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Botanical Assessment

Santa Maria Refinery Rail Project, San Luis Obispo County, California

APNs: #092-401-011, #092-401-013, #092-411-005

ARCADIS

Biological Assessment

Santa Maria Refinery Rail Project,
San Luis Obispo County,
California

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"As a County –approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of San Luis Obispo Department of Planning and Building and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report."

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Acronyms and Abbreviations

CDFW	California Department of Fish and Wildlife
cm	centimeter
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSC	California Special Concern Species
CE	California-listed Endangered Species
CT	California-listed Threatened Species
ºF	degrees Fahrenheit
FE	Federally-listed Endangered Species
FSC	Federal Special Concern Species
FT	Federally-listed Threatened Species
GPS	Global Positioning System
ha	hectare
km	kilometer
m	meter
USGS	United States Geological Survey

1. Executive Summary

This Biological Assessment presents the findings of biological surveys of a portion of the Phillips 66 Santa Maria Refinery (SMR). This assessment focused on the proposed construction area (the Site) proposed for extension of an existing rail spur to facilitate rail delivery of crude oil to the refinery. The SMR is located near Highway 1 on the Nipomo Mesa in Arroyo Grande, San Luis Obispo County, California. The purpose of the ARCADIS biological surveys was to identify existing or potentially occurring sensitive plant species, sensitive habitat, or other botanical-related issues of concern occurring on the Site. This report also addresses potential coastal access routes as discussed in Section 8. Note that "the Site" includes all of the disturbance areas associated with the rail spur project, but does not include the potential coastal access routes which are considered separately.

The Site supports degraded central dune scrub habitat that has experienced moderate to heavy disturbance from various land uses. Invasive veldt grass (*Ehrharta calycina*), a non-native perennial grass, predominates in many open disturbed portions of the Site. No federal or state listed plant or wildlife species were observed in the project area during the surveys, and none are likely to occur within the project footprint. Three sensitive plant species (California spineflower [*Mucronea californica*], Blochman's groundsel [*Senecio blochmaniae*], and sand almond [*Prunus fasciculata* var. *punctata*]) were observed on the Site during the ARCADIS survey. These species occur on the California Native Plant Society (CNPS) List 4 (a 'Watch List').

The potential coastal access routes occur in high quality central dune scrub vegetation supporting a variety of sensitive plant species, including the Federal and State-listed Endangered Nipomo Mesa lupine, Blochman's leafy daisy, crisp monardella, Blochman's groundsel, California spineflower, and sand almond. The entire area is designated as critical habitat for La Graciosa thistle, which has been reported from nearby Jack Lake. Proposed Coastal Access Route B occurs within the 100-foot buffer around the wetlands and riparian habitat at Jack Lake. Either option would result in significant impacts to biological resources along the Coastal Access Route corridor.

This report addresses the potential botanical impacts associated with the rail spur project. This report conservatively considered that the proposed rail spur pathway would be completely disturbed when in fact a significant portion of the disturbance envelope will only be temporarily disturbed during grading and will be reseeded with a native seed mix to restore pre-disturbance conditions. Accurate differentiation between the total permanent impacts and temporary impacts was not feasible at the time this report was prepared. To avoid and minimize the potential for impacts to sensitive botanical resources, a number of resource protection measures are proposed in Section 7 of this report.

2. Introduction

This report provides a Botanical Assessment of the Phillips 66 Santa Maria Refinery (SMR) Rail Project Site (the Site). The SMR property consists of three assessor's parcels within the South County Planning Area of San Luis Obispo County (APN #092-401-011, #092-401-013, #092-411-005). The approximately 1,875-acre (758.8 ha) property is located on Highway 1 approximately 5 miles (8.05 km) south of the intersection of Highway 1 and Halcyon Road on the Nipomo Mesa in Arroyo Grande, San Luis Obispo County, California (Figure 1). The project Site is a small portion of the SMR property and is currently used for industrial operations and cattle grazing. The current land use designation is "Industrial"; this designation is not expected to change as a result of the proposed project.

The SMR property is bordered to the north by agriculture fields, industrial facilities, and residential housing. It is bordered to the south by agriculture, by residential development to the east, and by undeveloped coastal dunes to the west. The proposed rail spur extends the existing spur through the coke processing area and to the east through the grazing area. Additionally, a covered offloading rack will be constructed and an above ground pipeline will convey material from the offloading rack to the existing storage tanks at the SMR (Figure 2). The impact areas associated with the proposed development are provided below.

The approximate construction areas are summarized below:

- 2305 yards (2110 m) – Length of spur extension (including approximately 815 yards within the existing industrial coke plant area).

- 270-feet (82m) – Approximate width of construction area for rail extension (note that much of the area would only be affected temporarily).

- 775-yards (710 m) – Length of new pipeline from the unloading facility to the internal refinery (note that an additional 400 yards will be constructed within the existing refinery connecting to the existing storage tanks).

- 25-feet (7.5 m) – Approximate width of temporary construction area for pipeline installation

Acreage Breakdown (including temporary and permanent):

- 38.6 acres – Rail Spur and Unloading Facility

- 4.1 acres – New Pipeline (mostly temporary impacts)

- 1.7 acres – Secondary Emergency Vehicle Access
- 4.5 acres – Internal Refinery Piping and Existing Track Upgrade

Collectively, the entire project, including temporary and permanent impacts, would affect approximately 48.9 acres. Of this area, a significant portion occurs within the existing refinery:

- 21.9 acres (45% of total) occurs within the existing industrial refinery area
- 27 acres occur in undeveloped areas and include portions of the rail extension, the new pipeline, and the secondary emergency vehicle access road.

3. Methods

ARCADIS conducted fall and winter sensitive species surveys of the project area on October 9 and November 13, 2012 and spring and summer surveys on April 29 and June 11, 2013; the spring survey was timed to facilitate observations of the maximum number of native annuals during peak blooming season. Surveys were conducted under clear, calm, weather conditions and lasted approximately 5, 3, and 4 hours, respectively. The personnel conducting the October 9, 2012 and April 29, 2013 surveys consisted of ARCADIS Senior Ecologist Mary Carroll and ARCADIS Wildlife Biologist Mitch Siemens. The November 13, 2012 survey was conducted by Mr. Siemens. The June 11, 2012 survey was conducted by Ms. Carroll. The Site was accessed on foot along the survey boundaries shown on Figures 2 and 3 as well as in a buffer area around the footprint, which included adjacent areas that might be potentially affected by project construction activity. The site was also revisited on several additional occasions to review smaller areas where project elements had changed.

Desktop Data Search: Prior to performing the field work, ARCADIS reviewed documents concerning the Site and the surrounding areas, including a search of the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2013) for the United States Geological Survey (USGS) 7.5-minute series Oceano topographic quadrangle and the adjacent quadrangles (Arroyo Grande NE, Guadalupe, Nipomo, Santa Maria, Tar Spring Ridge, Orcutt, Casmalia, and Pismo Beach). The California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants (CNPS 2013) was also queried for appropriate habitat within the Oceano quadrangle and adjacent quadrangles. Aerial photographs from approximately the last 20 years were also reviewed to better understand the history of the Site. Other resources employed for this assessment included various state and federal regulations, consultation with other local botanists about issues in the area, and ARCADIS' direct experience on the Site and in the surrounding area including a previous biological site assessment nearby for a ConocoPhillips

project (LFR 2005). ARCADIS biologists also interviewed a local rancher who has a long history tending cattle on the Site.

Botanical Surveys: ARCADIS botanical surveys encompass documentation of species composition, abundance, relative distribution, and community composition (including dominants, associates, and uncommon elements). The survey is intended to characterize the vegetation types, record all plant species observed, and ascertain the likelihood for the occurrence of sensitive species in areas not observed during the survey by ARCADIS. Physiographic features are noted and correlated with plant distributions. The survey area encompassed the proposed rail line extension options and surrounding areas, which were verified using global positioning system (GPS) coordinates of the route options in the field.

All plant species found in a recognizable condition during ARCADIS' surveys were recorded and are listed in Table 1. Nomenclature follows the Jepson Manual: Vascular Plants of California*,* Second Edition (Baldwin et al. 2012). In addition, pertinent volumes of the Flora of North America (Flora of North America Editorial Committee, eds. 1993+) and a regional flora (Hoover 1970) were also used for plant identification. It is important to note that the list of vascular plant species on the Site presented in this report may not be comprehensive.

Vegetation Mapping: ARCADIS mapped and characterized all vegetation in the study areas based on direct field observations and with aerial photograph interpretation for surrounding buffer areas. Vegetation was mapped at the both the community and alliance level, according to CNPS/CDFW mapping protocols described in the CNPS A Manual of California Vegetation (Sawyer et al. 2009) and digitized using ArcGIS software. Vegetation types are characterized by using Sawyer et al. (2009), Holland (1986), and the CDFW natural communities list (2010); vegetation types are discussed in Section 4.2.

4. Habitat Description

The Nipomo Mesa and the Central Coast region in general occur in an important biological transition zone between the moister communities of central and northern California and the more arid communities of southern California.

A total of 73 vascular plant species were observed during the 2012 and 2013 surveys, including 49 native plant species and 24 non-native species. In addition, three vegetation types were mapped. General site characteristics, land use history, and observed vegetation types are described below. The Site location is shown in Figure 1. An aerial image of the Site is provided in Figure 2. Vegetation types based on ARCADIS field surveys are overlain on this 2012 aerial photograph in Figure 4. Mapped sensitive resources are shown on Figure 5. Alternative routes considered during the review process are shown on Figure 3. California Natural Diversity Database sensitive resource locations, coupled with sensitive resources mapped by others (e.g., the San Luis Obispo Land Conservancy)

and during the current surveys are shown in Figure 6. Figure 7 indicates the extent of designated critical habitat for La Graciosa thistle in the project area. Two potential coastal access routes are shown in Figure 8.

Representative photographs of the different communities and features of the Site are provided in Appendix A.

4.1 Site Description and Surrounding Natural Resource Areas

The topography of the Site consists of relatively flat to gradually undulating terrain. Oceano sands underlay the Site (well drained) and predominate in old, stabilized sand dunes in several locations along the Central Coast. Elevations at the Site average about 60 feet.

Yearly precipitation is estimated at 17.14 inches (Western Region Climate Center 2012), falling primarily between October and April. The local weather pattern of mild, wet winters and warm, dry summers is characteristic of Mediterranean climate regions, and the effect of the dry summers on plant life is ameliorated somewhat by the presence of summer fog.

Temperatures at the Site are generally mild, with a mean annual temperature of 58.0 degrees Fahrenheit (°F), with an average maximum August temperature of 71.0°F and an average January minimum temperature of 42.4 °F (Western Regional Climate Center 2005).

The Oceano Dunes State Park is located along the beach immediately west of the SMR property. The 3,600-acre (1456 ha) park has 5.5 miles (8.8 km) of beach access with 1,500 acres (607 ha) of sand dunes open for vehicle and recreational vehicle use. The park is the only California State Park facility that allows vehicles to be driven on the beach. The Oso Flaco Lake Natural Area is also part of the Oceano Dunes State Park. The Lake area is off-limits to vehicles and is primarily used by the public for viewing plants, wildlife, and scenic landscapes. The Oso Flaco Lake Natural Area offers a 1.5-mile (2.4 km) boardwalk path, including a span that crosses over the lake itself that connects the parking lot at the west end of Oso Flaco Lake Road to the beach. Portions of the SMR facility are visible from Oso Flaco Lake Road.

The County of Santa Barbara Parks Department manages the Rancho Guadalupe Dunes Preserve, located approximately 5 miles south of the Site. The Rancho Guadalupe Dunes Preserve supports pristine sand dunes and offers fishing, hiking, wildlife viewing, picnicking, and other activities for the public.

Black Lake Canyon is located approximately 1 mile north of the Site. Black Lake Canyon represents a significant natural resource, containing habitat for a number of rare plant and wildlife species, including two federally listed endangered plants: marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Rorippa gambellii*).

4.2 Vegetation Types

The Site supports three main vegetation communities within the boundaries of the project study area as described below and depicted in Figure 4: two upland communities – central dune scrub and non-native veldt grassland, and one wetland community – arroyo willow scrub. In addition, industrial areas, non-native planted trees, and bare dune sand are also located within the general project area (Figures 2, 3, and 4).

4.2.1 Upland Communities

The Site supports a mosaic of native, weedy, and planted vegetation that will be described more fully in the ensuing sections. The distribution of vegetation types on the Site is determined by topography, soils and geology, hydrology, slope exposure, climate, and land use history.

4.2.1.1 Central Dune Scrub

Central Dune Scrub is the predominant native shrub community on the Site and is typical of stabilized dunes along the Central Coast that occur inland from the seaward-facing central foredunes community. This habitat is dominated by a combination of shrubs and perennial herbs, along with a few annuals and biennials. The most common native dominant shrubs at the Site are dune-heather (*Ericameria ericoides*), silver dune lupine (*Lupinus chamissonis*), coyote bush (*Baccharis pilularis* subsp. *consanguinea*), and black sage (*Salvia mellifera*), which form a collection of species-specific plant associations depending on location on Site (Sawyer et al. 2009).

The most common central dune scrub alliances on the Site are the Silver Dune Lupine – Dune-Heather Alliance on the western and southern portions of the Site; the Dune-Heather – Dune Buckwheat – Black Sage Alliance in the central and eastern portions of the Site; the Black Sage – Dune-Heather Association in the eastern portion of the Site; and the Dune-Heather – Black Sage – Blue Elderberry Association in moist pockets near the bases of slopes.

These associations of dominant shrubs also include lower densities of other native shrubs and subshrubs, such as blue elderberry (*Sambucus nigra* subsp. *caerulea*), California coffeeberry (*Frangula californica*), poison-oak (*Toxicondendron diversilobum*), dune buckwheat (*Eriogonum parvifolium*), and the sensitive Blochman's groundsel (*Senecio blochmaniae*); a few individuals of the sensitive sand almond (*Prunus fasciculata* var. *punctata*) are present as well in one location. Native herbaceous perennial associates include California croton (*Croton californicus*), coast horkelia (*Horkelia cuneata* subsp. *cuneata*), California aster (*Corethrogyne filaginifolia* var. *robusta*), and others. Sandy openings support native annuals, including the sensitive California spineflower (*Mucronea californica*).

The Site has been grazed for many years and the invasive veldt grass (*Ehrharta calycina*) and non-native iceplants (*Carpobrotus edulis* and *C. chilensis*) are abundant in many areas at the Site, especially in disturbed areas near slope bottoms. All of the native plant communities are considered degraded to varying degrees due to historic land use and concentrations of non-native species.

Acreage by vegetation type located within the proposed disturbance areas are provided below:

Black Sage - Dune-Heather Association –10.1 acres

Coastal Dune Lupine - Dune-Heather -Silver Bush Lupine Association – 0acres (0 0

Dune-Heather Alliance – 04.6 acres (1.8 ha) in proposed disturbance areas

Dune-Heather - California Coffeeberry - Blue Elderberry Association – 0 acres (0 ha);

Dune-Heather - Seacliff Buckwheat - Black Sage Association –7.3 acres (2.9 ha) in proposed disturbance areas

Silver Dune Lupine and Dune-Heather Association – 0 acres (0 ha)

Degraded Central Dune Scrub –4.5 acres (1.8 ha) in proposed disturbance areas

Central Dune Scrub would be classified as Central Dune Scrub in the Holland legacy classification system (Holland 1986). The Silver Dune Lupine – Dune-Heather Shrubland Alliance has a global rank of G3 and a state rank of S3 (10,000-50,000 acres [4,050-20,235 ha] statewide), as listed by CDFW (2010). No areas dominated the Silver Dune Lupine – Dune-Heather Shrubland Alliance are located in proposed disturbance areas.

4.2.1.2 Non-native Veldt Grassland

Upland portions of the Site have been extensively disturbed by various land uses and are dominated primarily by non-native grasses, especially the invasive veldt grass. The presence of non-native grassland usually suggests prior clearing of native perennial vegetation, which then is largely replaced by invasive non-native grasses and forbs.

Although veldt grass is common in all vegetation types at the Site, only areas with 50% or greater cover by veldt grass were mapped as this grassland type. A total of 0.3 acres (0.1 ha) of non-native veldt grassland is located in proposed disturbance areas.

In general, the grassland areas would be classified as Non-Native Grasslands in the Holland legacy community classification system (Holland 1986) and as California Grassland Herbaceous Alliance within the CNPS Manual of California Vegetation (Sawyer et al. 2009).

4.2.2 Wetland Communities

Areas with standing or flowing water or with seasonally or permanently saturated soils commonly support wetland communities. Freshwater wetlands are extremely complex and variable, and their species composition and overall structure are dependent on a number of factors. One wetland habitat was found at the Site. A jurisdictional wetland delineation was not conducted by ARCADIS during the field survey, nor was one required.

4.2.2.1 Arroyo Willow Scrub

Arroyo Willow Riparian Scrub occurs in a small area adjacent to and south of the southern perimeter access road that follows the chain-link fencing around the south side of the developed refinery boundary (see Figure 4).

The Arroyo Willow Riparian Scrub in this location is dominated by arroyo willow (*Salix lasiolepis*) and includes a few large clumps of California blackberry (*Rubus ursinus*), poison-oak, and coyote bush under the canopy of the arroyo willows. There was no evidence of surface water in this location, and the surface soils were not saturated. The location is not within the project area.

In the Holland legacy community classification system (Holland 1986), the arroyo willow vegetation is classified as Central Willow Scrub. The Arroyo Willow Shrubland Alliance has a global rank of G4 (more than 50,000 acres [20,235 ha]) and a state rank of S4 (more than 50,000 acres [20,235 ha), as listed by CDFW (2010).

5. Results

The Site is dominated by a mosaic of Central Dune Scrub vegetation, as well as Non-native Veldt Grassland. One area outside the project limits supports arroyo willow thickets. No federal or state listed plants were observed within or adjacent to the construction area during the surveys, and none are likely to occur within the project footprint. Sensitive vegetation is described in Section 5.1 and shown on Figures 5 and 6.

Nipomo Mesa lupine (*Lupinus nipomoensis*) is known outside the project footprint on SMR property and all portions of the Site were searched for individuals of this species or any other annual species of *Lupinus* in April 2013, when Nipomo Mesa lupine was blooming elsewhere on Site; no individuals were observed in the project area. Four sensitive plant species were observed on the Site and are described further below; they are shown on Figures 5 and 6.

5.1 Sensitive Vegetation Types

One vegetation type mapped in the general project area has a California state ranking of S3, which is considered a "threat" rank by the CNDDB (CDFW 2013): The Silver Dune Lupine – Dune-Heather Shrubland Alliance. However, this vegetation type occurs outside the proposed disturbance areas.

5.2 Sensitive Plant Species

No state or federally listed or CNPS listed plant species were observed on the Site. Four sensitive plants listed by the CNPS (2013) were observed on or immediately adjacent to the Site. Blochman's leafy daisy is listed by the California Native Plant Society (CNPS) on List 1B.2 for plants fairly endangered in California and the remaining species occur on List 4 (a 'Watch List'). All sensitive species observed at the Site or reported from the area using the CNDDB and CNPS Electronic Inventory search (2013) are included in Table 2 and Figures 5 and 6. In addition, locations of sensitive species recorded nearby outside the project area are shown on Figure 6.

5.2.1 Sensitive Plant Species Observed on the Site (within the Proposed Disturbance Area)

Blochman's Leafy Daisy (*Erigeron blochmaniae*)

Blochman's leafy daisy is an herbaceous perennial that is woody at the base and reaches one meter in height. The intricately-branched slender stems bear narrow leaves; both stems and leaves are lightly covered with small curly hairs. A member of the sunflower family (Asteraceae), Blochman's leafy daisy bears flat-topped sprays of daisy-like heads at the end of the branched inflorescence stalks. The 45-72 ray flowers are lavender and the central disk flowers are yellowish and surrounded by three to five graduated rows of phyllaries that are short-hairy and also glandular.

Blochman's leafy daisy is endemic to the sand sheets of the Central Coast, extending from Vandenberg Air Force Base in Santa Barbara County north to Morro Bay. It is categorized as CNPS 1B.2, a plant of limited distribution that is fairly endangered in California. It is threatened by non-native invasive species, off-road vehicles, and loss of habitat.

Presence on the Site: Blochman's leafy daisy was found in limited numbers along the proposed secondary emergency vehicle access route at the eastern end of the Site during the June survey. It may occur elsewhere on Site but was not flowering and easily recognizable during the earlier surveys.

California Spineflower (*Mucronea californica*)

California spineflower is a distinctive reddish annual in the buckwheat family. It produces wiry branches low to the ground and has a spreading habit, rarely exceeding 10 inches (25 centimeters) in height. The linear to slightly oblanceolate leaves occur in a basal cluster, while flowering stems bear scattered 0.5- to 1-inch (1 to 2.5 centimeters) triangular reddish bracts that are slightly lobed and tipped with awns. One to two white to pinkish flowers emerge from each reddish awn-tipped involucre. California spineflower begins blooming in spring, but is readily visible long into autumn.

This annual herb is known from sandy soils from Atascadero to La Panza Range and south to Pozo. It is found sporadically along the coast from Morro Bay southwards to Nipomo Mesa, and also occurs on the sand sheets of northern Santa Barbara County. It has also been reported from limited localities in the Los Angeles Basin and the Cajon Pass area, and Santa Ana River Wash near Redlands in San Bernardino County.

It is categorized as CNPS 4.2, a plant of limited distribution that is fairly endangered in California.

Presence on the Site: California spineflower occurs in sandy openings in several areas that support Central Dune Scrub. More than 3,000 individuals were observed in mapped areas.

Sand almond (*Prunus fasciculata* var. *punctata*)

Sand almond is an intricately branched shrub that ranges from 2 to 3 feet in height (0.6 to 0.9 meters), although it may sometimes be taller. This winter-deciduous shrub has narrow leaves to 0.5 to 0.75 inches long, with punctuate (sunken) glands on the surface. The tiny white flowers appear in spring and are followed by small, round pubescent fruits. Unlike its desert relative, *Prunus fasciculata* var. *fasciculata*, a desert species native to washes and rocky soils of the western desert regions, sand almond is confined to sandy substrates in coastal Santa Barbara and San Luis Obispo Counties.

Sand almond occurs in Graciosa Canyon on the northern flanks of the Purisima Hills south of Orcutt, northwest of Los Alamos, on San Antonio Terrace (Smith 1998), and in the Solomon Hills in Santa Barbara County. Keil and Holland (1998) also report sand almond on San Antonio Terrace in mixed chaparral and in disturbed areas surrounded by grasses, as well as in the Casmalia Hills north of Barka Slough. One outlying population of sand almond lies far to the east of these more coastal populations, on the easternmost extent of the Purisima Hills west of Ballard Canyon (Smith

1998). Sand almond also extends north into San Luis Obispo County on Nipomo Mesa and in maritime chaparral south of Morro Bay.

Sand almond is listed as CNPS List 4.3, which is a watch list for species with a limited distribution that are not very endangered in California.

Presence on the Site: Three individuals of sand almond were observed at the top of a sandy ridge in the Black Sage – Dune-Heather Association on the Site, as well as along the proposed emergency access route at the eastern end of the Site in the Dune-Heather Alliance vegetation type.

Blochman's Groundsel (*Senecio blochmaniae*)

Blochman's groundsel is a subshrub in the sunflower family that reaches 1.5 meters in height. The leaves are bright green and linear, with dried leaves remaining attached to the plant lower on stems. Like Blochman's leafy daisy, Blochman's groundsel is a member of the sunflower family, with yellow ray and disk flowers. The fruits bear tufts of soft hairs that aid in dispersal.

Blochman's groundsel is distributed on stabilized dunes from Point Conception north to Morro Bay. It is threatened by development, invasive weeds, off-road vehicles, and other human activities. It is categorized as CNPS 4.2, a plant of limited distribution (CNPS watch list) that is fairly endangered in California.

Presence on the Site: Blochman's groundsel is scattered at the Site, especially in the western half in places where veldt grass is sparse. Approximately 50 individuals were observed on the Site.

5.2.2 Sensitive Plant Species NOT Observed on the Site

The following plants were *not* found by ARCADIS at the Site or the surrounding area during the 2012 and 2013 surveys, but are known to occur in the general region and are discussed here for reference and thoroughness. These sensitive species and others known from the region are included on Table 2, along with commentary on habitat preference and the potential for presence at the Site. The plants are listed below by rarity (the rarest first), and then alphabetically by scientific name within a given rarity category.

Marsh sandwort (*Arenaria paludicola*)

Marsh sandwort is an herbaceous perennial member of the pink family (Caryophyllaceae). Marsh sandwort occurs primarily in freshwater wetlands along the Pacific Coast.

Marsh sandwort is listed as a Federal Endangered and California Endangered species, and is categorized as CNPS 1B.1, a plant of limited distribution that is seriously endangered in California. It is threatened by development, agricultural, and ranching activities, and changes to the hydrologic regime of wetlands in which it occurs.

Presence on the Site: Marsh sandwort was not found at the Site, and the Site does not support suitable habitat for this species (standing water forming a freshwater marsh). The species has been reported to occur at Jack Lake and in Black Lake Canyon (CDFW 2013).

La Graciosa thistle (*Cirsium loncholepis*)

La Graciosa thistle is low-growing biennial or short-lived perennial herb with spiny leaves and large white flowers. It is a member of the sunflower family (Asteraceae). The species has a highly localized distribution, endemic to margins of coastal wetland or marsh habitats from southern San Luis Obispo County to northern Santa Barbara County.

La Graciosa thistle is a State Threatened and Federally Endangered listed species, and is categorized as CNPS 1B.1, a plant of limited distribution that is seriously endangered in California. It is threatened by development, agricultural, and ranching activities, and changes to the hydrologic regime of wetlands in which it occurs.

Presence on the Site: La Graciosa thistle was not observed at the Site during ARCADIS surveys. No wetland areas occur within the project footprint. However, designated critical habitat for this species covers most of the Site (see Figure 7; USFWS 2009).

Pismo Clarkia (*Clarkia speciosa* subsp. *immaculata*)

Pismo clarkia is a late spring to early summer-flowering annual herb in the evening-primrose family (Onagraceae). Pismo clarkia is endemic to San Luis Obispo County and grows on dry, sandy, often disturbed soils along the margins of oak woodland in open grassy sites. This plant is known only from the Pismo Beach, Arroyo Grande, and Nipomo Mesa area of San Luis Obispo County. It has been found in an area dominated by veldt grass within 0.25 mile of the Site.

Pismo clarkia is listed as a Federal Endangered and California Rare species and is categorized as CNPS 1B.1, a plant of limited distribution that is seriously endangered in California. Threats include development and agricultural activities.

Presence on the Site: Pismo clarkia was not identified at the Site, and the Site lacks the oak woodland plant community often associated with grasslands in which it occurs. Surveys were conducted at the appropriate time of year when the species was blooming elsewhere in the County. This species was not observed on Site.

Mesa Horkelia (*Horkelia cuneata subsp. puberula*) and Kellogg's Horkelia (*Horkelia cuneata subsp. sericea*)

Mesa horkelia and Kellogg's horkelia are subspecies of the more widespread herbaceous perennial, coast horkelia (*Horkelia cuneata* var. *cuneata*), and a member of the rose family. Both horkelias are characterized by basal leaves divided into leaflets, with flowering stalks bearing reduced leaves and small white flowers at the branched tips. The flowers each produce five narrow white petals and ten stamens with distinctive flattened ribbon-like filaments. Mesa horkelia and Kellogg's horkelia are distinguished by characteristics of leaf and stem hairs as well as diagnostic features found in the flowers.

Mesa horkelia is known from San Luis Obispo County to San Diego County, while the distribution of Kellogg's horkelia encompasses populations in San Mateo, Santa Cruz, San Luis Obispo, and Santa Barbara Counties; it has been extirpated in the San Francisco Bay area. Numerous populations of mesa and Kellogg's horkelia have been eliminated by development, particularly in the northern part of its range. Both species bloom from April to September, and each is listed separately on CNPS List 1B.1 for species that are seriously endangered in California.

Potential Presence on the Site: Mesa and Kellogg's horkelia have not been observed on the Site, but Kellogg's horkelia has been observed nearby.

Nipomo Mesa Lupine (*Lupinus nipomoensis*)

Nipomo Mesa lupine is an annual herb restricted to stabilized back dune habitat on the east side of the Guadalupe Dunes at the southwest base of the Nipomo Mesa in San Luis Obispo County. The entire known distribution of the annual Nipomo Mesa lupine is confined to an area less than 3 square miles that encompasses what is generally considered to be one extended population consisting of five to seven colonies (USFWS 2000; Center for Plant Conservation 2008), including a ruderal roadside area adjacent to Highway 1 south of the Site near the ConocoPhillips refinery. Nipomo Mesa lupine has been known from swales between or at the bases of stabilized dunes and seems to prefer pockets of open sand between widely spaced individuals of dune-heather, often mixed with other annuals and herbaceous perennials. Currently, it is also known from areas dominated by the invasive veldt grass. The Nipomo Mesa lupine blooms from March to May. Nipomo Mesa lupine is Federally listed as Endangered and is State listed as Endangered, and is categorized as CNPS 1B.1, a plant of limited distribution that is seriously endangered in California.

Presence on the Site: Nipomo Mesa lupine was not identified on the Site. Targeted searches were conducted during the blooming period for this species. The surveys were scheduled based on the observation of blooming individuals in known populations elsewhere on the SMR property. Figure 6 shows locations of nearby populations of Nipomo Mesa lupine on the SMR property. The nearest known population of Nipomo Mesa lupine is located approximately 0.25 miles north of the offloading facility east of the existing storage tanks.

Gambel's water cress (*Rorippa gambelii*)

Gambel's watercress is an herbaceous perennial in the mustard family that closely resembles the more widespread common watercress (*Rorippa nasturtium-aquaticum*); it differs by having toothed leaflets, a smaller terminal leaflet, more leaflets, and bracts around flower pedicels. It is listed as a Federally Endangered species, and is categorized as CNPS 1B.1, a plant of limited distribution that is seriously endangered in California.

Presence on the Site: Gambel's watercress was not found at the Site, and the Site does not support suitable habitat for this species. The lack of standing water forming a freshwater marsh severely limits the likelihood of its occurrence. However, it is discussed here because of a report of its presence at Black Lake Canyon by CNDDB (CDFW 2013).

Leafy Tarplant (*Deinandra* [*Hemizonia] increscens* subsp*. foliosa*)

Leafy tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from June to September. It often produces eight ray flowers and 18 to 30 disk flowers, and bears branches midstem or higher. It is found in grassland habitat, especially in the interior portion of San Luis Obispo County, and is on the CNPS List 1B.2, a plant of limited distribution that is fairly endangered in California. There is no report of this species within the Oceano quadrangle in the CNDDB, but it is found in nearby quadrangles and could be potentially present.

Bruce Baldwin, of the UC Jepson Herbarium, has recently revised the taxonomy of *Deinandra increscens*, including subsp. foliosa (Baldwin and Strother 2006). Molecular data indicate that subsp. foliosa is more closely aligned with a different species of *Deinandra, Deinandra paniculata*. *D. paniculata* is primarily found in the southern part of California (Orange, Riverside, San Bernardino, and San Diego Counties), as well as in northern Baja California. It is on the CNPS List 4.2.

Presence on the Site: The leafy tarplant was not observed on the Site. Specimens of a related subspecies, coast tarplant (*Deinandra increscens* subsp. *increscens*), were identified during the survey.

6. Impacts

The following discussion addresses anticipated project-related botanical and plant community impacts. All biological impacts on the Site associated with the development occur on the undeveloped expanse of disturbed native habitat located east of the fenced refinery boundary (or in association with the potential coastal access route described below in Section 8. The disturbance areas within the existing coke facility and within the existing refinery are not anticipated to present ecological impacts. This report conservatively combined both temporary and permanent impacts for the purpose of impact assessment (Table 3). At this time, the project is anticipated to result in minor botanical and plant community impacts that can be mitigated to a less than significant level, and as such, resource protection and enhancement measures are proposed in section 7.

6.1 Direct Loss of Vegetation

The majority of the Site supports central dune scrub habitat degraded by long-term cattle grazing. The expected direct impacts associated with the project are primarily the loss of native plant species that may be present during clearing and grading of the Site. No direct impacts to federal or state listed species are anticipated as a result of this project. An estimated 26.5 acres (10.7ha) of central dune scrub habitat of varying quality on the Site will be impacted by the project as currently designed and shown on Figure 4. However, no sensitive vegetation associations occur within the project footprint.

Individuals of California spineflower, Blochman's groundsel, Blochman's leafy daisy, and sand almond occur within the disturbance envelope and would be impacted by project activities.

6.2 Indirect Loss of Vegetation

The final project footprint will consist of up to five parallel linear rail tracks that extend east from the refinery. The tracks will continue out through central dune scrub habitat, allowing rail cars to be staged for off-loading before returning to the main Southern Pacific track. By itself, the modified rail spur infrastructure will occupy/ impact relatively few acres compared to the total amount of native habitat present on the Site. The proposed project is not anticipated to result in erosion, sedimentation, or alteration of any jurisdictional (or non-jurisdictional) wetlands. The project could exacerbate the already significant invasion of veldt grass within the surrounding native habitat and all disturbance areas should be returned to pre-disturbance conditions to prevent an increase the presence of invasive botanical species in the area.

7. Recommended Impact Avoidance and Minimization Measures

The following measures are recommended to help prevent or reduce impacts to sensitive biological resources occurring on the Site. Because these measures protect both botanical and wildlife resources, a general discussion on resource protection measures for all biological resources at the Site is included below.

- Limit disturbance of upland habitat – To the extent feasible, the disturbance areas should be minimized.

- Construction protection plan – A concise plan that details the resource protection measures and provides maps of protected areas shall be prepared prior to the start of construction. The plan shall be specifically written for the construction personnel.

- Pre-construction surveys - To help protect plant species in the vicinity of the project, pre-construction reconnaissance-level biological surveys shall occur prior to initial clearing for the construction activities. The pre-construction surveys shall occur no more than two weeks prior to initial clearing activity and shall allow sufficient time for work schedule changes or addition of protection measures (i.e. additional fencing, wildlife exclusion measures) that may be necessary to avoid impacts to common and sensitive biological resources. The goal of the surveys shall be to identify common or sensitive status wildlife and plant species in the work area and, if possible, determine methods by which impacts to these species can be further avoided. Additionally, pre-construction surveys for Nipomo Mesa lupine should be conducted each spring prior to construction between January and June to confirm that no individuals occur within or adjacent to the work areas.

  Pre-construction surveys shall occur prior to initial clearing activity for each phase of construction if construction is phased. An approved biologist shall conduct pre-construction reconnaissance level surveys of the disturbance area during each phase of the construction project to determine the presence of common species, the potential capture and relocation of individual animals, and to determine a likely escape route for these species.

  It is critical that all construction personnel involved in clearing activities are aware that pre-construction biological surveys must be completed prior to each and every phase of initial clearing associated with the project. Good communication between the project manager and the project biologist is essential to ensure that surveys are conducted at the proper time.

- Temporary fencing and work site delineation - The boundaries of all work areas, including access roads and staging areas, shall be delineated on the grading plans. Sensitive habitats and resources adjacent to work areas shall be clearly delineated for avoidance on grading plans and in the field. All disturbance areas shall be clearly delineated in the field with fencing or flagging prior to any disturbance activities, including grading, grubbing, and clearing. Any native shrublands located within 25 feet (8 m) of proposed disturbance shall be temporarily fenced prior to any ground disturbance and such fencing is to remain in place throughout all grading and construction. Fencing shall be shown on all grading plans. No earth disturbance shall occur outside of the approved construction activities envelope.

- Temporary access roads – Temporary access roads should be limited to the fewest number possible to reduce impacts to biological resources. Temporary access roads and staging areas should be restored to pre-project conditions following project completion.

- Staging and stockpiling - All staging and stockpiling shall be limited to the existing paved or disturbed surfaces to the maximum extent feasible. No staging shall occur within the sensitive habitats or the designated buffer zones.

- Equipment maintenance – Equipment/vehicle maintenance/repairs shall be performed off-site or restricted to pre-designated areas.

- Spill protection measures – Engineering design shall include measures for spill containment such as berms and other structures to contain any released fluids or combinations of released fluids and other materials.

- Restoration plan - Any sensitive resources that are disturbed during construction will be restored using appropriate native species in consultation with a qualified restoration manager. These restoration measures may be implemented in areas subjected to temporary impacts, such as cut and fill slopes, or elsewhere on the SMR property. A written restoration plan shall be prepared detailing the steps, methodology, and performance criteria for passive or active restoration. Active restoration efforts shall be overseen by a qualified restoration manager after the preparation of a restoration plan detailing methods for implementation, monitoring requirements, and quantifiable performance standards. All seed and/or propagules shall be locally collected from sources as close to the project area as possible. Applicable restoration techniques may include weed abatement and natural recruitment of natives in some areas and may require active planting in others. Appropriate erosion control measures will be utilized for slope stabilization where necessary.

- Pre-construction training - A qualified biologist familiar with the project area shall conduct a training session for project personnel prior to implementation of construction activities. At a minimum, the training shall include: a description of sensitive habitat, plants, and wildlife on in the area; the provisions of the Endangered Species Act and other relevant regulatory criteria; the necessity for adhering to the Conditions of Approval; the specific measures that are being implemented to conserve sensitive resources while construction is occurring; and the boundaries within which the project activities are to be accomplished.

- Construction monitoring - A Construction Monitor who is a qualified biologist familiar with the project area shall be present during initial site preparation and all initial ground disturbance activities, such as vegetation removal and grading, as well as for initiation of each phase of the project to ensure that sensitive species are not present in the project area.

- Capture and release of wildlife during construction - Whenever possible, common wildlife and wildlife species of special concern may be captured and immediately re-located by a qualified biologist to similar habitat outside the working area. If federal or state-listed species are identified, then work shall cease in that location until the appropriate agencies can be contacted for further instruction.

7.1 Construction Monitoring and Reporting

Construction monitoring during initial disturbance is required to protect resources during construction and to identify any feasible impact avoidance, minimization, and erosion control measures that may be implemented in addition to the existing requirements.

To ensure that the minimum amount of habitat is disturbed during construction, initial flagging, fencing, and grading shall be inspected by the Construction Monitor. The Construction Monitor shall be on site to sufficiently monitor the protection measures detailed in this document. It is anticipated that monitoring will be most frequent during preparatory and initial site clearing work then will decrease in frequency once the mass grading has disturbed all of the topsoil within the construction activities area or a particular phase of work. The monitor shall be on-site (or shall spot check) during initial site-walks with contractors and crew orientation meeting(s) and during oak tree/native habitat/sensitive species protective fence installation. The Construction Monitor will be consulted regarding any necessary modifications to protection measures or modifications to grading design or infrastructure alignment.

Monthly and quarterly reports shall be prepared by the Construction Monitor throughout the construction project to document the status of construction activities, status of conditions, incidents of non-compliance (if any) and their results, as well as any other pertinent or requested data.

8. Potential Coastal Access Routes

Two potential routes to provide coastal access across the SMR from Highway 1 to Oceano Dunes State Vehicular Area are shown in Figure 8. This area was surveyed on June 11, 2013 by Senior Ecologist Mary Carroll. The survey area characterized the botanical resources through an approximately 300 foot wide corridor along the two routes. Both routes generally follow the existing dirt maintenance road used by Phillips 66 for outfall maintenance. Note that the coastal access routes would not include the road itself as it would remain an internal operational maintenance road for Phillips 66 and would not be appropriate for shared public access. Any coastal access would be an entirely new disturbance.

Route A closely follows the road whereas Route B diverges from the road to avoid existing mapped populations of Nipomo Mesa lupine.Coastal Access Route A supports high quality native habitat including sensitive plant communities and sensitive species. Route A traverses central dune scrub habitat (Figure 8 and Figure 9). Vegetation is dominated by the Dune-Heather - Silver Dune Lupine Association, which has a sensitive plant ranking of S3 in the CNDDB (CDFW 2013). Among the sensitive plant species observed along this access route are the state and federally listed endangered Nipomo Mesa lupine (FE / CE / CNPS 1B.1), Blochman's leafy daisy (*Erigeron blochmaniae*, CNPS 1B.2), crisp monardella (*Monardella undulata* subsp. *crispa*, CNPS 1B.2), Blochman's groundsel (*Senecio blochmaniae*, CNPS 4.2), and sand almond (*Prunus fasciculata* var. *punctata*, CNPS 4.3); see Tables 4 and 5. Significant impacts to native botanical resources are anticipated from installation of Coastal Access Route A due to the presence of colonies of Nipomo Mesa lupine and other sensitive resources along this route.

Coastal Access Route B also supports high quality central dune scrub. A portion of Coastal Access Route B occurs immediately adjacent to the southern margins of Jack Lake within 100 feet of arroyo willow thickets (*Salix lasiolepis* Woodland Alliance) and a freshwater marsh dominated by slough sedge (*Carex obnupta*). Two federal and state-endangered plant species have been reported historically from Jack Lake: marsh sandwort (*Arenaria paludicola*, FE/CE/1B.1) and La Graciosa thistle (*Cirsium scariosum* var. *loncholepis,* FE/CT/1B.1). Sensitive species observed along this route include Blochman's leafy daisy, Blochman's groundsel, California spineflower (*Mucronea californica*, CNPS 4.2), and sand almond. This route also occurs immediately adjacent to a mapped colony of Nipomo Mesa lupine at its northeastern terminus, and the likelihood of future Nipomo Mesa lupine individuals occurring within the mapped route is high.

Both coastal access routes occur within designated critical habitat for La Graciosa Thistle (USFWS 2009), although neither route passes directly through suitable wetland habitat. Route B occur immediately adjacent to suitable habitat however, well within a 100-foot buffer around Jack Lake and its associated wetlands. Either option would result in significant impacts to biological resources along the Coastal Access Route corridor.

As evidenced in historical aerial photographs, uncontrolled coastal access in this area was used heavily by off-road vehicle enthusiasts and the dunes were significantly impacted with an extensive destabilizing road and trail network. This access was closed by Tosco in the mid-1990s and the dune ecosystems have recovered through significant passive and active restoration efforts. A new uncontrolled coastal access route in this location could result in similar usage and similar degradation of the area as off-road vehicle users seek an alternate entry to the State Vehicular Use Area.

9. Conclusion

Central dune scrub vegetation occurs over most of the Site and supports at least four plant species regarded as sensitive by the CNPS -- California spineflower, sand almond, Blochman's groundsel, and Blochman's leafy daisy. While regarded as limited in range in California and in some cases locally endangered by CNPS, none of these species have formal listing status with federal or state agencies. Most of the project area is designated as critical habitat for La Graciosa thistle, which has been reported from nearby Jack Lake though suitable habitat is not present within the proposed disturbance areas.

ARCADIS reviewed and surveyed the proposed project area for the rail project, and concludes that anticipated impacts can be mitigated to a less than significant level. No federal or state listed plant species, wetlands, or sensitive native habitats are anticipated to be impacted by the proposed project.

Potential Coastal Access Routes A and B occur in high quality central dune scrub vegetation supporting a variety of sensitive plant species, including the Federal and State-listed Endangered Nipomo Mesa lupine, Blochman's leafy daisy, crisp monardella, Blochman's groundsel, California spineflower, and sand almond. The entire area is designated as critical habitat for La Graciosa thistle, which has been reported from nearby Jack Lake. Proposed Coastal Access Route B occurs within the 100-foot buffer around the wetlands and riparian habitat at Jack Lake. Either option would result in significant impacts to biological resources along the Coastal Access Route corridor.

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Tables

TABLE 1
OBSERVED VASCULAR PLANT SPECIES AT PROJECT SITE

Scientific Name	Common Name	Vegetation Type	Abundance in Vegetation Type Where Found
TREES			
Eucalyptus globulus	Tasmanian blue gum	planting	scarce
Pinus radiata	Monterey pine	planting	scarce
Quercus agrifolia	**coast live oak**	**central dune scrub**	**single tree near east end of large loop**
Salix lasiolepis	**arroyo willow**	**arroyo willow thickets**	**common in one area**
SHRUBS/SUBSHRUBS			
Acmispon glaber	**deerweed**	**central dune scrub**	**occasional**
Artemisia californica	**California sagebrush**	**central dune scrub**	**occasional**
Baccharis pilularis* subsp. *consanguinea	**coyote bush**	**central dune scrub**	**occasional to scattered**
Ericameria ericoides	**dune-heather**	**central dune scrub**	**common**
Erigonum parvifolium	**coastal buckwheat, seacliff buckwheat**	**central dune scrub**	**scattered**
Frangula californica	**coffee berry**	**central dune scrub**	**occasional at bottoms of slopes**
Lupinus arboreus	**coastal bush lupine**	**central dune scrub**	**occasional**
Lupinus chamissonis	**silver dune lupine**	**central dune scrub**	**occasional to scattered**
Mimulus aurantiacus	**bush monkeyflower**	**central dune scrub**	**occasional**
Prunus fasciculata* var. *punctata	**sand almond, dune almond**	**central dune scrub**	**scarce**
Rubus ursinus	**California blackberry**	**arroyo willow thickets**	**occasional**
Salvia mellifera	**black sage**	**central dune scrub**	**common**
Sambucus nigra* subsp. *caerulea	**elderberry**	**central dune scrub**	**occasional**
Senecio blochmaniae	**Blochman's groundsel, Blochman's ragwort**	**central dune scrub**	**uncommon**
Toxicodendron diversilobum	**poison-oak**	**central dune scrub**	**occasional**
HERBS (ANNUALS, BIENNIALS, HERBACEOUS PERENNIALS)			
Acmispon wrangelianus	**annual lotus**	**central dune scrub**	**scarce**
Amsinckia spectabilis* var. *microcarpa	**small-fruited seaside fiddleneck**	**central dune scrub**	**occasional**
Artemisia douglasiana	**mugwort**	**central dune scrub**	**occasional**
Avena barbata	slender wild oat	central dune scrub	uncommon
Bromus carinatus	**California brome**	**central dune scrub**	**uncommon**
Bromus diandrus	ripgut brome	central dune scrub	uncommon
Bromus madritensis subsp. *rubens*	red brome	central dune scrub	uncommon
Camissoniopsis micrantha	**sun cups**	**central dune scrub**	**occasional**
Camissonia strigulosa	**strigose sun cups**	**central dune scrub**	**uncommon**
Cardionema ramosissimum	**sandmat**	**central dune scrub**	**occasional**
Carduus pycnocephalus	Italian thistle	arroyo willow thickets	uncommon
Carpobrotus edulis	Hottentot fig (iceplant)	central dune scrub	near road
Castilleja exserta* subsp. *exserta	**owl's clover**	**central dune scrub**	**uncommon**
Centaurea melitensis	tocalote	central dune scrub	uncommon
Chenopodium californicum	**California goosefoot**	**central dune scrub**	**uncommon**
Chenopodium murale	nettleleaf goosefood	disturbed areas, openings in central dune scrub	uncommon
Chorizanthe angustifolia	**narrowleaf spineflower**	**central dune scrub**	**occasional to scattered**
Chorizanthe diffusa	**diffuse spineflower**	**central dune scrub**	**occasional**
Conicosia pugioniformis	pig root	central dune scrub	occasional, especially in disturbed areas
Conium maculatum	poison-hemlock	arroyo willow thickets	scattered
Corethrogyne filaginifolia	**California aster**	**central dune scrub**	**occasional**
Cortaderia jubata	pampas grass	ruderal	uncommon
Crassula connata	**pygmy weed**	**central dune scrub**	**occasional**
Croton californicus	**California croton**	**central dune scrub**	**occasional to scattered**
Cryptantha clevelandii	**common cryptantha**	**central dune scrub**	**scarce**
Deinandra increscens* subsp. *increscens	**coast tarweed**	**central dune scrub**	**occasional**
Distichlis spicata	**salt grass**	**central dune scrub**	**uncommon**
Dudleya lanceolata	**lance-leaved live forever**	**central dune scrub**	**scarce**
Ehrharta calycina	veldt grass	disturbed areas, openings in central dune scrub	abundant
Erigeron blochmaniae	**Blochman's leafy daisy**	**central dune scrub**	**scarce**
Eriophyllum multicaule	**many-stemmed woolly sunflower**	**central dune scrub**	**scarce**
Erodium botrys	storkbill filaree	central dune scrub	occasional
Erodium cicutarium	redstem filaree	central dune scrub	uncommon
Eschscholzia californica	**California poppy**	**central dune scrub**	**occasional**
Festuca myuros	rattail fescue	central dune scrub	occasional
Galium californicum* subsp. *maritimum	**coastal California bedstraw**	**central dune scrub**	**scarce**
Heterotheca grandiflora	**telegraph weed**	**ruderal**	**scarce**

TABLE 1
OBSERVED VASCULAR PLANT SPECIES AT PROJECT SITE

Scientific Name	Common Name	Vegetation Type	Abundance in Vegetation Type Where Found
Heterotheca sessiliflora* subsp. *echioides	**bristly goldenaster**	**central dune scrub**	**occasional**
Hirschfeldia incana	summer mustard, Mediterranean mustard	central dune scrub	scarce
Hordeum murinum	foxtail barley	arroyo willow thickets, disturbed areas	scarce
Horkelia cuneata* subsp. *cuneata	**coast horkelia**	**central dune scrub**	**occasional**
Hypochaeris glabra	smooth cat's ear	central dune scrub	occasional
Lamarckia aurea	goldentop	central dune scrub	scarce
Lastarriaea coriacea	**leather spineflower**	**central dune scrub**	**occasional**
Lasthenia californica	**goldfields**	**central dune scrub**	**uncommon**
Lessingia pectinata* var. *pectinata	**valley lessingia**	**central dune scrub**	**occasional**
Logfia californica	**California**		
Logfia gallica	slender weedy filago	central dune scrub	scarce
Malva nicaaensis	bull mallow	disturbed area	uncommon
Mucronea californica	**California spineflower**	**central dune scrub**	**occasional**
Navarretia atractyloides	**holly-leaved navarretia**	**central dune scrub**	**occasional**
Nuttalanthus texanus	**blue toadflax**	**central dune scrub**	**scarce**
Penstemon centranthifolius	**scarlet bugler**	**central dune scrub**	**scarce**
Pholisma arenarium	**sand food**	**central dune scrub**	**occasional**
Plantago erecta	**California plantain**	**central dune scrub**	**occasional**
Polygonum aviculare subsp. *depressum*	knotweed	ruderal	occasional
Pseudognaphalium ramosissima	**pink everlasting**	**central dune scrub**	**uncommon**
Pterostegia drymarioides	**fairy mist**	**central dune scrub**	**occasional**
Silene gallica	windmill pink	central dune scrub	scarce
Spergularia villosa	hairy sand spurrey	ruderal	scarce
Stephanomeria exigua	**wire-lettuce**	**central dune scrub**	**occasional**
Stylocline gnaphaloides	**everlasting neststraw**	**central dune scrub**	**occasional**
Uropappus lindleyi	**silver puffs**	**central dune scrub**	**occasional**
Native species are in **bold** print			

TABLE 2
PRESENT OR CNDDB RECORDED SENSITIVE ELEMENTS OF BIOLOGICAL DIVERSITY
FOR THE PHILLIPS 66 PROPERTY AND SURROUNDING AREA

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Amphibians		**USFWS / CDFG**		
Ambystoma californiense	California tiger salamander	FE / CSC	Grasslands, woodland; slow moving or ponded aquatic features for breeding	Not observed. Marginal to poor habitat present / No known breeding ponds in project vicinity
Rana aurora draytonii	California red-legged frog	FT / CSC	Lakes, ponds, marshes, slow-moving streams, riparian environments	Not observed. Species known to occur in aquatic features within one mile of the site. Potentially present in Oso Flaco Creek.
Spea hammondii	Western spadefoot toad	- / CSC	Foothills, woodlands, grasslands; temporary ponds and vernal pools for breeding	Not observed; marginally suitable upland habitat present. Aquatic habitat for breeding unlikely to occur on the site.
Taricha torosa torosa	Coast Range newt	FSC / CSC	Foothills, woodlands, riparian environments; moving clear water streams for breeding	Not observed; suitable habitat absent on site.
Birds		**USFWS / CDFG**		
Accipiter cooperii	**Cooper's hawk**	**- / CSC**	**Variety of habitats suitable; oak woodlands, forests, riparian areas for nesting.**	**Observed on site; Likely to forage on the site and occur intermittently on the site throughout the year.**
Aquila chrysaetos	Golden eagle	- / CSC (Fully Protected)	Open savannahs, grasslands, foothills and woodlands; nests in large trees or on cliff faces	Not observed; Species may occur intermittently on the site. Not likely to nest on the site.
Agelaius tricolor (nesting colony)	Tricolored blackbird	(FSC) MNBMC / CSC	Ponds, marshes, lakes	Not observed; species not likely to occur on the site; no suitable aquatic habitat on the site.
Amphispiza belli	**Bell's sage sparrow**	**- / CSC**	**coastal sage scrub,chamise chaparral**	**Observed on site; one male observed singing. The species could potentially nest on the site.**
Athene cunicularia	**Western burrowing owl**	**(FSC) MNBMC / CSC**	**Open savannahs, grasslands, foothills and barren areas; nests in small mammal burrows**	**Observed on site; suitable scrub habitat available on site; over-winters on the site.**
Buteo regalis	**Ferruginous hawk**	**(FSC) MNBMC / CSC**	**Open savannahs, grasslands, foothills and fields; may potentially over-winter on the site**	**Observed on site; suitable foraging habitat present.**
Charadrius alexandrinus nivosus (nesting)	Western snowy plover	FT / CSC	Sandy beaches, open mud-flats and dunes	Not observed; suitable habitat absent for this species.
Circus cyaneus	**Northern harrier**	**- / CSC**	**Open fields, grasslands, savannahs, and scrub habitat**	**Observed on site; suitable foraging habitat on the site for this species**
Elanus leucurus	White-tailed kite	MNBMC / CSC (Fully Protected)	FIelds, grasslands, oak woodlands, coastal scrub	Not observed; suitable habitat available for this species; species likely to occur on the site intermittently throughout the year.
Eremophila alpestris	California horned lark	- / CSC	Open fields, agricultural fields, barren areas, coastal dune scrub	Not observed; suitable open scrub and dune habitat present
Falco mexicanus	Prairie falcon	FSC / CSC	Deserts, foothills, grasslands and open savannahs; nests on cliff faces	Not observed; species may occur infrequently on the site while foraging
Gymnogyps californianus	California condor	FE/SE	Mountains, foothills, woodlands, grasslands	Not observed; potential foraging habitat on the site for this species
Laterallus jamaicensis coturniculus	California black rail	ST/ CDFG-FP	Marsh, estuary habitats	Not observed; no suitable habitat present for this species.
Lanius ludovicianus	**Loggerhead shrike**	**- / CSC**	**Deserts, foothills, grasslands and open savannahs; nests on cliff faces**	**Observed on the site; suitable habitat available for this species; species likely to occur on the site intermittently throughout the year.**
Sternula antillarum browni	California least tern	FE/SE	Coastal dunes, estuaries, beaches	Not observed; very limited dune habitat available on Site. No foraging habitat on Site
Fish		**USFWS / CDFG**		
Eucyclogobius newberryi	Tidewater goby	FE / CSC	Coastal lagoons and streams	Not expected; no suitable aquatic habitat present
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	FE/SE	Clear water streams	Not expected; no suitable aquatic habitat present
Oncorhynchus mykiss irideus	Steelhead trout	FT / CSC	Coastal streams and rivers	Not expected; no suitable aquatic habitat present
Invertebrates		**USFWS / CDFG**		
Ablautus schlingeri	Oso Flaco robber fly	- / -	Sand dunes	Not observed; species last reported in 1962
Areniscythris brachypteris	Oso Flaco flightless moth	- / -	Coastal dunes	Not observed; species last reported in 1972
Chlosyne leanira elegans	Oso Flaco patch butterfly	- / -	**Coastal dunes**	Not observed; species last reported in 1983
Cincindela hirticollis gravida	sandy beach tiger beetle	- / -	Coast sand beaches	Not observed; no suitable habitat present

TABLE 2
PRESENT OR CNDDB RECORDED SENSITIVE ELEMENTS OF BIOLOGICAL DIVERSITY
FOR THE PHILLIPS 66 PROPERTY AND SURROUNDING AREA

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Danaus plexippus	**Monarch butterfly**	**- / -**	**Winter roosts occur in canopy of Monterey pine, eucalyptus and other large tree groves**	**Observed; Species likely to occur intermittently on the site; no winter roost locations known to occur on the site**
Lichnanthe albipilosa	White sand bear scarab beetle	- / -	Coastal dunes	Not observed; species last reported in 1972
Plebejus icarioides moroensis	Morro Bay blue butterfly	- / -	Coastal dunes	Not observed; found at Oso Flaco Lake in 2004; *Lupinus chamissonis* (present at the project site) is host plant for this butterfly
Mammals		**USFWS / CDFG**		
Antroxous pallidus	Pallid bat	- / CSC	Variety of habitats including woodlands, fields, coastal scrub and grasslands for foraging	Not observed; suitable foraging habitat present
Corynorhinus townsendii	Townsend's big-eared bat	- / CSC	Occurs in a variety of different habitat types; roosts in the open hanging from walls, ceilings	Not observed; suitable foraging habitat present
Lasionycteris noctivagans	Silver-haired bat	- / -	Lower montane coniferous forests; riparian corridors	Not observed; marginal to poor habitat suitability for this species
Lasiurus blossevillii	Western red bat	- / CSC	Cismontane woodland, lower montane coniferous forests, riparian forests - woodlands	Not observed; marginal to poor habitat suitability for this species
Lasiurus cinereus	Hoary bat	- / -	Broadleaved upland forest, cismontane woodland, lower montane coniferous forests, woodlands	Not observed; potentially suitable foraging habitat present
Myotis yumanensis	Yuma myotis	- / -	Cismontane woodland, lower montane coniferous forests, riparian forests - woodlands	Not observed; potentially suitable foraging habitat present
Taxidea taxus	American badger	- / CSC	Grasslands, woodlands, chaparral, coastal scrub, foothills	Not observed; suitable habitat present; species likely to occur on the site periodically.
Reptiles		**USFWS / CDFG**		
Anniella pulchra	Silvery legless lizard	FSC / CSC	Coastal dune scrub, woodlands with friable soil	Not observed; suitable habitat present on the site. Species is likely to occur within the project area.
Actinemys marmorata	Pacific pond turtle	FSC / CSC	Aquatic environments of lakes, streams, marshes, ponds and riparian systems	Not observed; known to occur in Oso Flaco Creek and other aquatic environments nearby.
Phrynosoma coronatum	Coast horned lizard	FSC / CSC	Coastal scrub, coastal dune scrub, woodlands, chaparral and grasslands	Not observed; suitable habitat present on the site. Species is likely to occur within the project area.
Thamnophis hammondii	Two-striped gartern snake	- / CSC	Marshes, ponds, lakes, streams, riparian systems	Not observed; not suitable aquatic habitat on site
Plants		**USFWS / CDFG / CNPS**		
Agrostis hooveri	Hoover's bent grass	- / - / 1B.2	Central maritime chaparral, woodlands, grasslands	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Aphanisma blitoides	Aphanisma	SOC / - / 1B.2	Coastal dunes, coastal bluff scrub, coastal scrub	Not observed; suitable habitat present.
Arctostaphylos cruzensis	Arroyo de la Cruz manzanita	- / - / 1B.1	Chaparral, coastal scrub, grassland, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).
Arctostaphylos luciana	Santa Lucia manzanita	- / - / 1B.2	Chaparral, woodlands	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos morroensis	Morro manzanita	FT/-/1B.1	Central maritime chaparral, scrub, woodlands with sandy soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos obispoensis	San Luis Obispo manzanita, Bishop manzanita	- / - / 4.3	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).

TABLE 2
PRESENT OR CNDDB RECORDED SENSITIVE ELEMENTS OF BIOLOGICAL DIVERSITY
FOR THE PHILLIPS 66 PROPERTY AND SURROUNDING AREA

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Arctostaphylos pechoensis	Pecho manzanita	- / - / 1B.2	Chaparral, coastal scrub, closed cone conifer forests	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos pilosula	Santa Margarita manzanita	- / - / 1B.2	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent, known from La Panza Range. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).
Arctostaphylos purissima	La Purisima manzanita	- / - / 1B.1	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Arctostaphylos rudis	Sand mesa manzanita	- / - / 1B.2	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Arctostaphylos tomentosa subsp. *daciticola*	dacite manzanita	- / - / 1B.1	Chaparral, woodland	Not observed; suitable habitat absent, known only from Hollister Peak. Endemic to San Luis Obispo County.
Arenaria paludicola	marsh sandwort	FE/SE/1B.1	Freshwater marshes and adjacent areas.	Not observed, suitable habitat absent. Known from only two occurrences in Black Lake Canyon and Oso Flaco Lake.
Astragalus didymocarpus var. *milesianus*	Mile's milk-vetch	- / - / 1B.2	Coastal scrub, often on serpentine clay soils	Not observed; suitable coastal scrub habitat with clay soils absent. Endemic to Ventura, Santa Barbara, and San Luis Obispo Counties.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	- / - / 1B.2	Coastal bluff scrub, coastal scrub	Not observed; suitable habitat present.
Calochortus obispoensis	San Luis mariposa lily	- / - / 1B.2	Chaparral, coastal scrub, grasslands, often on serpentine soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Calochortus simulans	San Luis Obispo mariposa lily	- / - / 1B.3	Chaparral, coastal scrub, woodlands, lower montane coniferous forests, often on granitic soils, sometimes serpentine soils	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Calystegia subacaulis subsp. *episcopalis*	Cambria morning-glory	- / - / 1B.2	Chaparral, woodlands.	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Carex obispoensis	San Luis Obispo sedge	- / - / 1B.2	Chaparral, coastal scrub, closed cone conifer forests, coastal prairie and grasslands	Not observed, suitable habitat potentially present.
Castilleja densiflora subsp. *obispoensis*	San Luis Obispo owl's-clover	- / - / 1B.2	Grassland, meadows, and seeps	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Ceanothus cuneatus var. *fascicularis*	Lompoc ceanothus	- / - / 4.2	Central maritime chaparral, central coastal scrub	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Ceanothus impressus subsp. *nipomensis*	Nipomo ceanothus	Local Concern	Central maritime chaparral, central coastal scrub	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Centromadia parryi subsp. *congdonii*	Congdon's tarplant	- / - / 1B.2	Grasslands and wetland fringes, often in alkaline soils	Not observed; suitable habitat absent.
Chenopodium littoreum	coastal goosefoot	- / - / 1B.2	Coastal dunes	Not observed; suitable habitat present.
Chlorogalum pomeridianum var. *minus*	dwarf soaproot	- / - / 1B.2	Chaparral in serpentine soils	Not observed, suitable habitat absent.
Chorizanthe breweri	Brewer's spineflower	- / - / 1B.3	Chaparral, coastal scrub, grassland, closed cone conifer forests, woodlands in serpentine soils	Not observed; suitable habitat absent.
Chorizanthe rectispina	Straight-awned spineflower	-/-/1B.3	Chaparral, coastal scrub, woodlands	Not observed; suitable habitat potentially present.
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	- / - /2.1	Coastal marshes	Not observed; suitable marsh habitat absent.
Cirsium fontinale var. *obispoense*	Chorro Creek bog thistle	FE/SE/1B.2	Chaparral, coastal scrub, woodlands, grasslands in serpentine seeps and drainages	Not observed; suitable serpentine substrate absent. Endemic to San Luis Obispo County.
Cirsium rhothophilum	Surf thistle	-/CT/1B.2	Coastal dunes, coastal bluff scrub	Not observed; unlikely on project site; known from dunes at Pismo Beach, Nipomo, and Santa Barbara County. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Cirsium scariosum var. *loncholepis*	La Graciosa thistle	FE/CT/1B.1	Coastal dunes, coastal bluff scrub, moist habitats such as marshes	Not observed; suitable marsh habitat absent.
Cladium californicum	California saw-grass	- / - / 2.2	Marshes	Not observed; suitable marsh habitat absent.
Clarkia speciosa subsp. *immaculata*	Pismo clarkia	FE/CR/1B.1	Chaparral, coastal scrub, woodlands, grasslands	Not observed. Endemic to San Luis Obispo County.
Cordylanthus rigidus subsp. *littoralis*	Seaside bird's-beak	- / SE / 1B.1	Chaparral, coastal scrub, woodlands, grasslands	Not observed. Endemic to Central Coast.

TABLE 2
PRESENT OR CNDDB RECORDED SENSITIVE ELEMENTS OF BIOLOGICAL DIVERSITY
FOR THE PHILLIPS 66 PROPERTY AND SURROUNDING AREA

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Dudleya abramsii subsp. *murina*	San Luis Obispo dudleya	- / - / 1B.3	Chaparral, woodlands, rocky places	Not observed; suitable habitat absent. Endemic to San Luis Obispo County.
Dudleya blochmaniae subsp. *blochmaniae*	Blochman's dudleya	- / - / 1B.1	Chaparral, coastal scrub, grasslands, often on clay or serpentine soils in bare rocky places	Not observed; suitable habitat absent.
Deinandra increscens subsp. *villosa*	Gaviota tarplant	FE/CE/1B.1	coastal bluff scrub, coastal scrub, valley and foothill grassland	Not observed; suitable scrub habitat present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Deinandra increscens subsp. *foliosa*	leafy tarplant	- / - / 1B.2	Grassland, often sandy	Not observed; suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Delphinium parryi subsp. *eastwoodiae*	Eastwood's larkspur	- / - / 1B.2	Chaparral, valley and foothill grassland	Not observed, suitable habitat absent.
Delphinium parryi subsp. *blochmaniae*	dune larkspur	- / - / 1B.2	Coastal dunes, coastal scrub, central maritime chaparral	Not observed, suitable habitat present. Endemic to Ventura, Santa Barbara, and San Luis Obispo Counties.
Delphinium umbraculorum	Umbrella larkspur	- / - / 1B.3	Cismontane woodland	Not observed, suitable habitat absent.
Dithyrea maritima	Beach spectacle pod	-/CT/1B.1	Coastal dunes	Not observed; known from low sand dunes from Morro Bay sand spit southward
Dudleya abramsii subsp. *murina*	mouse-gray dudlea	- / - / 1B.3	Chaparral, coastal scrub, grasslands, often on serpentine soils in bare rocky places	Not observed; suitable habitat present although serpentine soils absent. Endemic to San Luis Obispo County.
Erigeron blochmaniae	**Blochman's leafy daisy**	**- / - / 1B.2**	**Coastal dunes, coastal scrub**	**Present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).**
Erigeron sanctarum	Saint's daisy	- / - / 4.2	Central maritime chaparral, central coastal scrub, woodlands	Not observed, suitable habitat present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Eriodictyon altissimum	Indian Knob mountain balm	FE/CE/1B.1	Central maritime chaparral, central coastal scrub, woodlands	Not observed; suitable habitat absent. Known from Indian Knob and Irish Hills. Endemic to San Luis Obispo County.
Eryngium aristulatum var. *hooveri*	Hoover's button celery	- / - / 1B.1	Vernal pools	Not observed; suitable habitat absent. Known from Laguna Lake near San Luis Obispo.
Erysimum capitatum var. *lompocense*	San Luis Obispo wallflower	- / - / 4.2	Central maritime chaparral, central coastal scrub in sandy soils	Not observed; suitable habitat absent.
Erysimum suffrutescens	Suffrutescent wallflower	- / - / 4.2	Coastal dunes, coastal dune scrub, coastal scrub	Not observed; suitable sandy soils present.
Fritillaria viridea	San Benito fritillary	- / - / 1B.2	Chaparral, serpentine soils.	Not observed; chaparral habitat with serpentine substrate absent. Endemic to Central Coast (San Luis Obispo, Monterey, Fresno, San Benito Counties).
Horkelia cuneata subsp. *puberula*	mesa horkelia	- / - / 1B.1	Chaparral, coastal scrub, and woodlands, especially in sandy or gravelly soils	Not observed; suitable coastal scrub, maritime chaparral, and woodland habitat present.
Horkelia cuneata subsp. *sericea*	Kellogg's horkelia	- / - / 1B.1	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub	Not observed; suitable habitat present.
Layia heterotricha	pale-yellow layia	- / - / 1B.1	Grassland, coastal scrub, woodlands	Not observed; suitable habitat present.
Layia jonesii	Jones' layia	- / - / 1B.2	Chaparral, grasslands in clay or serpentine soils	Not observed; suitable clay soils absent.
Lupinus ludovicianus	San Luis Obispo County lupine	- / - / 1B.2	Chaparral, woodlands, grasslands in sandy or sandstone-derived soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Lupinus nipomoensis	Nipomo Mesa lupine	FE / SE / 1B.1	Coastal dunes	Not observed; suitable habitat present. Endemic to San Luis Obispo County.
Monardella frutescens	San Luis Obispo manardella	- / - / 1B.2	Coastal dunes, coastal scrub	Not observed; suitable habitat present.
Monardella palmeri	Palmer's monardella	- / - / 1B.2	Chaparral, woodlands in serpentine soils	Not observed; suitable habitat absent. Endemic to Central Coast (San Luis Obispo and Monterey Counties.)
Monardella undulata subsp. *crispa*	Crisp monardella	- / - / 1B.2	Coastal dunes, coastal scrub, coastal prairie, central maritime chaparral, Bishop pine forest, ponderosa pine forest (sandy soils at low elevations)	Not observed; suitable habitat present.

TABLE 2
PRESENT OR CNDDB RECORDED SENSITIVE ELEMENTS OF BIOLOGICAL DIVERSITY
FOR THE PHILLIPS 66 PROPERTY AND SURROUNDING AREA

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Mucronea californica	**California spineflower**	**- / - / 4.2**	**Coastal dunes, coastal scrub, central maritime chaparral, woodlands, grasslands (sandy)**	**Present.**
Nasturtium gambelii	Gambel's water cress	FE / SE / 1B.1	Coastal marshes	Not observed; suitable marsh habitat absent.
Nemacaulis denudata var. *denudata*	coast wooly-heads	- / - / 1B.2	Coastal dunes	Not observed; suitable habitat present.
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	- / - / 1B.2	Chaparral, valley and foothill grassland	Not observed; suitable habitat absent.
Orobanche parishii subsp. *brachyloba*	Short-lobed broomrape	**- / - / 4.2**	Coastal bluff scrub, coastal dunes, coastal scrub	Not observed; suitable habitat present.
Prunus fasciculata* var. *punctata	**Sand almond**	**- / - / 4.3**	**Coastal dunes, coastal scrub, central maritime chaparral, woodlands**	**Present.**
Sanicula maritima	Adobe sanicle	- / Rare / 1B.1	Chaparral, coastal prairie, grasslands, seeps in clay and serpentine soils	Not observed; suitable habitat absent.
Scrophularia atrata	black-flowered figwort	SOC / - / 1B.2	Coastal dunes, coastal scrub, chaparral, woodlands, Bishop pine forest	Not observed, suitable habitat potentially present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Senecio aphanactis	Rayless ragwort	- / - / 2.2	Coastal scrub, chaparral, woodlands	Not observed; potential suitable habitat present.
Senecio blochmaniae	**Blochman's groundsel**	**- / - / 4.2**	**Coastal dunes, coastal scrub**	**Present.**
Sidalcea hickmanii subsp. *anomala*	Cuesta Pass checkerbloom	- / Rare / 1B.2	Chaparral, closed cone conifer forests in serpentine soils	Not observed; suitable habitat of closed-cone coniferous forest on serpentine substrate absent. Endemic to San Luis Obispo County.
Streptanthus albidus subsp. *peramoenus*	Most beautiful jewel-flower	- / - / 1B.2	Chaparral, woodlands, grasslands in serpentine soils	Not observed; suitable serpentine substrate absent
Symphyotrichum defoliatum	San Bernardino aster	- / - / 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland	Not observed; potential suitable habitat present.
Trifolium depauperatum var. *hydrophilum*	Saline clover	- / - / 1B.2	Marshes, vernal pools, moist grasslands, often in alkaline soil	Not observed; suitable habitat absent.
Tropidocarpum capparideum	Caper-fruited tropidocarpum	- / - / 1B.1	Grasslands, often in alkaline soils	Not observed; suitable habitat absent.

Based on CNPS Inventory of Rare and Endangered Plants (online edition 2013) and CNDDB (2013) search results for the Nipomo, Guadalupe, Santa Maria, Orcutt, Arroyo Grande NE, Oceano, Pismo Beach, Casmalia and Tar Spring Ridge quadrangles.

Status Codes

United States Fish and Wildlife Service (USFWS)
FE Federal Endangered
FT Federal Threatened
SOC Species of Concern as listed by Sacramento Office (USFWS, 2004)
MNBMC Migratory nongame bird of management concern
FSC Federal special concern species
BCC Birds of Conservation Concern

California Department of Fish and Game (CDFG)
CE California Endangered
CT California Threatened
CR California Rare
CSC California Species of Concern

California Native Plant Society (CNPS)
Lists
List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
List 3: Plants About Which We Need More Information - A Review List
List 4: Plants with limited distribution (Watch List)
Extensions to List Categories
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

TABLE 3

POTENTIAL PROJECT IMPACTS TO VEGETATION TYPES AT THE SITE

Plant Community Type	Impacts for New Pipeline (Acres)	Impacts for Rail Spur and Unloading Facility (Acres)	Impacts for Secondary Emergency Vehicle Access Route (Acres)	Impacts for Internal Refinery Piping and Existing Track Repair (Acres)	Total Potential Impacts for Proprosed Coastal Access Route A (Acres)	Total Potential Impacts for Proprosed Coastal Access Route B (Acres)
Sensitive Habitats						
Arroyo Willow Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Central Dune Scrub - Silver Dune Lupine and Dune-Heather (& Dune-Heather and Silver Dune Lupine) Association	0.00	0.00	0.00	0.00	5.99	5.07
Dune Sheet	0.00	0.00	0.00	0.00	0.00	0.00
Freshwater Marsh	0.00	0.00	0.00	0.00	0.00	0.00
Non- Sensitive Habitats						
Central Dune Scrub - Black Sage, Dune-Heather Association	0.00	10.11	0.03	0.00	0.00	0.00
Central Dune Scrub - Coastal Dune Lupine, Dune-Heather, Silver Bush Lupine Association	0.00	0.00	0.00	0.00	0.00	0.00
Central Dune Scrub - Dune-Heather Alliance	0.00	4.57	0.01	0.00	0.00	0.00
Central Dune Scrub - Dune-Heather, California Coffeeberry, Blue Elderberry Association	0.00	0.00	0.00	0.00	0.00	0.00
Central Dune Scrub - Dune-Heather, Seacliff Buckwheat, Black Sage Association	0.00	7.26	0.00	0.00	0.00	0.00
Degraded Central Dune Scrub	2.22	2.32	0.00	0.00	0.00	0.00
Industrial/Existing Refinery	1.88	13.92	1.62	4.48	0.00	0.00
Nonnative Veldt Grassland	0.00	0.30	0.01	0.00	0.00	0.00
Planted Trees	0.00	0.14	0.00	0.00	0.00	0.00
Total Sensitive Habitat Impacts	**0.00**	**0.00**	**0.00**	**0.00**	**5.99**	**5.07**
Total Non-Sensitive Habitat Impacts	**4.10**	**38.62**	**1.67**	**4.48**	**0.00**	**0.00**
TOTALS	**4.10**	**38.62**	**1.67**	**4.48**	**5.99**	**5.07**

Note: To provide comprehensive acreages, this table includes a category for Industrial/Existing Refinery; however, no impacts to ecological resources are anticipated within this area.

TABLE 3

POTENTIAL PROJECT IMPACTS TO VEGETATION TYPES AT THE SITE

Plant Community Type	Total Rail Spur Project (excluding coastal access)
Sensitive Habitats	
Arroyo Willow Wetland	0.00
Central Dune Scrub - Silver Dune Lupine and Dune-Heather (& Dune-Heather and Silver Dune Lupine) Association	0.00
Dune Sheet	0.00
Freshwater Marsh	0.00
Non- Sensitive Habitats	
Central Dune Scrub - Black Sage, Dune-Heather Association	10.14
Central Dune Scrub - Coastal Dune Lupine, Dune-Heather, Silver Bush Lupine Association	0.00
Central Dune Scrub - Dune-Heather Alliance	4.58
Central Dune Scrub - Dune-Heather, California Coffeeberry, Blue Elderberry Association	0.00
Central Dune Scrub - Dune-Heather, Seacliff Buckwheat, Black Sage Association	7.26
Degraded Central Dune Scrub	4.54
Industrial/Existing Refinery	21.90
Nonnative Veldt Grassland	0.31
Planted Trees	0.14
Total Sensitive Habitat Impacts	**0.00**
Total Impact Area (including existing industrial refinery areas and roads)	**48.87**
TOTAL	**48.87**

TABLE 4
OBSERVED VASCULAR PLANT SPECIES ALONG PROPOSED COASTAL ACCESS ROUTE

Scientific Name	Common Name	Vegetation Type	Abundance in Vegetation Type Where Found
TREES			
Salix lasiolepis	**arroyo willow**	**arroyo willow thickets**	**common in one area**
SHRUBS/SUBSHRUBS			
Acmispon glaber	**deerweed**	**central dune scrub**	**occasional**
Artemisia californica	**California sagebrush**	**central dune scrub**	**occasional**
Baccharis pilularis* subsp. *consanguinea	**coyote bush**	**central dune scrub**	**occasional to scattered**
Ericameria ericoides	**dune-heather**	**central dune scrub**	**common**
Erigonum parvifolium	**coastal buckwheat, seacliff buckwheat**	**central dune scrub**	**scattered**
Frangula californica	**coffee berry**	**central dune scrub**	**occasional at bottoms of slopes**
Linanthus californicus	**prickly phlox**	**central dune scrub**	**scarce**
Lupinus arboreus	**coastal bush lupine**	**central dune scrub**	**occasional**
Lupinus chamissonis	**silver dune lupine**	**central dune scrub**	**occasional to scattered**
Mimulus aurantiacus	**bush monkeyflower**	**central dune scrub**	**occasional**
Prunus fasciculata* var. *punctata	**sand almond, dune almond**	**central dune scrub**	**scarce**
Ribes divaricatum	**straggly gooseberry**	**arroyo willow thickets, freshwater marsh**	**occasional**
Rubus ursinus	**California blackberry**	**arroyo willow thickets**	**occasional**
Salvia mellifera	**black sage**	**central dune scrub**	**common**
Sambucus nigra* subsp. *caerulea	**elderberry**	**central dune scrub**	**occasional**
Senecio blochmaniae	**Blochman's groundsel, Blochman's ragwort**	**central dune scrub**	**uncommon**
Toxicodendron diversilobum	**poison-oak**	**central dune scrub**	**occasional**
HERBS (ANNUALS, BIENNIALS, HERBACEOUS PERENNIALS)			
Abronia umbellata	**purple sand verbena**	**central dune scrub**	**occasional**
Achillea millefolium	**white yarrow**	**central dune scrub**	**occasional**
Acmispon wrangelianus	**annual lotus**	**central dune scrub**	**scarce**
Amsinckia spectabilis* var. *microcarpa	**small-fruited seaside fiddleneck**	**central dune scrub**	**occasional**
Artemisia douglasiana	**mugwort**	**arroyo willow thickets**	**occasional**
Avena barbata	slender wild oat	central dune scrub	uncommon
Bromus carinatus	**California brome**	**central dune scrub**	**uncommon**
Bromus diandrus	ripgut brome	central dune scrub	uncommon
Bromus madritensis subsp. *rubens*	red brome	central dune scrub	uncommon
Camissoniopsis micrantha	**sun cups**	**central dune scrub**	**occasional**
Camissonia strigulosa	**strigose sun cups**	**central dune scrub**	**uncommon**
Cardionema ramosissimum	**sandmat**	**central dune scrub**	**occasional**
Carduus pycnocephalus	Italian thistle	arroyo willow thickets	uncommon
Carex obnupta	**slough sedge**	**freshwater marsh**	**common**
Carex pansa	**dune sedge**	**central dune scrub**	**scarce**
Carpobrotus edulis	Hottentot fig (iceplant)	central dune scrub	near road
Castilleja affinis* subsp. *affinis	**Indian paintbrush**	**central dune scrub**	**occasional**
Castilleja exserta subsp. exserta	**owl's clover**	**central dune scrub**	**uncommon**
Centaurea melitensis	tocalote	central dune scrub	uncommon
Chenopodium californicum	**California goosefoot**	**central dune scrub**	**uncommon**
Chenopodium murale	nettleleaf goosefood	disturbed areas, openings in central dune scrub	uncommon
Chorizanthe angustifolia	**narrowleaf spineflower**	**central dune scrub**	**occasional to scattered**
Chorizanthe diffusa	**diffuse spineflower**	**central dune scrub**	**occasional**
Conicosia pugioniformis	pig root	central dune scrub	occasional, especially in disturbed areas
Conium maculatum	poison-hemlock	arroyo willow thickets	scattered
Corethrogyne filaginifolia	**California aster**	**central dune scrub**	**occasional**
Cortaderia jubata	pampas grass	ruderal	uncommon
Crassula connata	**pygmy weed**	**central dune scrub**	**occasional**
Croton californicus	**California croton**	**central dune scrub**	**occasional to scattered**
Cryptantha clevelandii	**common cryptantha**	**central dune scrub**	**scarce**
Deinandra increscens* subsp. *increscens	**coast tarweed**	**central dune scrub**	**occasional**
Descurainea pinnata	**tansy mustard**	**central dune scrub**	**occasional**
Distichlis spicata	**salt grass**	**central dune scrub**	**uncommon**
Dudleya lanceolata	**lance-leaved live forever**	**central dune scrub**	**scarce**
Ehrharta calycina	veldt grass	disturbed areas, openings in central dune scrub	abundant
Erigeron blochmaniae	**Blochman's leafy daisy**	**central dune scrub**	**occasional**
Erodium botrys	storkbill filaree	central dune scrub	occasional
Erodium cicutarium	redstem filaree	central dune scrub	uncommon
Eschscholzia californica	**California poppy**	**central dune scrub**	**occasional**

TABLE 4
OBSERVED VASCULAR PLANT SPECIES ALONG PROPOSED COASTAL ACCESS ROUTE

Scientific Name	Common Name	Vegetation Type	Abundance in Vegetation Type Where Found
Festuca myuros	rattail fescue	central dune scrub	occasional
Galium californicum* subsp. *maritimum	**coastal California bedstraw**	**central dune scrub**	**scarce**
Hirschfeldia incana	summer mustard, Mediterranean mustard	central dune scrub	scarce
Hordeum murinum	foxtail barley	arroyo willow thickets, disturbed areas	scarce
Horkelia cuneata* subsp. *cuneata	**coast horkelia**	**central dune scrub**	**occasional**
Hypochaeris glabra	smooth cat's ear	central dune scrub	occasional
Juncus lescurii	**dune rush**	**arroyo willow thickets**	**uncommon**
Lamarckia aurea	goldentop	central dune scrub	scarce
Lastarriaea coriacea	**leather spineflower**	**central dune scrub**	**occasional**
Lessingia pectinata* var. *pectinata	**valley lessingia**	**central dune scrub**	**occasional**
Logfia gallica	slender weedy filago	**central dune scrub**	scarce
Lupinus nipomensis	**Nipomo Mesa lupine**	**central dune scrub**	**scarce**
Monardella undulata subsp. crispa	**crisp monardella**	**central dune scrub**	**occasional**
Mucronea californica	**California spineflower**	**central dune scrub**	**occasional**
Navarretia atractyloides	**holly-leaved navarretia**	**central dune scrub**	**occasional**
Phacelia distans	**wild heliotrope**	**central dune scrub**	**occasional**
Phacelia ramosissima* var. *montereyensis	**branching phacelia**	**central dune scrub**	**occasional**
Pholisma arenarium	**sand food**	**central dune scrub**	**occasional**
Plantago erecta	**California plantain**	**central dune scrub**	**occasional**
Salvia columbariae	**chia sage**	**central dune scrub**	**scarce**
***Schoenoplectus* species (not collected)**	**bulrush**	**freshwater marsh**	**common**
Silene gallica	windmill pink	central dune scrub	scarce
Sonchus olearaceus	sow-thistle	ruderal	scarce
Spergularia villosa	hairy sand spurrey	ruderal	scarce
Stephanomeria exigua	**wire-lettuce**	**central dune scrub**	**occasional**
Stylocline gnaphaloides	**everlasting neststraw**	**central dune scrub**	**occasional**
Urtica dioica	**giant creek nettle**	**freshwater marsh**	**occasional**
Native species are in **bold** print			

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Plants		**USFWS / CDFG / CNPS**		
Agrostis hooveri	Hoover's bent grass	- / - / 1B.2	Central maritime chaparral, woodlands, grasslands	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Aphanisma blitoides	Aphanisma	SOC / - / 1B.2	Coastal dunes, coastal bluff scrub, coastal scrub	Not observed; suitable habitat present.
Arctostaphylos cruzensis	Arroyo de la Cruz manzanita	- / - / 1B.1	Chaparral, coastal scrub, grassland, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).
Arctostaphylos luciana	Santa Lucia manzanita	- / - / 1B.2	Chaparral, woodlands	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos morroensis	Morro manzanita	FT/-/1B.1	Central maritime chaparral, scrub, woodlands with sandy soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos obispoensis	San Luis Obispo manzanita, Bishop manzanita	- / - / 4.3	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).
Arctostaphylos pechoensis	Pecho manzanita	- / - / 1B.2	Chaparral, coastal scrub, closed cone conifer forests	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Arctostaphylos pilosula	Santa Margarita manzanita	- / - / 1B.2	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent, known from La Panza Range. Endemic to the Central Coast (San Luis Obispo and Monterey Counties).
Arctostaphylos purissima	La Purisima manzanita	- / - / 1B.1	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Arctostaphylos rudis	Sand mesa manzanita	- / - / 1B.2	Chaparral, closed cone conifer forests, woodlands and forests	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Arctostaphylos tomentosa subsp. *daciticola*	dacite manzanita	- / - / 1B.1	Chaparral, woodland	Not observed; suitable habitat absent, known only from Hollister Peak. Endemic to San Luis Obispo County.
Arenaria paludicola	**marsh sandwort**	**FE/CE/1B.1**	**Freshwater marshes and adjacent areas.**	**Not observed but previously reported from Jack Lake immediately adjacent to coastal access route (CNDDB 2013).**

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Astragalus didymocarpus var. *milesianus*	Mile's milk-vetch	- / - / 1B.2	Coastal scrub, often on serpentine clay soils	Not observed; suitable coastal scrub habitat with clay soils absent. Endemic to Ventura, Santa Barbara, and San Luis Obispo Counties.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	- / - / 1B.2	Coastal bluff scrub, coastal scrub	Not observed; suitable habitat present.
Calochortus obispoensis	San Luis mariposa lily	- / - / 1B.2	Chaparral, coastal scrub, grasslands, often on serpentine soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Calochortus simulans	San Luis Obispo mariposa lily	- / - / 1B.3	Chaparral, coastal scrub, woodlands, lower montane coniferous forests, often on granitic soils, sometimes serpentine soils	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Calystegia subacaulis subsp. *episcopalis*	Cambria morning-glory	- / - / 1B.2	Chaparral, woodlands.	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Carex obispoensis	San Luis Obispo sedge	- / - / 1B.2	Chaparral, coastal scrub, closed cone conifer forests, coastal prairie and grasslands	Not observed, suitable habitat potentially present.
Castilleja densiflora subsp. *obispoensis*	San Luis Obispo owl's-clover	- / - / 1B.2	Grassland, meadows, and seeps	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Ceanothus cuneatus var. *fascicularis*	Lompoc ceanothus	- / - / 4.2	Central maritime chaparral, central coastal scrub	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Ceanothus impressus subsp. *nipomensis*	Nipomo ceanothus	Local Concern	Central maritime chaparral, central coastal scrub	Not observed, suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Centromadia parryi subsp. *congdonii*	Congdon's tarplant	- / - / 1B.2	Grasslands and wetland fringes, often in alkaline soils	Not observed; suitable habitat absent.
Chenopodium littoreum	coastal goosefoot	- / - / 1B.2	Coastal dunes	Not observed; suitable habitat present.
Chlorogalum pomeridianum var. *minus*	dwarf soaproot	- / - / 1B.2	Chaparral in serpentine soils	Not observed, suitable habitat absent.

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Chorizanthe breweri	Brewer's spineflower	- / - / 1B.3	Chaparral, coastal scrub, grassland, closed cone conifer forests, woodlands in serpentine soils	Not observed; suitable habitat absent.
Chorizanthe rectispina	Straight-awned spineflower	-/-/1B.3	Chaparral, coastal scrub, woodlands	Not observed; suitable habitat potentially present.
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	- / - /2.1	Coastal marshes	Not observed; suitable marsh habitat absent.
Cirsium fontinale var. *obispoense*	Chorro Creek bog thistle	FE/CE/1B.2	Chaparral, coastal scrub, woodlands, grasslands in serpentine seeps and drainages	Not observed; suitable serpentine substrate absent. Endemic to San Luis Obispo County.
Cirsium rhothophilum	Surf thistle	-/CT/1B.2	Coastal dunes, coastal bluff scrub	Not observed; known from dunes at Pismo Beach, Nipomo, and Santa Barbara County. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Cirsium scariosum* var. *loncholepis	**La Graciosa thistle**	**FE/CT/1B.1**	**Coastal dunes, coastal bluff scrub, moist habitats such as marshes**	**Not observed but previously reported from Jack Lake immediately adjacent to coastal access route (CNDDB 2013). Entire area for proposed coastal access routes lie within designated critical habitat for this species.**
Cladium californicum	California saw-grass	- / - / 2.2	Marshes	Not observed; suitable marsh habitat absent.
Clarkia speciosa subsp. *immaculata*	Pismo clarkia	FE/CR/1B.1	Chaparral, coastal scrub, woodlands, grasslands	Not observed. Endemic to San Luis Obispo County.
Cordylanthus rigidus subsp. *littoralis*	Seaside bird's-beak	- / CE / 1B.1	Chaparral, coastal scrub, woodlands, grasslands	Not observed. Endemic to Central Coast.
Dudleya abramsii subsp. *murina*	San Luis Obispo dudleya	- / - / 1B.3	Chaparral, woodlands, rocky places	Not observed; suitable habitat absent. Endemic to San Luis Obispo County.
Dudleya blochmaniae subsp. *blochmaniae*	Blochman's dudleya	- / - / 1B.1	Chaparral, coastal scrub, grasslands, often on clay or serpentine soils in bare rocky places	Not observed; suitable habitat absent.

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Deinandra increscens subsp. *villosa*	Gaviota tarplant	FE/CE/1B.1	coastal bluff scrub, coastal scrub, valley and foothill grassland	Not observed; suitable scrub habitat present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Deinandra increscens subsp. *foliosa*	leafy tarplant	- / - / 1B.2	Grassland, often sandy	Not observed; suitable habitat absent. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Delphinium parryi subsp. *eastwoodiae*	Eastwood's larkspur	- / - / 1B.2	Chaparral, valley and foothill grassland	Not observed, suitable habitat absent.
Delphinium parryi subsp. *blochmaniae*	dune larkspur	- / - / 1B.2	Coastal dunes, coastal scrub, central maritime chaparral	Not observed, suitable habitat present. Endemic to Ventura, Santa Barbara, and San Luis Obispo Counties.
Delphinium umbraculorum	Umbrella larkspur	- / - / 1B.3	Cismontane woodland	Not observed, suitable habitat absent.
Dithyrea maritima	Beach spectacle pod	-/CT/1B.1	Coastal dunes	Not observed; known from low sand dunes from Morro Bay sand spit southward
Dudleya abramsii subsp. murina	mouse-gray dudlea	- / - / 1B.3	Chaparral, coastal scrub, grasslands, often on serpentine soils in bare rocky places	Not observed; suitable habitat present although serpentine soils absent. Endemic to San Luis Obispo County.
Erigeron blochmaniae	**Blochman's leafy daisy**	**- / - / 1B.2**	**Coastal dunes, coastal scrub**	**Present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).**
Erigeron sanctarum	Saint's daisy	- / - / 4.2	Central maritime chaparral, central coastal scrub, woodlands	Not observed, suitable habitat present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Eriodictyon altissimum	Indian Knob mountain balm	FE/CE/1B.1	Central maritime chaparral, central coastal scrub, woodlands	Not observed; suitable habitat absent. Known from Indian Knob and Irish Hills. Endemic to San Luis Obispo County.
Eryngium aristulatum var. *hooveri*	Hoover's button celery	- / - / 1B.1	Vernal pools	Not observed; suitable habitat absent. Known from Laguna Lake near San Luis Obispo.
Erysimum capitatum var. *lompocense*	San Luis Obispo wallflower	- / - / 4.2	Central maritime chaparral, central coastal scrub in sandy soils	Not observed; suitable habitat absent.
Erysimum suffrutescens	Suffrutescent wallflower	- / - / 4.2	Coastal dunes, coastal dune scrub, coastal scrub	Not observed; suitable sandy soils present.

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Fritillaria viridea	San Benito fritillary	- / - / 1B.2	Chaparral, serpentine soils.	Not observed; chaparral habitat with serpentine substrate absent. Endemic to Central Coast (San Luis Obispo, Monterey, Fresno, San Benito Counties).
Horkelia cuneata subsp. *puberula*	mesa horkelia	- / - / 1B.1	Chaparral, coastal scrub, and woodlands, especially in sandy or gravelly soils	Not observed; suitable coastal scrub, maritime chaparral, and woodland habitat present.
Horkelia cuneata subsp. *sericea*	Kellogg's horkelia	- / - / 1B.1	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub	Not observed; suitable habitat present.
Layia heterotricha	pale-yellow layia	- / - / 1B.1	Grassland, coastal scrub, woodlands	Not observed; suitable habitat present.
Layia jonesii	Jones' layia	- / - / 1B.2	Chaparral, grasslands in clay or serpentine soils	Not observed; suitable clay soils absent.
Lupinus ludovicianus	San Luis Obispo County lupine	- / - / 1B.2	Chaparral, woodlands, grasslands in sandy or sandstone-derived soils	Not observed, suitable habitat absent. Endemic to San Luis Obispo County.
Lupinus nipomoensis	**Nipomo Mesa lupine**	**FE / CE / 1B.1**	**Coastal dunes**	**Present. Endemic to San Luis Obispo County.**
Monardella frutescens	San Luis Obispo manardella	- / - / 1B.2	Coastal dunes, coastal scrub	Not observed; suitable habitat present.
Monardella palmeri	Palmer's monardella	- / - / 1B.2	Chaparral, woodlands in serpentine soils	Not observed; suitable habitat absent. Endemic to Central Coast (San Luis Obispo and Monterey Counties.)
Monardella undulata* subsp. *crispa	**Crisp monardella**	**- / - / 1B.2**	**Coastal dunes, coastal scrub, coastal prairie, central maritime chaparral, Bishop pine forest, ponderosa pine forest (sandy soils at low elevations)**	**Present along coastal access route.**
Mucronea californica	**California spineflower**	**- / - / 4.2**	**Coastal dunes, coastal scrub, central maritime chaparral, woodlands, grasslands (sandy)**	**Present along coastal access route.**

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Nasturtium gambelii	Gambel's water cress	FE / CE / 1B.1	Coastal marshes	Not observed; suitable marsh habitat absent.
Nemacaulis denudata var. *denudata*	coast wooly-heads	- / - / 1B.2	Coastal dunes	Not observed; suitable habitat present.
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	- / - / 1B.2	Chaparral, valley and foothill grassland	Not observed; suitable habitat absent.
Orobanche parishii subsp. *brachyloba*	Short-lobed broomrape	**- / - / 4.2**	Coastal bluff scrub, coastal dunes, coastal scrub	Not observed; suitable habitat present.
Prunus fasciculata* var. *punctata	**Sand almond**	**- / - / 4.3**	**Coastal dunes, coastal scrub, central maritime chaparral, woodlands**	**Present along coastal access route.**
Sanicula maritima	Adobe sanicle	- / Rare / 1B.1	Chaparral, coastal prairie, grasslands, seeps in clay and serpentine soils	Not observed; suitable habitat absent.
Scrophularia atrata	black-flowered figwort	SOC / - / 1B.2	Coastal dunes, coastal scrub, chaparral, woodlands, Bishop pine forest	Not observed, suitable habitat potentially present. Endemic to Central Coast (Santa Barbara and San Luis Obispo Counties).
Senecio aphanactis	Rayless ragwort	- / - / 2.2	Coastal scrub, chaparral, woodlands	Not observed; potential suitable habitat present.
Senecio blochmaniae	**Blochman's groundsel, dune ragwort**	**- / - / 4.2**	**Coastal dunes, coastal scrub**	**Present along coastal access route.**
Sidalcea hickmanii subsp. *anomala*	Cuesta Pass checkerbloom	- / Rare / 1B.2	Chaparral, closed cone conifer forests in serpentine soils	Not observed; suitable habitat of closed-cone coniferous forest on serpentine substrate absent. Endemic to San Luis Obispo County.
Streptanthus albidus subsp. *peramoenus*	Most beautiful jewel-flower	- / - / 1B.2	Chaparral, woodlands, grasslands in serpentine soils	Not observed; suitable serpentine substrate absent
Symphyotrichum defoliatum	San Bernardino aster	- / - / 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland	Not observed; potential suitable habitat present.

TABLE 5
PRESENT OR CNDDB RECORDED SENSITIVE PLANT SPECIES
ALONG THE PROPOSED COASTAL ACCESS ROAD

Scientific Name	Common Name	Status	Habitat	Occurrence of Element on Project Site
Trifolium depauperatum var. *hydrophilum*	Saline clover	- / - / 1B.2	Marshes, vernal pools, moist grasslands, often in alkaline soil	Not observed; suitable habitat absent.
Tropidocarpum capparideum	Caper-fruited tropidocarpum	- / - / 1B.1	Grasslands, often in alkaline soils	Not observed; suitable habitat absent.

Based on CNPS Inventory of Rare and Endangered Plants (online edition 2013) and CNDDB (2013) search results for the Nipomo, Guadalupe, Santa Maria, Orcutt, Arroyo Grande NE, Oceano, Pismo Beach, Casmalia and Tar Spring Ridge quadrangles.

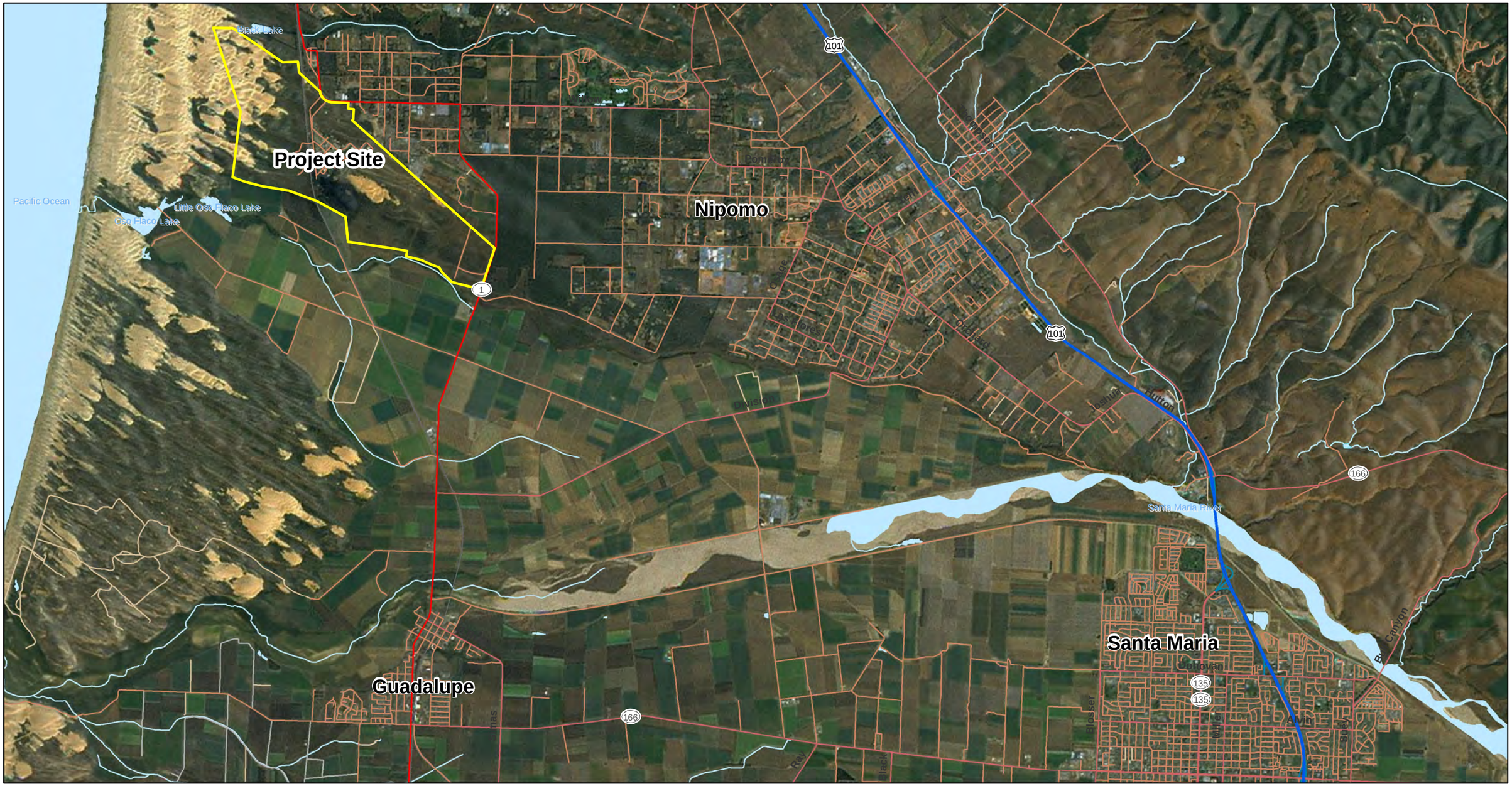
Status Codes

United States Fish and Wildlife Service (USFWS)
FE Federal Endangered
FT Federal Threatened
SOC Species of Concern as listed by Sacramento Office (USFWS, 2004)
MNBMC Migratory nongame bird of management concern
FSC Federal special concern species
BCC Birds of Conservation Concern

California Department of Fish and Wildlife (CDFW)
CE California Endangered
CT California Threatened
CR California Rare
CSC California Species of Concern

California Native Plant Society (CNPS)
Lists
List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
List 3: Plants About Which We Need More Information - A Review List
List 4: Plants with limited distribution (Watch List)
Extensions to List Categories
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Figures



Legend

Property Boundary

NOTES:
1. Imagery accessed through ESRI World Imagery via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

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SCALE IN FEET

Phillips 66
Santa Maria Refinery Rail Project

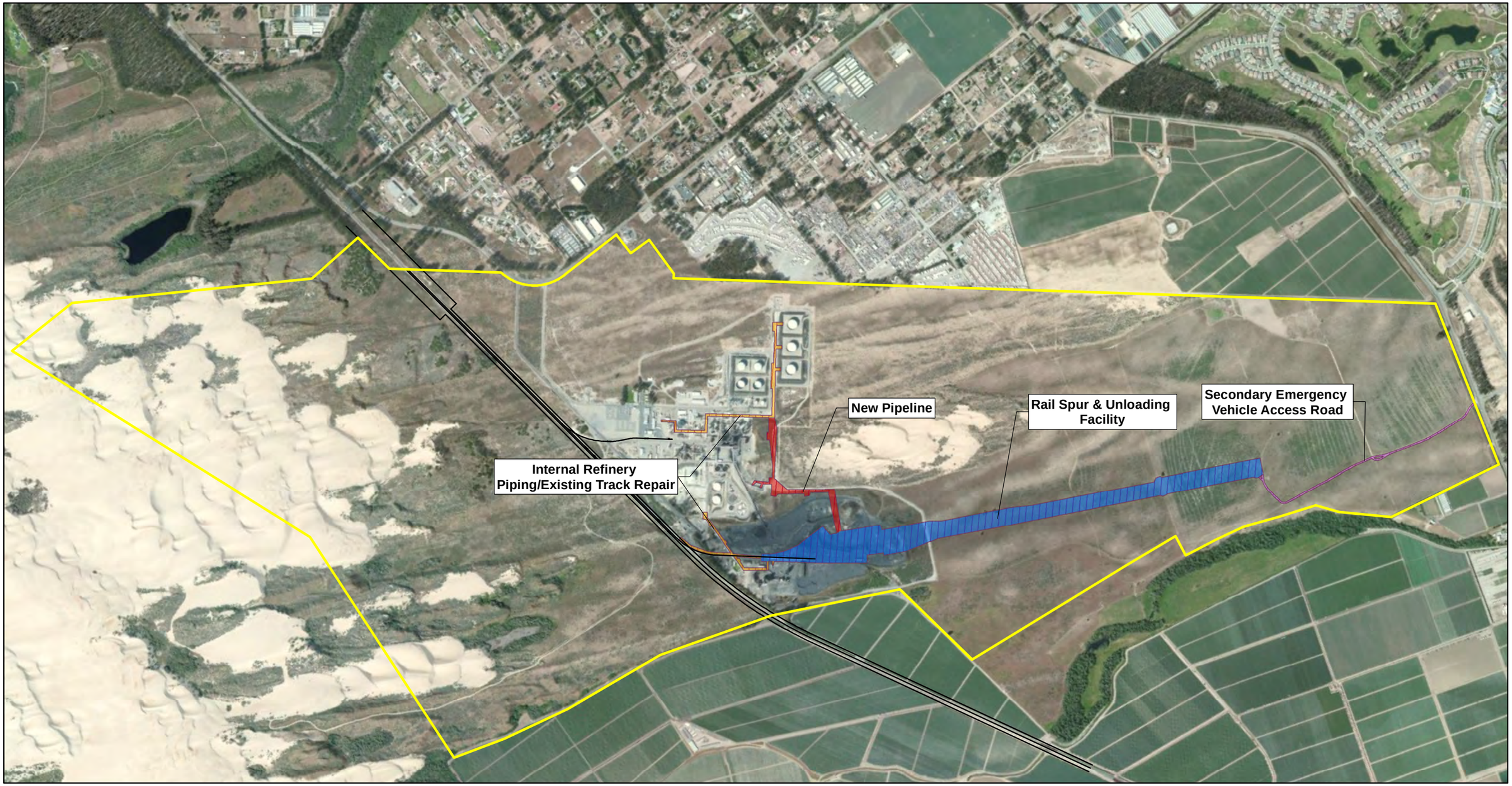
PROJECT AREA

ARCADIS

FIGURE
1

Phillips SMR Rail Project FIR

I:\BCG_Misc\Phillips\GIS\Projects\060613\Fig 1 ProjectArea.mxd 6/14/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



Legend

- Property Boundary
- Existing Rail Line
- Limits of Disturbance

NOTES:
1. Imagery accessed through ESRI World Imagery via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

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SCALE IN FEET

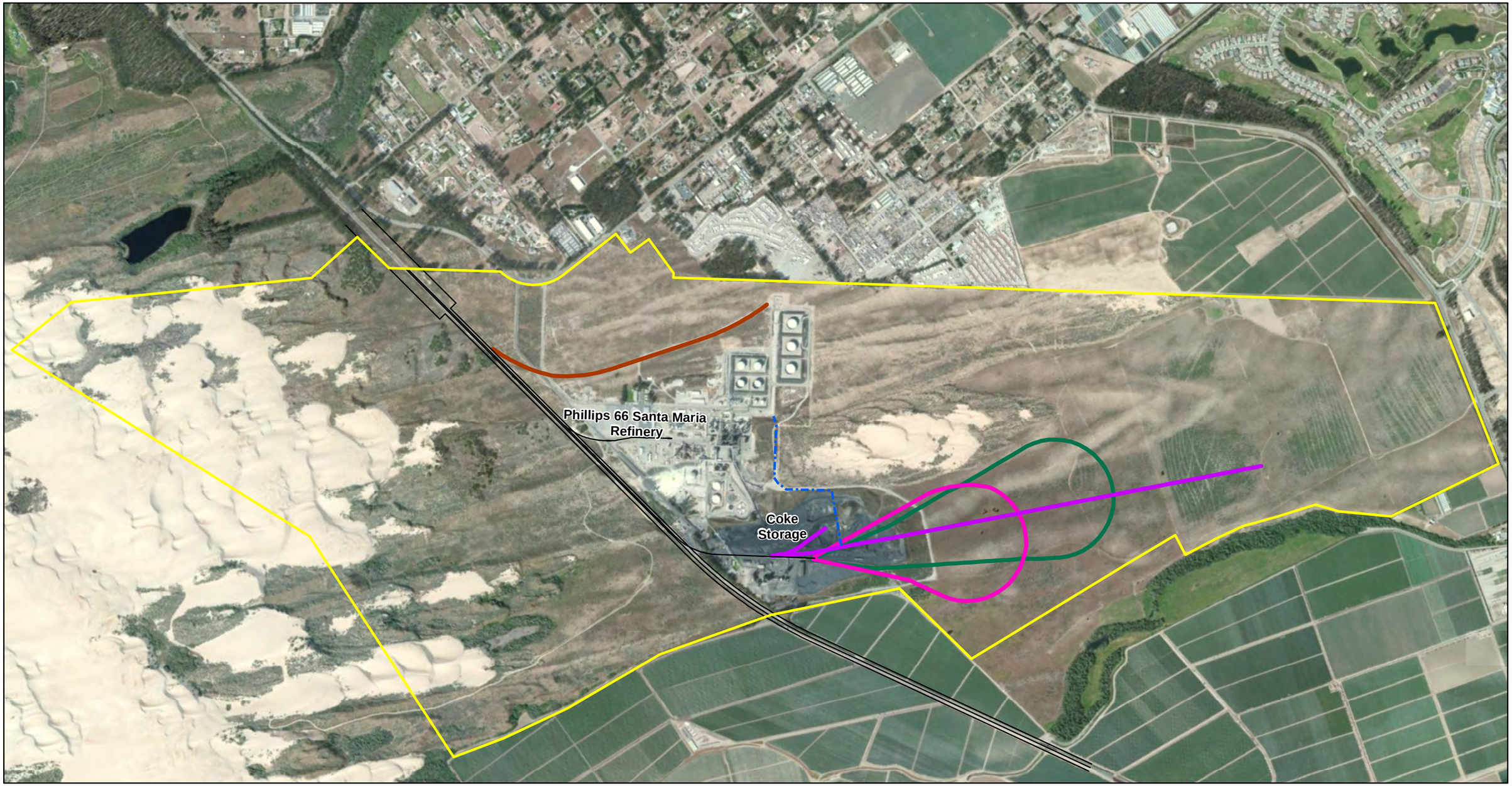
Phillips 66
Santa Maria Refinery Rail Project

PROPOSED PROJECT SITE ON PHILLIPS 66 PROPERTY

ARCADIS

FIGURE
2

I:\BCG_Misc\Phillips\GIS\Projects\060613\Fig 2 ProposedProjectSite_rev1.mxd 6/17/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



Legend

- Property Boundary
- Existing Rail Line
- Pipe Routing
- Northern Access Track
- Small Loop Track
- Large Loop Track
- Straight Track (Proposed Project)

NOTES:
1. Imagery accessed through ESRI World Imagery via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

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SCALE IN FEET

Phillips 66
Santa Maria Refinery Rail Project

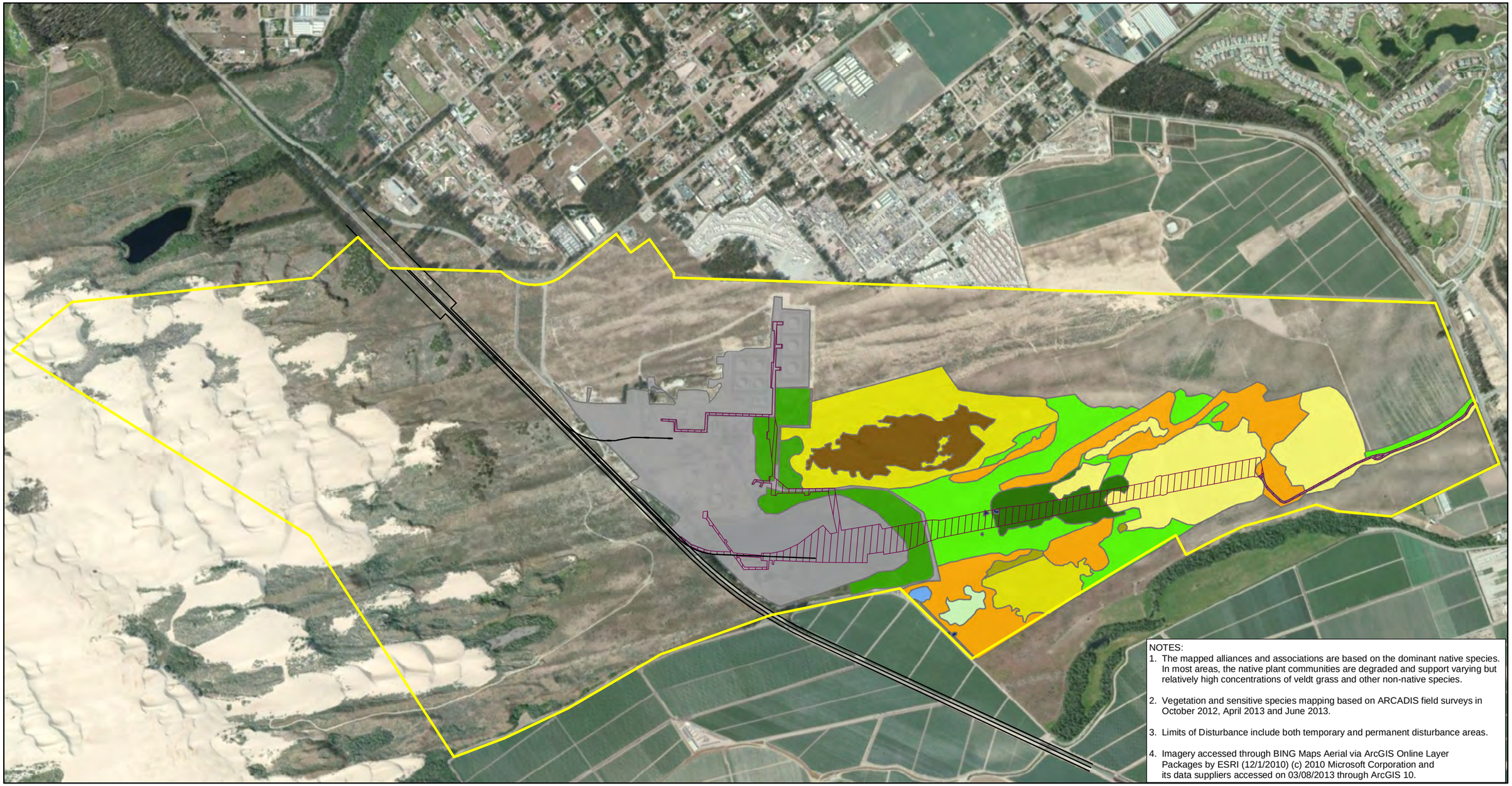
TRACK LAYOUT ALTERNATIVES

ARCADIS

FIGURE
3

Phillips SMR Rail Project FIR

I:\BCG_Misc\Phillips\GIS\Projects\060613\Fig 3 TrackLayoutAlternatives.mxd 6/14/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



NOTES:
1. The mapped alliances and associations are based on the dominant native species. In most areas, the native plant communities are degraded and support varying but relatively high concentrations of veldt grass and other non-native species.
2. Vegetation and sensitive species mapping based on ARCADIS field surveys in October 2012, April 2013 and June 2013.
3. Limits of Disturbance include both temporary and permanent disturbance areas.
4. Imagery accessed through BING Maps Aerial via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

Legend

- Property Boundary
- Existing Rail Line
- Limits of Disturbance
- Arroyo Willow Scrub (Wetland)
- Central Dune Scrub - Coastal Dune Lupine, Dune-Heather, Silver Bush Lupine Association
- Central Dune Scrub - Dune-Heather Alliance
- Central Dune Scrub - Dune-Heather, Seacliff Buckwheat, Black Sage Association
- Degraded Central Dune Scrub
- Central Dune Scrub - Black Sage, Dune-Heather Association
- Central Dune Scrub - Silver Dune Lupine and Dune-Heather Association
- Central Dune Scrub - Dune-Heather, California Coffeeberry, Blue Elderberry Association
- Dune
- Industrial/Road
- Nonnative Veldt Grassland
- Planted Trees

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SCALE IN FEET

Phillips 66
Santa Maria Refinery Rail Project

EXISTING HABITATS

ARCADIS

FIGURE
4

I:\BCG_Misc\Phillips\GIS\Projects\060613\Fig 4 ExistingHabitats.mxd 6/14/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

NOTES:
1. The mapped alliances and associations are based on the dominant native species. In most areas, the native plant communities are degraded and support varying but relatively high concentrations of veldt grass and other non-native species.
2. Vegetation and sensitive species mapping based on ARCADIS field surveys in October 2012, April 2013, and June 2013.
3. Limits of Disturbance include both temporary and permanent disturbance areas.
4. Imagery accessed through BING Maps Aerial via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

Legend

- Property Boundary
- Existing Rail Line
- Limits of Disturbance
- California Spineflower *(Mucronea californica)*
- California Spineflower *(Mucronea californica)*
- Sand almond *(Prunus fasciculata* var. *punctata)*
- Blochman's Groundsel *(Senecio blochmaniae)*
- Blochman's Leafy Daisy *(Erigeron blochmaniae)*
- Burrowing Owl *(Athene cunicularia)*
- Bell's Sage Sparrow *(Amphispiza belli* ssp. *belli)*

Sensitive Habitat

- Arroyo Willow Scrub (Wetland)
- Central Dune Scrub - Coastal Dune Lupine, Dune-Heather, Silver Bush Lupine Association
- Central Dune Scrub - Silver Dune Lupine and Dune-Heather Association
- 100-ft Riparian Buffer

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SCALE IN FEET

Phillips 66
Santa Maria Refinery Rail Project

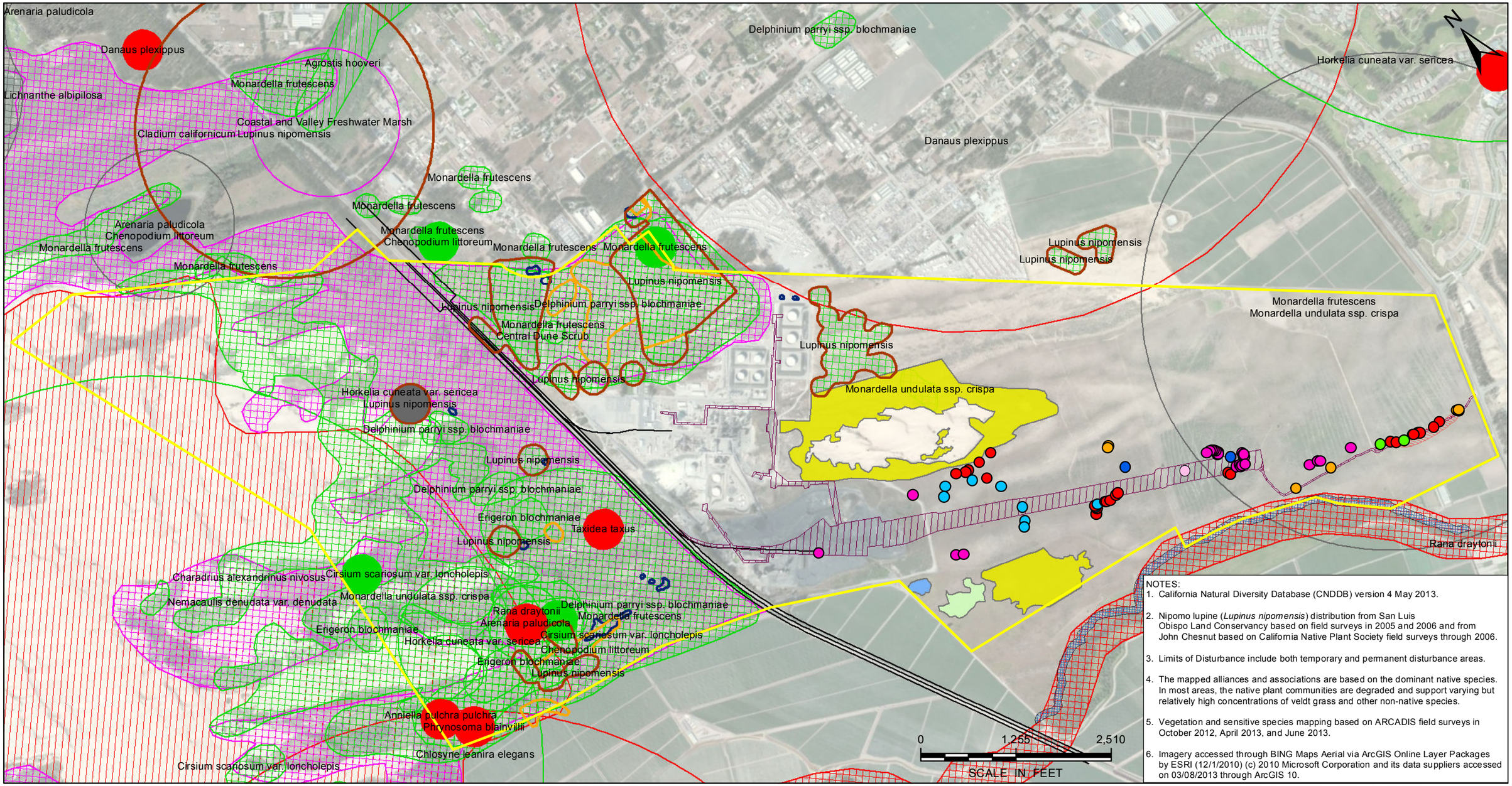
SURVEYED SENSITIVE SPECIES AND HABITATS

ARCADIS

FIGURE
5

Phillips SMR Rail Project FIR

H:\GISPROJECTS_ENV\Phillips66\GIS\Projects\060613\Fig 5 SensitiveSpecies_Habitat.mxd 6/18/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



NOTES:

1. California Natural Diversity Database (CNDDB) version 4 May 2013.
2. Nipomo lupine (*Lupinus nipomensis*) distribution from San Luis Obispo Land Conservancy based on field surveys in 2005 and 2006 and from John Chesnut based on California Native Plant Society field surveys through 2006.
3. Limits of Disturbance include both temporary and permanent disturbance areas.
4. The mapped alliances and associations are based on the dominant native species. In most areas, the native plant communities are degraded and support varying but relatively high concentrations of veldt grass and other non-native species.
5. Vegetation and sensitive species mapping based on ARCADIS field surveys in October 2012, April 2013, and June 2013.
6. Imagery accessed through BING Maps Aerial via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

Property Boundary
Existing Rail Line
Limits of Disturbance
Mapped Nipomo Lupine from CNDDB
Mapped Nipomo Lupine from SLO Land Conservancy
Mapped Nipomo Lupine from John Chesnut

CNDDB Distributions
Plant (80m)
Plant (specific)
Plant (non-specific)
Plant (circular)
Animal (80m)
Animal (specific)
Animal (non-specific)
Animal (circular)
Terrestrial Comm. (80m)
Terrestrial Comm. (specific)
Terrestrial Comm. (non-specific)
Terrestrial Comm. (circular)
Aquatic Comm. (80m)
Aquatic Comm. (specific)
Aquatic Comm. (non-specific)
Aquatic Comm. (circular)
Multiple (80m)
Multiple (specific)
Multiple (non-specific)
Multiple (circular)

Sensitive Species
California Spineflower *(Mucronea californica)*
California Spineflower *(Mucronea californica)*
Sand almond *(Prunus fasciculata* var. *punctata)*
Blochman's Groundsel *(Senecio blochmaniae)*
Blochman's leafy daisy *(Erigeron blochmaniae)*
Burrowing Owl *(Athene cunicularia)*
Bell's Sage Sparrow *(Amphispiza belli* ssp. *belli)*

Sensitive Habitats
Arroyo Willow Scrub (Wetland)
Central Dune Scrub - Coastal Dune Lupine, Dune-Heather, Silver Bush Lupine Association
Central Dune Scrub - Silver Dune Lupine and Dune-Heather Association
100-ft Riparian Buffer

Phillips 66
Santa Maria Refinery Rail Project.

ALL MAPPED SENSITIVE RESOURCE LOCATIONS

ARCADIS

FIGURE
6

Phillips SMR Rail Project FIR

H:\GISPROJECTS_ENV\Phillips66\GIS\Projects\060613\Fig 6 CNDDB.mxd 6/18/2013 DFischer
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Legend

- Property Boundary
- Existing Rail Line
- Limits of Disturbance
- Designated Critical Habitat for La Graciosa Thistle

NOTES:
1. Imagery accessed through ESRI World Imagery via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

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SCALE IN FEET

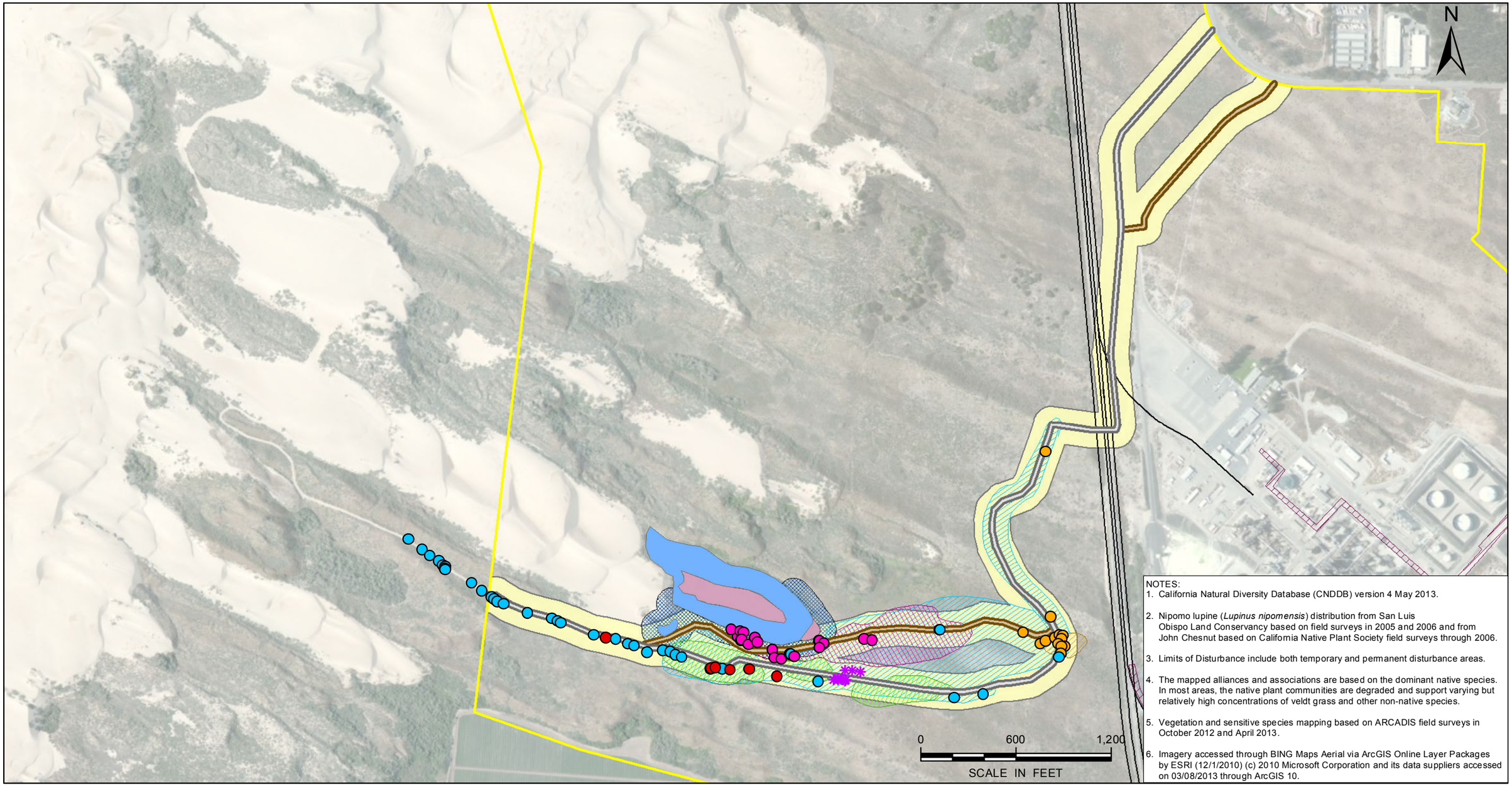
Phillips 66
Santa Maria Refinery Rail Project

DESIGNATED CRITICAL HABITAT FOR LA GRACIOSA THISTLE

ARCADIS

FIGURE
7

I:\BCG_Misc\Phillips\GIS\Projects\060613\Fig 7 CriticalHabitat_LaGraciosaThistle.mxd 6/17/2013 BGriffith
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



NOTES:
1. California Natural Diversity Database (CNDDB) version 4 May 2013.
2. Nipomo lupine (*Lupinus nipomensis*) distribution from San Luis Obispo Land Conservancy based on field surveys in 2005 and 2006 and from John Chesnut based on California Native Plant Society field surveys through 2006.
3. Limits of Disturbance include both temporary and permanent disturbance areas.
4. The mapped alliances and associations are based on the dominant native species. In most areas, the native plant communities are degraded and support varying but relatively high concentrations of veldt grass and other non-native species.
5. Vegetation and sensitive species mapping based on ARCADIS field surveys in October 2012 and April 2013.
6. Imagery accessed through BING Maps Aerial via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

Property Boundary
Existing Rail Line
Limits of Disturbance
Potential Coastal Access Route A
Potential Coastal Access Route B

Sensitive Species Observed in June 2013
California Spineflower *(Mucronea californica)*
Sand almond *(Prunus fasciculata* var. *punctata)*
Blochman's Groundsel *(Senecio blochmaniae)*
Blochman's leafy daisy *(Erigeron blochmaniae)*
California Spineflower *(Mucronea californica)*
Sand almond*(Prunus fasciculata* var. *punctata)*
Blochman's Groundsel *(Senecio blochmaniae)*
Blochman's leafy daisy *(Erigeron blochmaniae)*
Crisp monardella *(Monardella undulata* ssp. *crispa)*
Nipomo Mesa Lupine *(Lupinus nipomoensis)*

Sensitive Habitats (2013)
Central Dune Scrub Dune-Heather and Silver Bush Lupine Association
Arroyo Willow Scrub (Wetland)
Freshwater Marsh - Coast Carex Herbaceous Alliance
100-ft Riparian Buffer

Phillips 66
Santa Maria Refinery Rail Project.

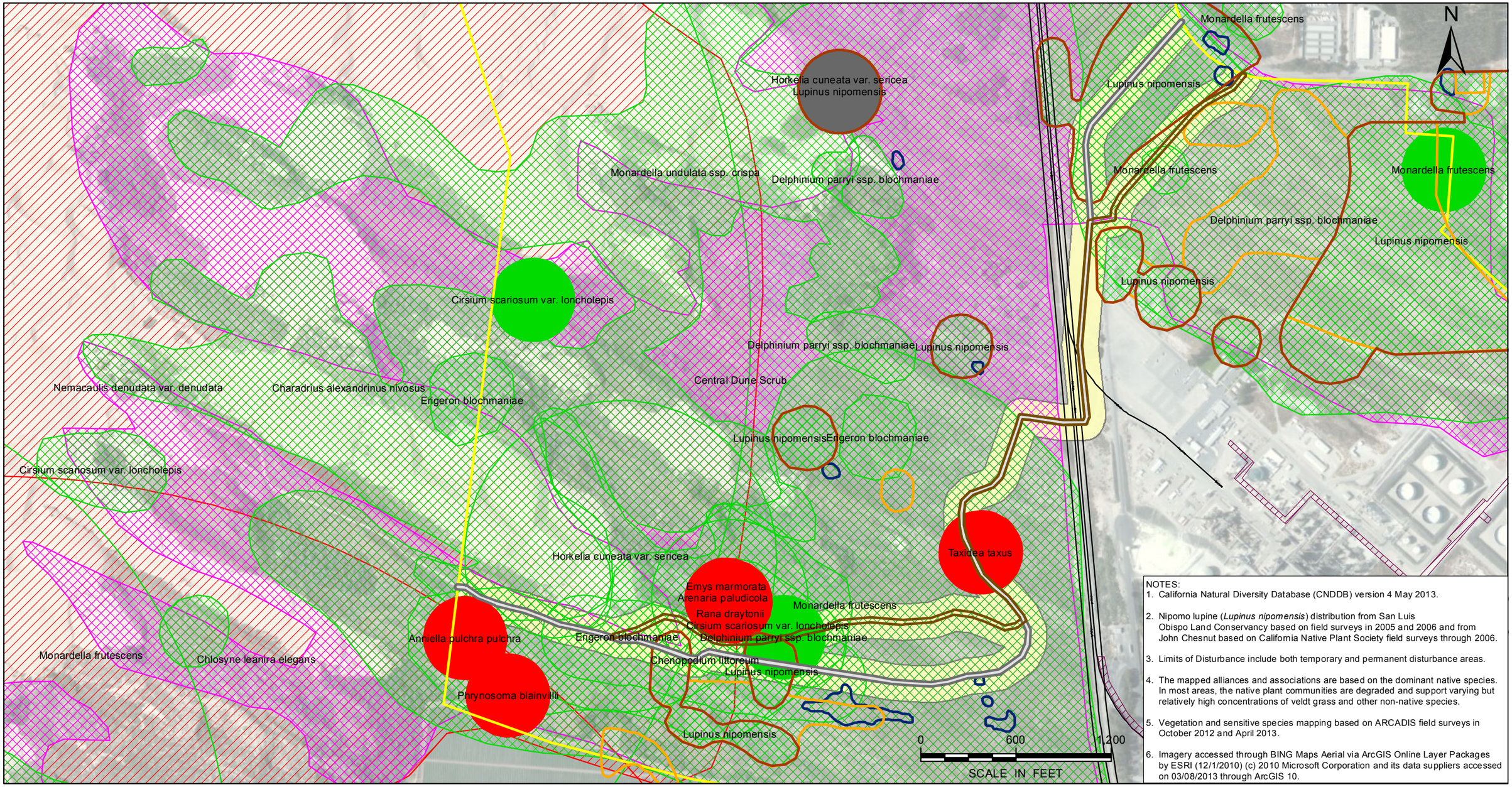
POTENTIAL COASTAL ACCESS ROUTES SURVEYED SENSITIVE RESOURCES

ARCADIS

FIGURE
8

Phillips SMR Rail Project FIR

H:\GISPROJECTS_ENV\Phillips66\GIS\Projects\060613\Fig 8B PotentialCoastalAccess.mxd 6/18/2013 DFischer
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



NOTES:

1. California Natural Diversity Database (CNDDB) version 4 May 2013.
2. Nipomo lupine (*Lupinus nipomensis*) distribution from San Luis Obispo Land Conservancy based on field surveys in 2005 and 2006 and from John Chesnut based on California Native Plant Society field surveys through 2006.
3. Limits of Disturbance include both temporary and permanent disturbance areas.
4. The mapped alliances and associations are based on the dominant native species. In most areas, the native plant communities are degraded and support varying but relatively high concentrations of veldt grass and other non-native species.
5. Vegetation and sensitive species mapping based on ARCADIS field surveys in October 2012 and April 2013.
6. Imagery accessed through BING Maps Aerial via ArcGIS Online Layer Packages by ESRI (12/1/2010) (c) 2010 Microsoft Corporation and its data suppliers accessed on 03/08/2013 through ArcGIS 10.

Property Boundary
Existing Rail Line
Limits of Disturbance
Potential Coastal Access Route A
Potential Coastal Access Route B
Mapped Nipomo Lupine from CNDDB
Mapped Nipomo Lupine from SLO Land Conservancy
Mapped Nipomo Lupine from John Chesnut

CNDDB Distributions
Plant (80m)
Plant (specific)
Plant (non-specific)
Plant (circular)
Animal (80m)
Animal (specific)
Animal (non-specific)
Animal (circular)

Terrestrial Comm. (80m)
Terrestrial Comm. (specific)
Terrestrial Comm. (non-specific)
Terrestrial Comm. (circular)
Aquatic Comm. (80m)
Aquatic Comm. (specific)
Aquatic Comm. (non-specific)
Aquatic Comm. (circular)
Multiple (80m)
Multiple (specific)
Multiple (non-specific)
Multiple (circular)

Phillips 66
Santa Maria Refinery Rail Project.

POTENTIAL COASTAL ACCESS ROUTES PRIOR BIOLOGICAL SURVEYS

ARCADIS

FIGURE
9

Phillips SMR Rail Project FIR

H:\GISPROJECTS_ENV\Phillips66\GIS\Projects\060613\Fig 9 PotentialCoastalAccess.mxd 6/18/2013 DFischer
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Appendix A

Photographs

Photograph 0633 **10/2/12**

The site supports central dune scrub that exhibits varying degrees of disturbance. The proposed rail extension would be constructed in the general vicinity shown here, in an area dominated by dune-heather. Looking north.

Photograph 0222 **10/2/12**

Silver dune lupine and dune-heather predominate in central dune scrub on site. Looking south.

Photograph 0228 **10/2/12**

Sensitive plants such as Blochman's groundsel occur in scattered locations on site.

Photograph 0626 **10/2/12**

The site has been used to graze cattle and supports few large shrubs or trees. A small number of elderberry shrubs occur sporadically on the Site. Looking west.

Photograph 0630 **10/9/12**

Most of the site supports central dune scrub and invasive veldt grass vegetation (foreground). However, a narrow willow- dominated drainage (Oso Flaco Creek – red arrow) occurs southeast of the Site on neighboring the property. The proposed rail line extension is not expected to impact the drainage. Looking east.

Photograph 1157 **6/11/13**

Dune-heather alliance along coastal access routes (both A and B at west end). Note that the access routes would not include the existing road and would occur in the adjacent area.

Photograph 1164 **6/11/13**

Arroyo willow thickets around Jack Lake (near Coastal Access routes) with freshwater marsh in foreground, dominated by slough sedge