City IOF (DOGGR 2015a). However, because the Oil Field Operator has the ability to alternate well status between active and idle in compliance with DOGGR regulations without any additional approvals from the City of Culver City, the 5 idle wells may become active again at any time, with or without the proposed Project. As discussed below in Section 2.6, this is only a small portion of the wells located within the larger Inglewood Oil Field. The locations of these wells are identified on Exhibit 2-4, Locations and Status of DOGGR-Identified Wells within the City IOF.

**TABLE 2-2
LIST OF ON-SITE WELLS**

Well ID	Current Operator	DOGGR Status
Block 22 DOGGR API: 03707468	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Block 23 DOGGR API: 03707469	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Block 26 DOGGR API: 03707472	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Block 29 DOGGR API: 03707475	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Block 30 DOGGR API: 03707476	Freeport-McMoRan Oil & Gas LLC	Inactive (Idle)
Block 31 DOGGR API: 03707477	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Dabney Lloyd 5 DOGGR API: 03708133	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Dabney Lloyd 6 DOGGR API: 03708134	Chevron USA Inc.	Inactive (Plugged or Abandoned)
Dabney Lloyd 6-A DOGGR API: 03708135	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Machado 1 DOGGR API: 03707867	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Machado 2 DOGGR API: 03707870	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Machado 3-A DOGGR API: 03707873	Freeport-McMoRan Oil & Gas LLC	Active (Production)
Machado 4-A DOGGR API: 03707875	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)

**TABLE 2-2
LIST OF ON-SITE WELLS**

Well ID	Current Operator	DOGGR Status
Machado 4 DOGGR API: 03707874	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Machado 5 DOGGR API: 03707876	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
Machado 6 DOGGR API: 03707878	Chevron USA Inc.	Inactive (Plugged or Abandoned)
Machado 7 DOGGR API: 03707880	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Machado 7A DOGGR API: 03707881	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 1 DOGGR API: 03709092	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 5 DOGGR API: 03709097	Freeport-McMoRan Oil & Gas LLC	Inactive (Idle)
TVIC 11 DOGGR API: 03709101	Freeport-McMoRan Oil & Gas LLC	Inactive (Idle)
TVIC 12 DOGGR API: 03709102	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 13 DOGGR API: 03709103	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 14 DOGGR API: 03709104	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 20 DOGGR API: 03709109	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 25 DOGGR API: 03709113	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 30 DOGGR API: 03709118	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 34 DOGGR API: 03700269	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 54 DOGGR API: 03720069	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 55 DOGGR API: 03709139	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 56 DOGGR API: 03709140	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 59 DOGGR API: 03700248	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 62 DOGGR API: 03709145	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 63 DOGGR API: 03700249	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 64 DOGGR API: 03720042	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
TVIC 69 DOGGR API: 03720462	Freeport-McMoRan Oil & Gas LLC	Inactive (Idle)
TVIC 74 DOGGR API: 03709149	Freeport-McMoRan Oil & Gas LLC	Active (Production)

**TABLE 2-2
LIST OF ON-SITE WELLS**

Well ID	Current Operator	DOGGR Status
TVIC 100 DOGGR API: 03725342	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 216 DOGGR API: 03720459	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 101A DOGGR API: 03725375	Freeport-McMoRan Oil & Gas LLC	Active (Production)
TVIC 217 DOGGR API: 03720460	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 218 DOGGR API: 03721516	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 219 DOGGR API: 03721797	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
TVIC 220 DOGGR API: 03722281	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
TVIC 268 DOGGR API: 03725079	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
TVIC 271 DOGGR API: 03725222	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
TVIC 272 DOGGR API: 03725256	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
Vickers 15 DOGGR API: 03709105	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Vickers 29 DOGGR API: 03709117	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
Vickers 70 DOGGR API: 03709146	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VR 112 DOGGR API: 03709081	Chevron USA Inc.	Inactive (Plugged or Abandoned)
VR 120 DOGGR API: 03709089	Chevron USA Inc.	Inactive (Plugged or Abandoned)
VRU 105 DOGGR API: 03708129	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 106 DOGGR API: 03708130	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VRU 107 DOGGR API: 03708132	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VRU 110 DOGGR API: 03709080	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 111 DOGGR API: 03709090	Freeport-McMoRan Oil & Gas LLC	Inactive (Idle)
VRU 113-A DOGGR API: 03709082	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 114A DOGGR API: 03709083	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
VRU 115 DOGGR API: 03709084	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 116 DOGGR API: 03709086	Freeport-McMoRan Oil & Gas LLC	Active (Production)

**TABLE 2-2
LIST OF ON-SITE WELLS**

Well ID	Current Operator	DOGGR Status
VRU 117 DOGGR API: 03709087	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
VRU 118 DOGGR API: 03709088	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
VRU 119 DOGGR API: 03700242	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VRU 121 DOGGR API: 03721209	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VRU 254 DOGGR API: 03722541	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 260 DOGGR API: 03723217	Freeport-McMoRan Oil & Gas LLC	Inactive (Plugged or Abandoned)
VRU 261 DOGGR API: 03723170	Freeport-McMoRan Oil & Gas LLC	Active (Production)
VRU 284 DOGGR API: 03725221	Freeport-McMoRan Oil & Gas LLC	Active (Injection)
DOGGR: California Department of Conservation, Division of Oil, Gas, and Geothermal Resources Source: DOGGR 2015a.		

2.4.2 TANKS AND PIPELINES

T-Vickers Tank Farm

A group of tanks, known as the T-Vickers Tank Farm, are located on a graded pad near the center of the Project Site (see Exhibit 2-3). This area contains the following equipment (FM O&G 2016b):

- Three 5,000-barrel tanks
- One 3,000-barrel tank
- One 1,000-barrel tank
- One 100-horsepower pump

At the T-Vickers Tank Farm, oil and water are separated in large gravity settling tanks. The oil is continuously skimmed off the tanks and routed to holding tanks. From the storage tanks, the produced water and the oil are pumped to the central oil sales facility located outside the Project Site, in the northeastern portion of the Inglewood Oil Field (LACDRP 2008).

Pipelines

Trucks are not currently used for transporting oil and gas supplies to adjacent areas in the Inglewood Oil Field (within the unincorporated areas south of the Project Site) or to off-site locations (outside the Inglewood Oil Field).

Various pipelines connect the on-site facilities and tanks to one another, and to wells and other facilities within the Inglewood Oil Field. Generally, gross fluid production is conveyed from wells to storage tanks and from storage tanks to the central oil sales facility or the gas plant (located off-site in the County IOF) by a system of pipelines. From the central oil sales facility in the County IOF, crude oil is piped into a Chevron pipeline that leads to area refineries. The gas from the



Locations and Status of DOGGR-Identified Wells within the City IOF

Inglewood Oil Field Specific Plan Project

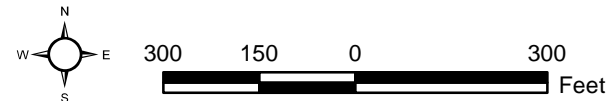


Exhibit 2-4



Inglewood Oil Field gas plant goes to either SoCalGas or the British Petroleum (BP) refinery in Carson, California, for use by end users. Both companies have pipelines that run directly to the gas plant to facilitate receipt of the natural gas. The produced water is piped from the on-site storage tanks to the central water plant or the small water plant at T-Vickers system (located off-site in the County IOF) where it is treated and piped to injection wells for injection into the subsurface (LACDRP 2008).

Overflow gravity pipelines connect various tanks to other tanks. In addition, gross production from locations outside of the Inglewood Oil Field is transported to the central oil sales facility through four pipelines (an oil/water pipeline, a gas pipeline, a water return pipeline, and a spare pipeline) located east of La Cienega Boulevard and south of the KHSRA (LACDRP 2008).

At the Project Site, there are several gas/vacuum pipelines that lead to the off-site gas plant in the County IOF. There are also pipelines from the on-site area known as the T-Vickers Tank Farm to an off-site processing facility (LACDRP 2008). Based on the Pipeline and Hazardous Materials Safety Administration's (PHMSA) National Pipeline Mapping System, a gasoline pipeline owned by Chevron runs through the Project Site, but is not connected directly to the on-site Inglewood Oil Field facilities. This is a different pipeline than the crude transmission pipeline discussed above. There are several idle crude oil pipelines owned by Chevron at the southwestern section of the site and south of the Project Site. A natural gas pipeline owned by SoCalGas connects to the gas plant in the County IOF, but is outside and south of the Project Site. An in-service crude oil pipeline runs west from the central oil sales facility and then south, but is also outside and south of the Project Site (PHMSA 2017).

2.4.3 RETENTION BASIN

There is one storm water retention basin located on the Project Site. The Dabney Lloyd Basin (Basin 002) is located near the northern end of the Inglewood Oil Field, just west of La Cienega Boulevard. Basin 002 receives runoff from the northwest portion of the Inglewood Oil Field including drainage from the Packard Basin and R.J. Basin. The maximum capacity of Basin 002 is approximately 294,000 gallons and the drainage area includes approximately 139 acres (FM O&G 2016b).

2.4.4 CHEMICALS AND OTHER MATERIALS USED

Current operations on the Project Site are likely to involve the use of a number of chemicals and other materials associated with well drilling and production. Since no crude oil or gas processing or treatment facilities are located on the Project Site, chemicals specifically associated with processing and treatment are not expected to be used or stored on the Project Site, but would be used in the adjacent County IOF. Table 2-3 lists the estimated storage quantities of chemicals and other materials associated with well drilling and production activities that are likely to be used on the Project Site. These values were based on the maximum storage quantities for the entire Inglewood Oil Field at the time of the Baldwin Hills CSD EIR, which included 643 active injection and production wells. Those maximum quantities were proportionally scaled down to correspond to the number of active wells located within the City IOF at the time of the NOP (36 wells). Therefore, Table 2-3 represents the estimated volume of chemicals used or that could be stored within the City IOF to support existing operations (LACDRP 2008).

**TABLE 2-3
ESTIMATED VOLUME OF CHEMICALS AND OTHER MATERIALS FOR EXISTING
ONSITE WELL DRILLING AND PRODUCTION ACTIVITIES**

Type	Description	Estimated Amount*
Anti-foulant	Inhibits corrosion and fouling	4 gallons
Binary Corrosion Inhibitor	Prohibits corrosion of pipes and vessels and helps with pipeline integrity	319 gallons
Corrosion Inhibitor	Prohibits corrosion of pipes and vessels and helps with pipeline integrity	194 gallons
Degreaser	Cuts grease	12 gallons
Oxygen Scavenger	Liquid blend of sulfite formulated to prevent oxygen pitting and general corrosion in pipes and water treatment systems	12 gallons
Scale Inhibitor	A chemical treatment used to control or prevent scale deposition in the extraction process	151 gallons
* Based on the total use of 643 active wells (injection and production wells) at the Inglewood Oil Field and the proportionate use of 36 active wells in the City IOF. Source: LACDRP 2008		

2.4.5 HAZARDOUS WASTES

Hazardous wastes are expected to be currently generated by well drilling and production activities at the Project Site during routine operations and maintenance. The approximate amount of hazardous waste generation from the Project Site is estimated in Table 2-4. These values are based on the generation quantities for the entire Inglewood Oil Field at the time of the Baldwin Hills CSD EIR, which included 643 active injection and production wells. Those maximum quantities were proportionally scaled down to correspond to the active wells located within the City IOF at the time of the NOP (36). Therefore, Table 2-4 represents the estimated volume of hazardous wastes that could be generated within the City IOF as part of existing operations.

**TABLE 2-4
EXISTING ESTIMATED HAZARDOUS WASTE GENERATION**

Type	Monthly Waste Volume*	Annual Waste Volume*
Absorbents used for chemical and hazardous material spills	0.6 pound	7 pounds
Empty 5-gallon containers used for chemicals and hazardous wastes	3 pounds	35 pounds
Off-spec paints	20 pounds	234 pounds
Waste aerosols	14 pounds	163 pounds
Non-hazardous oily debris	1,726 pounds	20,152 pounds
* Based on the total hazardous waste generation of 643 active wells (injection and production wells) at the Inglewood Oil Field and the proportionate generation by 36 active wells in the City IOF. Source: LACDRP 2008		

2.4.6 OPERATIONS AND MAINTENANCE ACTIVITIES

Production operations on the Project Site are 24 hours per day, seven days per week, and 365 days per year. Operational and maintenance activities at the Inglewood Oil Field involve extracting oil and gas from subsurface reservoirs located between 1,000 and 10,000 feet below the ground surface (bgs). Processing the crude oil to remove water and processing the gas to remove hydrogen sulfide and gas liquids is done outside the Project Site, but within the County IOF. Crude oil is then shipped by pipeline to area refineries to be processed into gasoline and other products. The gas is shipped by pipeline for end use by consumers and industry or is shipped to area refineries for use in the refining processes (LACDRP 2008).

With any active oil field, maintenance activities occur on active wells. Routine operation and maintenance activities that are likely to be occurring at the on-site wells include, but are not limited to the following (DOC 2015):

- Pump or rod replacement for production wells
- Sand or fill removal from the wellbore or tubing
- Replacement of downhole pumps and downhole power systems (electric or hydraulic)
- Tubing or packer replacement for injection or production wells
- Scale or wax removal from tubing or casing
- Adding a liner to an existing well
- Reperforating the existing zone(s)

In addition, as wells reach the end of their economically productive life, they could be shut-in (i.e., idled) and eventually plugged and abandoned as required by DOGGR (LACDRP 2008).

Based on information provided in the Baldwin Hills CSD EIR, baseline peak day traffic trips were estimated for operations and maintenance activities in the City IOF. The Baldwin Hills CSD EIR determined peak day employee and truck visits for 2007 for the 643 active production and injection wells. The peak day employee and truck visits for the County IOF were proportionally reduced to the active wells located within the City IOF at the time of the NOP (36). The peak day estimated trips could vary from day to day depending on numerous factors; however, a total of approximately 35 employee and truck trips (round trip) are estimated for the City IOF's baseline conditions based on the CSD EIR traffic generation. A breakdown of existing and projected trips with Project implementation is provided in Section 3.0, Project Description.

Further discussions of the existing Project Site conditions relative to each environmental issue are provided under the Existing Settings in Section 4.0, Impact Analysis, of this Draft EIR.

2.5 SUMMARY OF WELL STIMULATION TREATMENTS IN THE INGLEWOOD OIL FIELD

Cardno Entrix conducted the "Hydraulic Fracturing Study- PXP Inglewood Oil Field" (dated October 10, 2012) to evaluate the effects measured and monitored during the high-volume hydraulic fracturing and high rate gravel packing operations conducted in 2011 and 2012. This study also included an overview of the hydraulic fracturing in the Inglewood Oil Field. The following information is summarized directly from the Cardno Entrix study (2012).

Hydraulic fracturing, a type of well stimulation, can generally take one of two forms depending on whether the reservoir is tight sandstone or shale – conventional and high volume. Conventional hydraulic fracturing uses water, sand, and additives to fracture and stimulate the producing formation to a distance of up to several hundred feet from the well in order to enhance the permeability of the producing zone and stimulate the reservoir. It is typically applied in tight sandstone formations and some shales. High-volume hydraulic fracturing is a higher energy completion approach is generally applied to shales rather than sandstones. Similar to the conventional hydraulic fracturing process, sand and additives are used in the process; however, since shales have extremely low permeability, the high-volume hydraulic fracturing process uses increased treatment rates and material volumes (Cardno Entrix 2012).

Conventional hydraulic fracturing has been conducted on 21 wells in the past at the Inglewood Oil Field. These completions were conducted in the Sentous Moynier, Bradna, City of Inglewood, Rubel, and Nodular shale formations. Combined, a total of approximately 65 stages of conventional hydraulic fracturing have occurred at the Inglewood Oil Field between 2003 when PXP began operating the Inglewood Oil Field and 2012 when the study was completed. Conventional hydraulic fracturing has been used for every producing formation deeper than the Vickers and the Rindge at the Inglewood Oil Field. Most conventional hydraulic fracturing jobs were completed in the Sentous, the deepest producing formation at approximately 10,000 feet beneath the ground surface (Cardno Entrix 2012). None of the 21 wells that were subject to conventional hydraulic fracturing are within the City of Culver City. Exhibit 4.5-3, Regional Geologic and Fault Cross-Section, in Section 4.5, Geology, Soils, and Seismicity, illustrates the geologic formations underlying the City IOF.

In addition to the 21 conventional hydraulic fracturing events, the Cardno Entrix study documents that PXP contracted Halliburton Energy Services to conduct two high-volume hydraulic fracture jobs at separate wells on the Inglewood Oil Field for the purposes of addressing feasibility and potential impacts of hydraulic fracturing. The first hydraulic fracture completion was conducted on September 15 and 16, 2011, at the VIC1-330 well. The second completion was conducted on January 5 and 6, 2012, at the VIC1-635 well. Neither of these well locations are within the City of Culver City (Cardo Entrix 2012). Subsequent to the Cardno Entrix study, DOGGR information (July 2015) indicates that a third well identified as VIC1-38-A was established in 2013 and utilized for hydraulic fracturing between 2013 and 2014; however, specific details as to the date, depth, or results are not found on DOGGR's public information portal. The location of this well is not within the City of Culver City.

Gravel packing and high-rate gravel packing differ from hydraulic fracturing in that it is not intended to create fractures in the producing formation to enhance production. The primary objective is to stabilize the formation while causing minimal impairment to well productivity. As such, the purpose and techniques of gravel packing are distinctly different from hydraulic fracturing. For gravel packing, a steel screen is placed in the wellbore and the surrounding annulus and sand and gravel is placed outside and adjacent to the well itself, with the intention of limiting the amount of fine-grained material that is pumped from the formation along with the fluids. The gravel is circulated into place rather than pumped in under high pressure (i.e., as in high-rate gravel packing) (Cardno Entrix 2012).

High-rate gravel packing is a well completion approach that uses water, gravel, and additives to place sand and gravel near the well itself with the objective of limiting entry of formation sands and fine-grained material into the wellbore, i.e., sand control. In this process, the space between the formation and the outer casing of the well is packed, at a high-rate, with gravel that is small enough to prevent formation grains (sand) and fine particles from mixing and entering the wellbore with the produced fluids, but large enough to be held in place by the well perforations. This relatively low-energy completion approach creates a fracture using water, sand, and additives that improve the proper placement of the gravel filter. This process is not intended to increase the permeability of the producing formation, and it only affects the area near the well itself (Cardno Entrix 2012).

Prior to 2003, all of the gravel packs were conducted at pressures below the fracture gradient of the formation. Open hole gravel packs were used until 2003 in the Vickers-Rindge formation and were never installed above the fracture gradient of the surrounding formation. High-rate gravel packs were first used in 2003. Between 2003 and 2012, PXP conducted high-rate gravel pack completions on approximately 166 wells in the Inglewood Oil Field, all in the Vickers and the Rindge formation, with a single completion in the Investment Zone. Each high-rate gravel pack includes an average of five stages per well; therefore, approximately 830 stages have been completed at the Inglewood Oil Field between 2003 and 2012 (Cardno Entrix 2012). None of these high-rate gravel packs occurred within the City of Culver City.

2.6 STATE AND LOCAL REGULATORY OVERVIEW

Brief summaries of pertinent federal, State, and local regulations related to each environmental issue are provided under the Regulatory Settings in Section 4.1 through 4.15 of this Draft EIR.

2.6.1 STATE OF CALIFORNIA

California Division of Oil, Gas, and Geothermal Resources

DOGGR was formed in 1915 and oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes the development of oil, natural gas, and geothermal resources in the state through engineering practices for the purpose of protecting the environment, preventing pollution, and ensuring public safety.

The *California Code of Regulations* (CCR, specifically Title 14, Chapter 4) and the *California Public Resources Code* (PRC, specifically, Section 3000) codify DOGGR's responsibilities. Section 3106 of the PRC mandates DOGGR to supervise the drilling, operation, maintenance, and abandonment of oil wells for the purpose of preventing the following: (1) damage to life, health, property, and natural resources; (2) damage to underground and surface waters suitable for irrigation or domestic use; (3) loss of oil, gas, or reservoir energy; and (4) damage to oil and gas deposits by infiltrating water and other causes. DOGGR also publishes a number of instruction manuals related to testing oil and gas wells (Publication No. M06), blowout prevention requirements (Publication No. M07), and drilling wells in a hydrogen sulfide environment (Publication No. M10).

Written approval from DOGGR is required prior to changing the physical condition of any well. The operator's notice of intent (notice) to perform any well operation is reviewed on engineering and geological bases. For new wells and alteration of existing wells, approval of the proposal depends primarily on the following: protection of all subsurface hydrocarbons and fresh waters; protection of the environment; use of adequate blowout prevention equipment; and use of approved drilling and cementing techniques. DOGGR must be notified to witness or inspect all operations specified in the approval of any notice. This includes tests and inspections of blowout-prevention equipment, reservoir and freshwater protection measures, and well-plugging operations.

DOGGR regulates and maintains historically abandoned wells and also maintains a database of historical wells.

The rules for onshore subsurface disposal and injection operations are found in the *California Code of Regulations* (CCR) Article 3 (Requirements) of Subchapter 1 (Onshore Well Regulations). Section 1724.6 provides that approval must be obtained from DOGGR before any subsurface injection or disposal can begin. The operator must provide the pertinent and necessary data for the evaluation of a proposed project. Section 1724.10 stipulates filing, notification, operating, and testing requirements for underground injection wells and projects.

The CCR (specifically, Title 14, Division 2, Chapter 4, Section 1774) specifies oil field maintenance practices related to oil field facilities. Additional environmental protection rules for subsurface disposal are found in CCR Article 3 (Requirements) of Subchapter 2 (Environmental Protection). Section 1775(a) states that oil field wastes shall be disposed of in a manner that does not damage life, health, property, freshwater aquifers, surface waters, natural resources, nor menace public safety.

Public Resources Code and California Water Code Well Stimulation Regulations

"Well stimulation" practices are defined by Senate Bill (SB) 4 (Pavley, Chapter 313, Stats of 2013) as approved by the Governor of California on September 20, 2013, and include hydraulic fracturing and other treatments that increase the flow of oil and natural gas to wells and then to the surface for recovery. The regulations, which went into effect on January 1, 2015, are designed to protect health, safety, and the environment, and to supplement existing well construction standards. They address a comprehensive list of issues, including testing, monitoring, public notice, and permitting and would be administered by DOGGR.

SB 4 amended multiple sections of the *California Public Resources Code* and the *California Water Code*. The bill also required the Secretary of the Natural Resources Agency to complete an independent scientific study of well stimulation treatments on or before January 1, 2015. The study evaluated the hazards and risks of well stimulation treatments to natural resources and the public (DOC 2015a).

SB 4 requires DOGGR, in consultation with the Department of Toxic Substances Control (DTSC), the California Air Resources Board (CARB), the State Water Resources Control Board (SWRCB), the Department of Resources Recycling and Recovery (CalRecycle), and any local air districts and regional water quality control boards in areas where well stimulation treatments may occur to adopt rules and regulations specific to well stimulation, including revisions to the rules and regulations governing the construction of wells and well casings and full disclosure of the composition and disposition of well stimulation fluids. Requirements for full disclosure are defined as well. The rules and regulations include notification requirements and water testing and

monitoring, and require DOGGR to establish threshold values for the acid volume included in well stimulation treatments (DOC 2015a).

SB 4 requires DOGGR to identify and delineate existing statutory authority and regulatory responsibility relating to well stimulation treatment- related activities, including specifying the appropriate public entity responsible for air and water quality monitoring and the safe disposal of materials (DOC 2015a). SB 4 authorizes DOGGR to allow well stimulation treatments if specific conditions are met including requirements for well owners/operators to apply for a permit prior performing any well stimulation treatments; well owners/operators to disclose a complete history of each well proposed for stimulation; and completion of appropriate review under CEQA. Under SB 4, well stimulation permits are valid for one year and will be shared with water quality control boards and local planning entities; they will also be made publicly accessible. Notification of well stimulation treatments are additionally required and are to be posted at least 30 days prior to the start of any proposed well stimulation treatment; nearby property owners can additionally request water quality sampling and testing in response to proposed well stimulation treatments (DOC 2015a).

SB 4 requires owners/operators of a well to record and include all data on acid treatments and well stimulation treatments. This information is to be posted on an internet site that was to be functional no later than January 1, 2016, and reporting prior to this date was to be directed to FracFocus.org, a chemical disclosure registry (DOC 2015a).

SB 4 allows a supplier of well stimulation chemicals to claim trade secret protections for the chemical composition of additives; however, the supplier must still provide the trade secret information to DOGGR. SB 4 sets out protocols for DOGGR in the event that it finds that the information provided does not fall under the laws and regulations for trade secret protection. It also requires DOGGR to develop a procedure to provide trade secret information in extenuating circumstances. Wells granted confidential status are not required to disclose well stimulation treatment fluid information, but must disclose that the well has been or will be subject to stimulation treatment (DOC 2015a).

SB 4 sets a civil penalty for persons who violate its statutory requirements or its implementing regulations and authorizes DOGGR's permitting fees to be used to fund a public entity's costs associated with well stimulation treatments. SB 4 also adds Section 10783 to the California Groundwater Monitoring Act of the *California Water Code* regarding groundwater monitoring of the State's oil and gas fields, which requires the SWRCB, in consultation with DOGGR, to develop groundwater monitoring criteria and requires implementation of a groundwater monitoring program (DOC 2015a).

The Environmental Impact Report for the SB 4 regulations titled *Analysis of Oil and Gas Well Stimulation Treatments in California* was certified in June 2015 (DOC 2015a). In July 2015, DOGGR published the *Draft Mitigation Policy Manual for Well Stimulation Treatment Permits* (Mitigation Policy Manual) (DOC 2015b). The applicable mitigation measures included in the Mitigation Policy Manual have been incorporated in this Draft EIR. As of the publication of this Draft EIR, the 2015 Mitigation Policy Manual is still the current document (Slaminski 2017). This document is included in Appendix B-2 of this Draft EIR.

South Coast Air Quality Management District (SCAQMD) Rule 1148.2

Adopted on April 5, 2013, Rule 1148.2, Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers, outlines the requirements for operators of onshore oil or gas wells within the SCAQMD's jurisdiction. Rule 1148.2 enables SCAQMD to gather air quality related information on oil and gas well drilling, well completion (including hydraulic fracturing and similar well production stimulation techniques), and well rework activities. Section 1148.2(d) provides notification requirements that shall be sent to SCAQMD no more than ten calendar days and no less than 48 hours prior to the start of drilling, well completion, or rework of an onshore oil or gas well. Section 1148.2(e) outlines the reporting requirements for submitting reports to SCAQMD describing the activity associated with the drilling, well completion or rework activities no later than sixty calendar days after such activities. Section 1148.2(f) requires that SCAQMD post the chemicals used during drilling, well completion and rework activities on their website.

2.6.2 CULVER CITY

Currently, the City of Culver City regulates oil and gas drilling and production uses through Culver City Municipal Code (CCMC) Chapter 11.12, Oil, Gas and Hydrocarbons. CCMC Chapter 11.12 establishes procedures and standards that apply to any exploration or development and production of oil, gas, and other hydrocarbon substances, and related facilities, within the City limit. However, oil uses and oil-related facilities are not specifically an allowed use within the City limit. The Zoning Code (Title 17 of the CCMC) Section 17.610.010.D provides language that states that oil uses that have been previously established may continue, but are deemed a legal nonconforming use. Because oil uses within the Inglewood Oil Field have been established since the 1920s, oil uses are allowed to continue within the City IOF as a legal nonconforming use per the provision of CCMC Section 17.610.010.D. Further, oil use activity (i.e., development and operations) within the City IOF is regulated by CCMC Chapter 11.12.

Land uses and development throughout the City of Culver City are guided and regulated by the Culver City General Plan and the Zoning Ordinance. The Land Use Element of the Culver City General Plan designates the City IOF as "Open Space" and "Industrial," and indicates that this area is within the Baldwin Hills/Blair Hills Focused Special Study Area. Zoning for the City IOF is R1 (Residential), OS (Open Space) and IG (Industrial General). Oil uses are not allowed under any of these zones, except as a continuing legal nonconforming use per CCMC Section 17.610.010.D. The applicable land use policies and zoning requirements are discussed in greater detail in Section 4.9, Land Use and Planning, of this Draft EIR.

2.7 CUMULATIVE PROJECTS

The State CEQA Guidelines (specifically, 14 CCR 15130) require that a project's cumulative impacts be discussed when "... the incremental effect is cumulatively considerable. ..." According to Section 15065(a)(3) of the State CEQA Guidelines, the term cumulatively considerable means "... that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. ..." Specifically, Section 15355 of the State CEQA Guidelines defines cumulative impacts as follows:

... two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

- a) The individual effects may be changes resulting from a single project or a number of separate projects.

- b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

When addressing cumulative impacts, Section 15130(b) of the State CEQA Guidelines notes that the elements necessary to provide an adequate discussion of significant cumulative impacts encompass either:

- a) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
- b) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

The cumulative impact analysis under each environmental issue in Section 4.0 of this Draft EIR uses both methods.

2.7.1 COUNTY PORTION OF THE INGLEWOOD OIL FIELD

Well drilling in the County IOF is regulated by the Baldwin Hills CSD and its associated Settlement Agreement. The Settlement Agreement allows for the drilling of no more than 500 new wells (including bonus wells and wells drilled since approval of the CSD) through October 1, 2028, or during the remaining life of the CSD, whichever is later. No more than 50 wells may be drilled or redrilled within 24 months of adoption of the Agreement and no more than 30 wells drilled or redrilled per year after 24 months of adoption of the Agreement. Upon the drilling of the 50 new wells, or 24 months from the date of the Agreement, whichever is sooner (Time Period One), and if the County determines that the CSD has been effective in protecting the health, safety, and general welfare of the public, no more than 35 wells may be drilled or redrilled in a calendar year. In Time Period One, for each well abandoned within 800 feet of any Developed Area, there may be two additional new wells outside of the 800 foot zone, up to a maximum of 45 drilled and redrilled wells (30 wells plus 15 Bonus Wells) in any calendar year within Time Period One. In the Full Operational Period, for each well abandoned within the 800 foot zone, two additional new wells may be drilled outside the 800 foot zone up to a maximum of 53 (35 wells plus Bonus Wells) drilled or redrilled wells in that year. Subject to the annual and aggregate limits on number of wells, Bonus Wells earned by abandonment may be drilled at any time during the life of the CSD. (Community Health Councils et al. 2011).

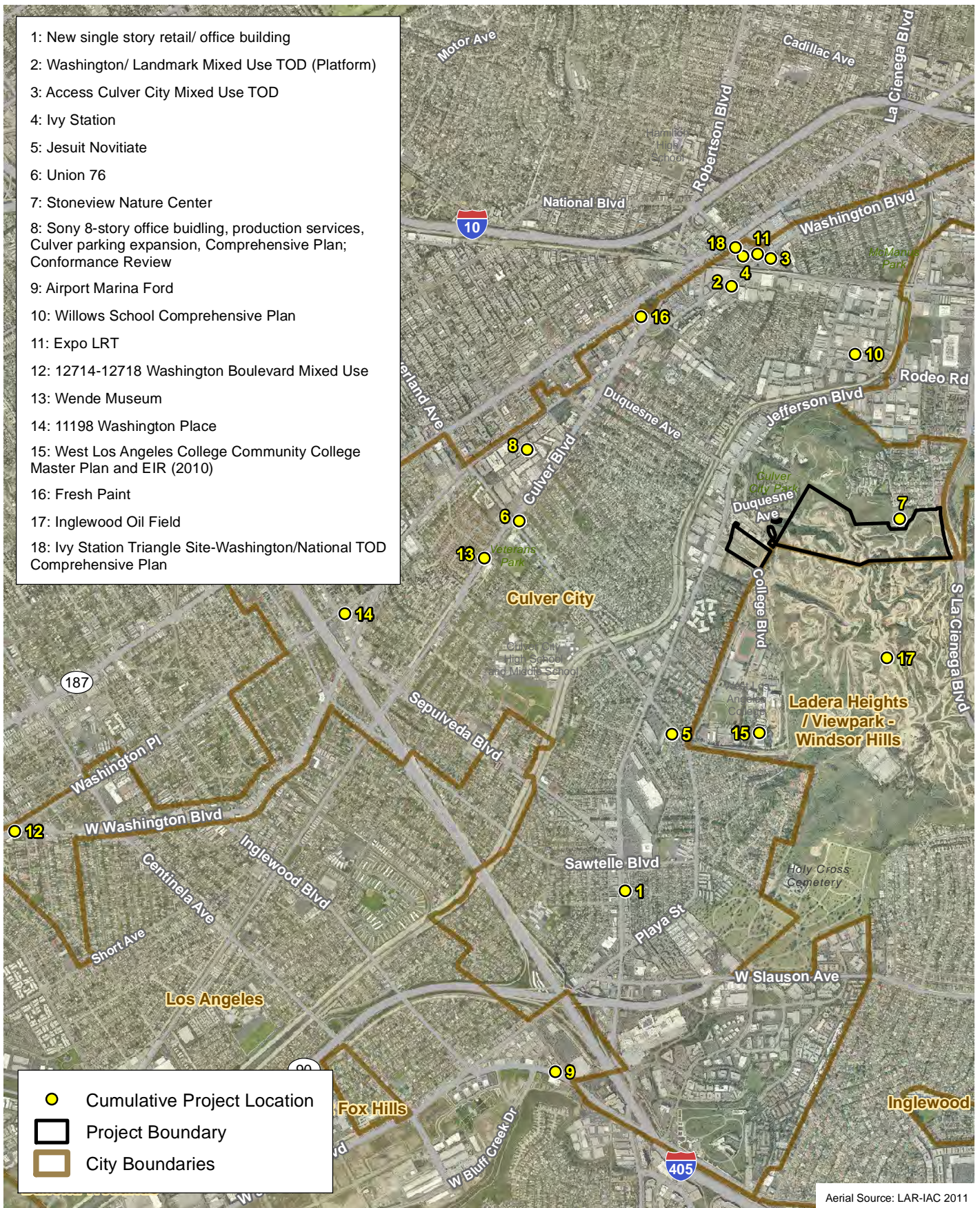
In 2006, production values from the Inglewood Oil Field, as described in the Baldwin Hills CSD EIR, were 8,700 barrels per day (bpd) of oil, 300,000 bpd of water, and 5,700 thousand cubic feet (mcf³) per day of natural gas. Based on these values, with 436 active producing wells in operation, the average production volumes per well were 20 bpd of oil, 688 bpd of water, and 13 mcf per day of gas.

2.7.2 PLANNED, PROPOSED AND RECENT PROJECTS

There are past, present, and probable future projects in the surrounding area that may contribute to the cumulative impacts of the Specific Plan adoption. Based on consultation with the City of Culver City, there are 17 projects in the City that are currently under construction or recently completed. Table 2-5, Cumulative Projects, lists these projects, and Exhibit 2-5, Location of Cumulative Projects, shows the location of each project.

³ msf is an abbreviation denoting a thousand cubic feet of natural gas. One million cubic feet is denoted as mmcf. The "m" in mcf comes from the ancient Roman letter M, which stood for one thousand.

- 1: New single story retail/ office building
- 2: Washington/ Landmark Mixed Use TOD (Platform)
- 3: Access Culver City Mixed Use TOD
- 4: Ivy Station
- 5: Jesuit Novitate
- 6: Union 76
- 7: Stoneview Nature Center
- 8: Sony 8-story office building, production services, Culver parking expansion, Comprehensive Plan; Conformance Review
- 9: Airport Marina Ford
- 10: Willows School Comprehensive Plan
- 11: Expo LRT
- 12: 12714-12718 Washington Boulevard Mixed Use
- 13: Wende Museum
- 14: 11198 Washington Place
- 15: West Los Angeles College Community College Master Plan and EIR (2010)
- 16: Fresh Paint
- 17: Inglewood Oil Field
- 18: Ivy Station Triangle Site-Washington/National TOD Comprehensive Plan



Aerial Source: LAR-IAC 2011

Location of Cumulative Projects

Inglewood Oil Field Specific Plan Project



0.5 0.25 0 0.5 Miles

Exhibit 2-5



**TABLE 2-5
CUMULATIVE PROJECTS**

No.	Project	Proposed Land Uses	Location	Jurisdiction
1	New single-story retail/office building	Single-story retail building totaling 14,800 sf with rooftop parking	5450 Sepulveda Blvd	City of Culver City
2	Washington/Landmark Mixed Use TOD (Platform)	New commercial development consisting of 41,745 gsf of restaurant and retail use, and 38,732 gsf of office use.	8810 thru 8850 Washington Blvd	City of Culver City
3	Access Culver City Mixed Use	New mixed use development consisting of 115 residential units, retail (market and cafe) 31,240 gsf	8770 Washington Blvd	City of Culver City
4	Ivy Station	5.2 acre TOD development with 500,000-sf of retail, office, luxury residential, a hotel, and an open park	9070 Venice Blvd	City of Culver City
5	Jesuit Novitiate	Construction of 4,740 sf of dormitories and related rooms with a total of 36 bedrooms and replacement of the existing chapel with a 1,660-sf chapel	10755 Deshore Pl	City of Culver City
6	Union 76	Gas station and convenience store; 2,676 gsf	10638 Culver Blvd	City of Culver City
7	Stoneview Nature Center ^a	A new 4-acre park with a new 1-story, 4,000-sf building, with a multi-purpose room, staff office, and restrooms	5950 Stoneview Dr	City of Culver City
8	Sony 8-story office building, production services, and Culver parking expansion, Comprehensive Plan Conformance Review	Construction of an 8-story 218,450-sf office building, 51,716-sf support building, and expansion of an existing parking structure. Total demolition of 57,642 sf and replacement with 212,524 net new sf	10202 Washington Blvd	City of Culver City
9	Airport Marina	27,568-sf addition consisting of 29 service bays and 12,900 sf of parts and service	6002 Centinela Ave	City of Culver City
10	Willows School Comprehensive Plan	<i>Phase I:</i> new surface parking; increased student enrollment by 50 (from 425 to 475). <i>Phases II and III:</i> increase student enrollment by 100 (from 475 to 575).	8509 Higuera St and 8476 Warner Ave	City of Culver City
11	Expo LRT	New Light Rail station (Phase II)	Washington Blvd/National Ave	City of Culver City
12	12714–12718 Washington Blvd Mixed Use	New 4-story mixed-use building and subterranean parking with 5 units, 3,414 sf of retail, and 11,516 sf of residential.	12712–12718 Washington Blvd	City of Culver City
13	Wende Museum	Conversion of existing 12,596 sf armory building into a museum	10808 Culver Blvd	City of Culver City

**TABLE 2-5
CUMULATIVE PROJECTS**

No.	Project	Proposed Land Uses	Location	Jurisdiction
14	11198 Washington Place	New single-story commercial building comprising 3,850 sf with 11 parking spaces and 500 sf of outdoor dining/seating on vacant land	11198 Washington Pl	City of Culver City
15	West Los Angeles College Community College Master Plan and EIR (2010)	Approximately 92,000 sf of new building construction and renovation. Anticipated future student population of approximately 18,904 students.	9000 Overland Ave	Los Angeles County
16	Fresh Paint	3-story mixed-use building consisting of a ground level salon, a mezzanine, and an office totaling 2,947 sf and 4 residential units on the third floor.	9355 Culver Blvd	City of Culver City
17	Inglewood Oil Field	Expand operations at the existing oil field to add as many as 500 new wells	Los Angeles County – immediately south of the Project Site	Los Angeles County
18	Ivy Station Triangle Site-Washington/ National TOD Comprehensive Plan	New transit oriented development to include light rail station & mixed use development: A 5-story office building (210,000 sf) with ground floor retail; two interconnected 5 & 6 story buildings over a podium comprised of 200 residential (for lease) units with ground floor retail (21,851 sq.ft.) and a 148 room boutique hotel with ground floor retail (5,337 sf); 1,548 spaces on grade and in 3-level subterranean garage.	8824 National Blvd Corner of Washington Blvd/ National Blvd	City of Culver City and City of Los Angeles
<p>sf: square feet; TOD: transit oriented district; gsf: gross square feet; LRT: Light Rail Transit</p> <p>^a The Stoneview Nature Center, opened in April 2017. It was a cumulative project at the time this list was compiled, and at the time of issuance of the NOP.</p> <p>Source: City of Culver City 2015a.</p>				

2.7.3 REGIONAL GROWTH AND DEVELOPMENT

Upon adoption, the Specific Plan would regulate existing and future oil and gas drilling operations and activities at the Project Site, allowing that a maximum total number of 30 wells may be drilled (i.e., new wells) or redrilled (i.e., work on existing wells that does not meet the definition of “rework”) on the Project Site. No more than two wells per year for the first two years, with the possibility that a third well may be included annually (subject to City approval) following the second year and no more than three wells per year thereafter would be allowed. The Specific Plan would permit development of the City IOF over a period of 15 years, assumed to range from 2018 through 2032, and no further development would be allowed once the maximum cap of 30 wells has been obtained. The 15-year timeframe would be realized if the number of wells drilled (or redrilled) per year were limited to two or fewer. However, given the provision of Drilling Regulation Section 31.B.1, which would allow drilling up to a maximum of three wells per year, 11 years would be the shortest timeframe for drilling activity and this accelerated schedule represents a conservative worst-case scenario for which multiple activities could be occurring simultaneously. With this in mind, the cumulative evaluation in this Draft EIR also considers the impacts of the Project with regional growth and development in the surrounding area (in the City of Culver City and the adjacent areas of Los Angeles County and the City of Los Angeles).

Adopted growth forecasts for the Cities of Culver City and Los Angeles and the Westside Cities of Los Angeles County (including Santa Monica), as well as the unincorporated Los Angeles County communities of Ladera Heights and Marina del Rey, where available, are provided in Table 2-6.

**TABLE 2-6
REGIONAL GROWTH PROJECTIONS**

Area	Forecast	2020	2035	2040	Change (2020–2040)
City of Culver City	Population	39,300	40,000	40,700	3.56%
	Households	17,000	17,300	17,500	2.94%
	Employment	47,900	50,400	53,000	10.65%
City of Los Angeles	Population	3,991,700	4,320,600	4,609,400	15.47%
	Households	1,455,700	1,626,600	1,690,300	16.12%
	Employment	1,817,700	1,906,800	2,169,100	19.33%
City of Santa Monica	Population	92,400	94,700	103,000	11.47%
	Households	49,200	51,400	53,900	9.55%
	Employment	101,600	104,200	103,700	2.07%
Source: SCAG 2008, 2012, 2016					

This growth will occur in the surrounding area of the site and could contribute to the cumulative impacts of the Project, relative to the different environmental issue areas.

2.7.4 SCOPE OF CUMULATIVE ANALYSIS

Section 15130(b)(3) of the State CEQA Guidelines states that “lead agencies shall define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used”. Unless otherwise indicated in the analysis in Section 4.0 of this Draft EIR, the geographic scope used in the cumulative analysis includes the

Inglewood Oil Field, the City of Culver City, and the projects identified by the City of Culver City. However, there are environmental issues whose relevant geographic scope for purposes of cumulative impact analysis may be larger or smaller than this area, and may be defined by local, regional, or State agency jurisdiction or by environmental factors. One example is the geographic scope of cumulative air quality impacts, defined by the South Coast Air Quality Management District to encompass the South Coast Air Basin. The basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. This air basin is larger than the Inglewood Oil Field and the City of Culver City and is noted in the analysis of cumulative air quality impacts.

Conversely, the geographic scope of cumulative aesthetic impacts is limited to anticipated growth and development in immediately adjacent areas that share a viewshed or line-of-sight with the Project Site. Therefore, consideration of proposed developments near the Project Site in the Inglewood Oil Field would provide a more relevant discussion of the cumulative aesthetic impacts of the proposed Project.

Each environmental issue in Section 4.0 of this Draft EIR provides a “cumulative impacts” subsection that includes the issue-specific cumulative impact analysis. Section 15130(b)(1) of the State CEQA Guidelines states that the cumulative impact discussion shall reflect the level and severity of the impact and the likelihood of occurrence, but not in as great a level of detail as that necessary for the project alone, and should focus on the cumulative impact to which the other identified projects contribute.

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