Appendix B

Biological Resources Setting Report

February 1, 2019

Jerry Lawrie
Environmental Resources Manager
Merced County Regional Waste Management Authority
7040 North Highway 59
Merced, California 95348

RE: Biological Resources Assessment of Pipeline Alternatives for UC Merced Gas Pipeline

Dear Mr. Lawrie:

The following information represents results of the biological resources assessment conducted for the UC Merced Gas Pipeline – Pipeline Alternatives Project (Project) in Merced, California (Study Area). Field surveys for the biological resources assessment were conducted on January 11, 2019 by Foothill Associates biologists Christine Heckler and Zachary Neider.

This letter report includes the following attributes for the proposed Study Area: location and surrounding land use, general site conditions, vegetation communities, potential biological constraints including aquatic resources, and suitable habitat for potential occurrences of special-status species. This letter report also documents the methodology employed to conduct the field assessment and the results of survey.

SITE LOCATION AND SURROUNDING LAND USE

The original Study Area consists of ±15-miles (78,113 linear feet) of proposed alternative pipeline routes and a 50-ft buffer (169.13 acres) from the Highway 59 Landfill to the University of California (UC), Merced. The original proposed pipeline routes follow surface streets, a railroad easement, and unpaved private properties.

A revised Study Area of one pipeline route was determined to currently be the only viable route, and occurs along the west side of Highway 59, south to Bellevue Road, and connecting to UC Merced via Lake and Ranchers Road (±129 acres). This revised Study Area, along with a 75-ft central buffer from the proposed pipeline centerline (150-foot wide assessment area total) was surveyed to complete this biological resources assessment (**Figure 1**). The revised Study Area occurs on the borders of the USGS *Yosemite Lake, Winton, Merced, and Atwater* quadrangles, Township 6S, Range 13E, Sections 24, 25, 35, 36; Township 6S, Range 14E, Sections 31-34; Township 7S, Range 13E, Section 1; and Township 7S, Range 14E, Sections 4-6. The approximate center of the Study Area is located at the following latitude/longitude coordinates: 37° 21' 59.457" North and 120° 28' 21.999" West.

The approximate 129 acre revised Study Area is located primarily along surface streets, with a small section (approximately 990 feet) proposed to occur along a dirt canal road bordering the northeast section of the UC Merced Campus and Le Grand Canal. The surrounding land uses are primarily agricultural and rural residential.

SITE CONDITIONS

The Study Area and proposed alignment of the pipeline predominately occur along road shoulders of moderately trafficked streets. Disturbance such as imported gravel and paving material, litter, and vehicle pullout areas were observed throughout the Study Area. Trash accumulation along Highway 59 was especially high. Site conditions along Lake and Ranchers Road, and also the dirt canal road, were less disturbed than the majority of the Study Area but still included areas of minor disturbance. Site conditions beyond the direct road shoulders were observed to be utilized as active grazing and agricultural properties, rural residential properties, and general landscaping and buildings associated with UC Merced Campus.

METHODS

Prior to field surveys, published information concerning known habitats and special-status species that may occur in the Study Area was reviewed. Database sources were consulted for known occurrences of special-status species within a nine-quad search of the Study Area and also within five miles of the Study Area. A field survey evaluating botanical and wildlife resources, including habitat suitability for special-status species, and an assessment of aquatic resources, was conducted on January 11, 2019. The field survey was performed by walking transects the full extent of the Study Area (where accessible) by Foothill Associates biologists Christine Heckler and Zachary Neider. Observations were made of current land use, nature and degree of disturbance, site physiognomy (characteristic species and related features of the associated plant community or vegetation, if any), current wildlife use, and presence or potential presence (permanent or transitional) of special-status wildlife and suitable habitats.

All wildlife and plant species observed during the field survey were identified and recorded (**Attachment A**), and all vascular plant species encountered were identified to the level necessary to determine status and vegetation community type (**Figure 2**). Resources of interest were mapped with Global Positioning System (GPS)-capable tablet equipped with GPS receivers running ESRI Collector for ArcGIS version 10.3.2 software.

RESULTS

Vegetation Communities

Non-Native Annual Grassland

Non-native annual grassland is a common vegetation type consisting of a myriad of primarily annual native and non-native plant species. While grasses are the dominant component of this vegetation community, herbaceous plant species also typically occur within this community. Non-native annual grassland occurs in portions throughout the Study Area; often in areas immediately adjacent to the road shoulder and beyond fencing demarcating private property boundaries (**Figure 2**).

Commonly observed plant species within the non-native annual grassland in the Study Area include the following: slim oats (*Avena barbata*), soft brome (*Bromus hordeaceus*), Italian rye grass (*Festuca perennis*), smooth cat's ear (*Hypochaeris glabra*), ripgut grass (*Bromus diandrus*), red-stemmed filaree (*Erodium cicutarium*), vetch (*Vicia* spp.), and yellow star-thistle (*Centaurea solstitialis*). A more comprehensive list of all plant species observed within the Study Area is in **Attachment A**.

Ruderal

Ruderal (disturbed) habitats are characterized by a lack of vegetation and/or dominated by non-native weedy plant species. Ruderal species are typically the first to colonize disturbed areas and are often associated with human activity such as construction (road work, buildings etc.) or agriculture (abandoned fields, ditches, etc.). Ruderal species occur consistently along the road shoulders throughout the entire Study Area and are concentrated along Highway 59, portions of Bellevue Road associated with agriculture, and the dirt canal road (**Figure 2**).

Ruderal species observed within the Study Area consist of common non-native (often invasive) species such as yellow star-thistle, Russian thistle (*Salsola tragus*), stinkwort (*Dittrichia graveolens*), bristly ox-tongue (*Helminthotheca echioides*), common groundsel (*Senecio vulgaris*), and black mustard (*Brassica nigra*). A more comprehensive list of all species observed within the Study Area is included in **Attachment A**.

Residential Landscape

Residential landscape species are not a designated habitat type but do occur within the Study Area inside the parcels of various residential properties; these properties are within and adjacent to the Study Area. These species are typically ornamental, non-native, and are also associated with ruderal species and habitats.

Depressional Seasonal Wetland

Depressional seasonal wetland habitat typically consists of rooted, herbaceous hydrophytes that are present during most of the growing season and sometimes throughout the year. These wetlands often occur in shallow depressions and can be isolated or associated with other aquatic habitats or systems. Depressional seasonal wetlands were observed in two larger areas and one small portion of the Study Area along Highway 59 (**Figure 2**). Culverts were observed within the two larger wetlands that appear to connect to an irrigation ditch directly west of the wetlands, and also appear to convey water to the east under Highway 59 to a separate irrigation ditch.

Depressional seasonal wetland plant species observed within the Study Area include cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), slough grass (*Beckmannia syzigachne*), and whitetop (*Scolochloa festucacea*). A more comprehensive list of all species observed within the Study Area is included in **Attachment A**.

Riverine Seasonal Wetland

Riverine seasonal wetland habitat typically consists of herbaceous hydrophytes, grasses, and shrubs. These wetlands can occur along streams, rivers, channels, and irrigation canals. Riverine

seasonal wetland habitat was observed within two areas along Bellevue Road; one associated with an irrigation canal, and the other associated with a channel that interconnects to a larger vernal pool and wetland complex (**Figure 2**).

Riverine seasonal wetland plant species observed within the Study Area include cattails, sedges, and slough grass. A more comprehensive list of all species observed within the Study Area is included in **Attachment A**.

Riparian

Riparian habitat typically consists of hydrophytic perennial woody vegetation along streams or other aquatic settings that is conducive to the colonization and establishment of plant species that prefer (at least seasonally) saturated or inundated soils. Riparian habitat occurs in one small portion of the Study Area associated with Fahrens Creek intersecting with Bellevue Road (**Figure 2**).

Commonly observed riparian plant species within the Study Area include willows (*Salix* spp.), Himalayan blackberry (*Rubus armeniacus*), cattail, cottonwood (*Populus fremontii* spp. *fremontii*), nut sedge (*Cyperus eragrostis*), and other sedge species. A more comprehensive list of all species observed within the Study Area is included in **Attachment A**.

Aquatic Resources

Several aquatic resources were observed throughout the Study Area and include depressional seasonal wetlands, riverine seasonal wetlands, Fahrens Creek, and potential vernal pools. Man-made aquatic resources also occur throughout the Study Area, and include various irrigation ditches and canals (**Figure 2**).

The vernal pools observed primarily occur outside of the Study Area, and are associated with a larger complex of pools and connective features located on private property. Due to the timing of the field survey (directly after a rain event) a significant amount of ponding was observed within the Study Area near this vernal pool complex, and vernal pools may occur within the Study Area if a formal delineation were conducted.

Special-Status Plants

Special-status plants with known occurrences within five miles of the Study Area include: Sanford's arrowhead (*Sagittaria sanfordii*), hairy Orcutt grass (*Orcuttia pilosa*), succulent owl's-clover (*Castilleja campestris* var. *succulenta*), Colusa grass (*Neostapfia colusana*), spiny-sepaled button-celery (*Eryngium spinosepalum*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), Keck's checkerbloom (*Sidalcea keckii*), shining navarretia (*Navarretia nigelliformis* ssp. *radians*), forked hare-leaf (*Lagophylla dichotoma*), dwarf downingia (*Downingia pusilla*), Merced phacelia (*Phacelia ciliata* var. *opaca*), and Henderson's bent grass (*Agrostis hendersonii*).

Special-status plant species with some potential to occur within the Study Area but with no known occurrences within five miles include pincushion navarretia (*Navarretia myersii* ssp. *myersii*).

Special-Status Wildlife

Special-status wildlife species with known occurrences within five miles of the Study Area include: giant garter snake (*Thamnophis gigas*), western pond turtle (*Emys marmorata*), California tiger salamander (*Ambystoma californiense*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), Conservancy fairy shrimp (*Branchinecta conservatio*), tricolored blackbird (*Agelaius tricolor*), mountain plover (*Charadrius montanus*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), bald eagle (*Haliaeetus leucocephalus*), western mastiff bat (*Eumops perotis californicus*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

Special-status wildlife species with some potential to occur within the Study Area but with no known occurrences within five miles include western spadefoot (*Spea hammondii*) and northern harrier (*Circus hudsonius*).

No special-status plant or wildlife species were observed within the Study Area during the field survey; however, suitable habitat is present for a number of special-status species and there is some potential these species may occur within the Study Area. Special-status plant and wildlife species that may occur within the Study Area are briefly summarized below.

Potential Special-Status Plants within Study Area

Sanford's Arrowgrass

California Rare Plant Rank (CRPR): 1B.2[1]

Sanford's arrowgrass is endemic to California and occurs in scattered populations within the Central Valley. Suitable habitat includes standing or slow-moving shallow, freshwater marshes and swamps; this species has also been observed within ditches associated with cattail species (Natomas Basin Conservancy 2019). Potential suitable habitat within the Study Area includes the two larger depressional seasonal wetlands (**Figure 2**).

Forked hare-leaf

CRPR: 1B.2

Forked hare-leaf is endemic to California and mainly occurs in scattered populations within the Central Valley. Suitable habitat includes valley grassland and foothill woodland (Calflora 2019). Potential suitable habitat within the Study Area includes areas of non-native annual grassland (**Figure 2**).

Pincushion navarretia

CRPR: 1B.1

Pincushion navarretia is endemic to California and occurs in scattered populations mainly within eastern regions of the Central Valley. Suitable habitat includes freshwater wetlands, valley grassland, and vernal pools (Calflora 2019). Potential suitable habitat within the Study

[1] **CRPR Listing (CNPS 2019)**
List 1A - Plants presumed extirpated in California and rare or extinct elsewhere
List 1B - Plants rare, threatened, or endangered in California and elsewhere

Extensions
.1 Seriously threatened in California
.2 Moderately threatened in California

Area includes areas of non-native annual grassland and the depressional seasonal wetlands (**Figure 2**).

Potential Special-Status Wildlife within Study Area

Giant Garter Snake

Federal Status: Threatened, State Status: Threatened

The giant garter snake is endemic to portions of the Sacramento and Central Valleys and is known to occur within Merced County. Suitable habitat includes agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, streams, and adjacent uplands (USFWS 2017a). The giant garter snake remains primarily dormant in small mammal burrows during winter and emerges in spring. Minimally suitable habitat occurs within the Study Area along the bank of Le Grand Canal, within Yosemite Lateral and associated banks, and the bank of Fahrens Creek and (**Figure 2**).

California Tiger Salamander

Federal Status: Threatened, State Status: Threatened

The California tiger salamander is endemic to portions of the Central Valley, Sonoma, and Santa Barbara Counties. Suitable habitat includes both upland terrestrial habitat with small mammal burrows used for refugia during the dry season, and nearby temporary breeding pools such as vernal pools, seasonal ponds, or stock ponds. The California tiger salamander remains dormant within burrows during dry months and emerges around November, typically after the first heavy rains, and can travel up to a mile to aquatic breeding areas (USFWS 2017b).

Western Spadefoot

State Status: Species of Special Concern

The western spadefoot is endemic to California and Baja, California, and occurs throughout the Central Valley and southern coastal habitats. Suitable habitat includes open areas with sandy or gravely soils in a variety of communities including grasslands, open chaparral, mixed woodland and others. This species is almost completely terrestrial and usually burrows underground for most of the year. Nearby aquatic breeding habitat is also necessary for this species and can include vernal pools, temporary wetlands, irrigation and roadside ditches, and stock ponds; especially where predators such as bullfrogs are absent (USFWS 2019).

Burrowing Owl

State Status: Species of Special Concern

The burrowing owl occurs throughout the Central Valley and other small regions of California. They are primarily a grassland species but have adapted to areas altered by human activity. Suitable habitat includes areas with relatively short vegetation, and burrows or other structures (open pipes, small culverts, nest boxes) for roosting and nesting. Owls in agricultural environments often nest along roadsides and water conveyance structures (open canals, ditches, drains) surrounded by crops (DeSante *et al.* 2004). Suitable habitat for burrowing owl occurs throughout the Study Area within non-native annual grassland habitat and ruderal habitats associated with agriculture (**Figure 2**). Although no burrows were observed within the

Study Area during the field survey, burrows still may be present or newly excavated burrows or structures could potentially occur that provide suitable habitat for burrowing owl.

Swainson's Hawk

State Status: Threatened

The Swainson's hawk occurs throughout regions of the state and is known to breed in territories within the Central Valley and Great Basin bioregions. This species is adapted to open grasslands and often nests in large trees peripheral to riparian systems. The Swainson's hawk has become increasingly dependent on agricultural lands and is known to nest in lone trees in agricultural fields, roadside trees, planted windbreaks, and residential properties when riparian systems are unavailable or unsuitable for nesting (CDFW 2019).

Northern Harrier

State Status: Species of Special Concern

The northern harrier occurs throughout California and is known to breed within the Central Valley. Suitable habitat includes open grasslands, meadows, and agricultural habitats, especially near wetlands and other marshy aquatic habitats. This species nests on the ground in shrubby vegetation usually near wetlands or wetland edges; but may also nest in grasslands, fields, or flats, several miles from water (Zeiner *et. al.* 1988-1990). Suitable foraging habitat occurs throughout the entire Study Area but minimally suitable nesting habitat is likely limited to non-native annual grassland habitat (**Figure 2**).

Several natural and man-made aquatic features are present within the Study Area, including vernal pools. Three special-status species of fairy shrimp and three special-status plant species that are known to occur within vernal pools are documented within five miles of the Study Area; these special-status species may be present within the vernal pools that may occur within and adjacent to the Study Area (**Figure 2**). A formal aquatic resources delineation would be needed to determine the extent of all wetland features within the Study Area, and to assess potential direct and indirect impacts to these aquatic features that may result from pipeline construction.

Please contact me with any questions or concerns regarding this biological resources assessment at (916) 435-1202 or email checkler@foothill.com.

Sincerely,

Christine Heckler
Wildlife Biologist

Enclosures (3)

REFERENCES

California Department of Fish and Wildlife (CDFW). 2019. *Swainson's Hawks in California*. Available: https://www.wildlife.ca.gov/Conservation/Birds/Swainson-Hawks. (Accessed: January 16, 2019).

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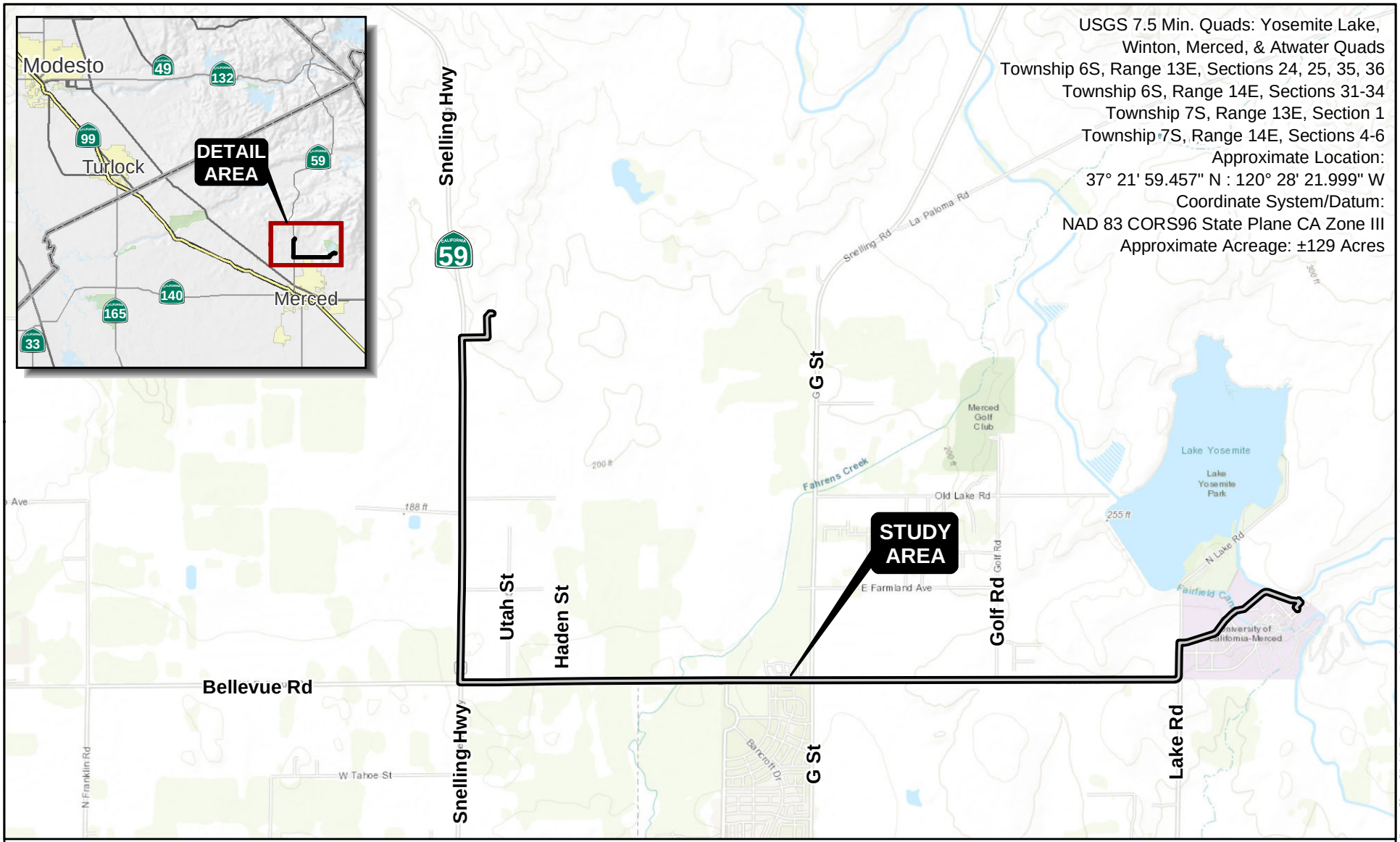

USGS 7.5 Min. Quads: Yosemite Lake, Winton, Merced, & Atwater Quads
Township 6S, Range 13E, Sections 24, 25, 35, 36
Township 6S, Range 14E, Sections 31-34
Township 7S, Range 13E, Section 1
Township 7S, Range 14E, Sections 4-6
Approximate Location:
37° 21' 59.457" N : 120° 28' 21.999" W
Coordinate System/Datum:
NAD 83 CORS96 State Plane CA Zone III
Approximate Acreage: ±129 Acres

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SITE AND VICINITY

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Feet
1 : 48,000

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QA/QC: AMP
Date: 1/29/2019

FIGURE 1

MERCED LANDFILL PIPELINE

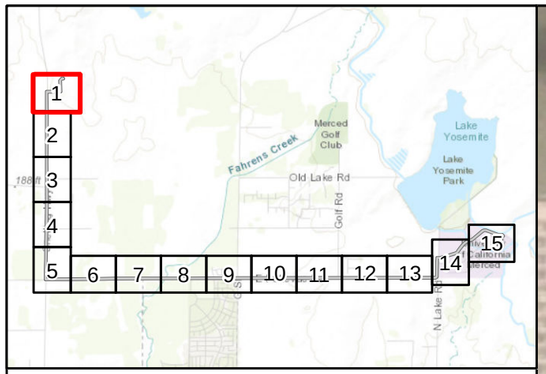

FIGURE 2
SHEET 1
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Depressional Seasonal Wetland (0.25 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Culvert
- Private Parcels - Direct Access Unavailable
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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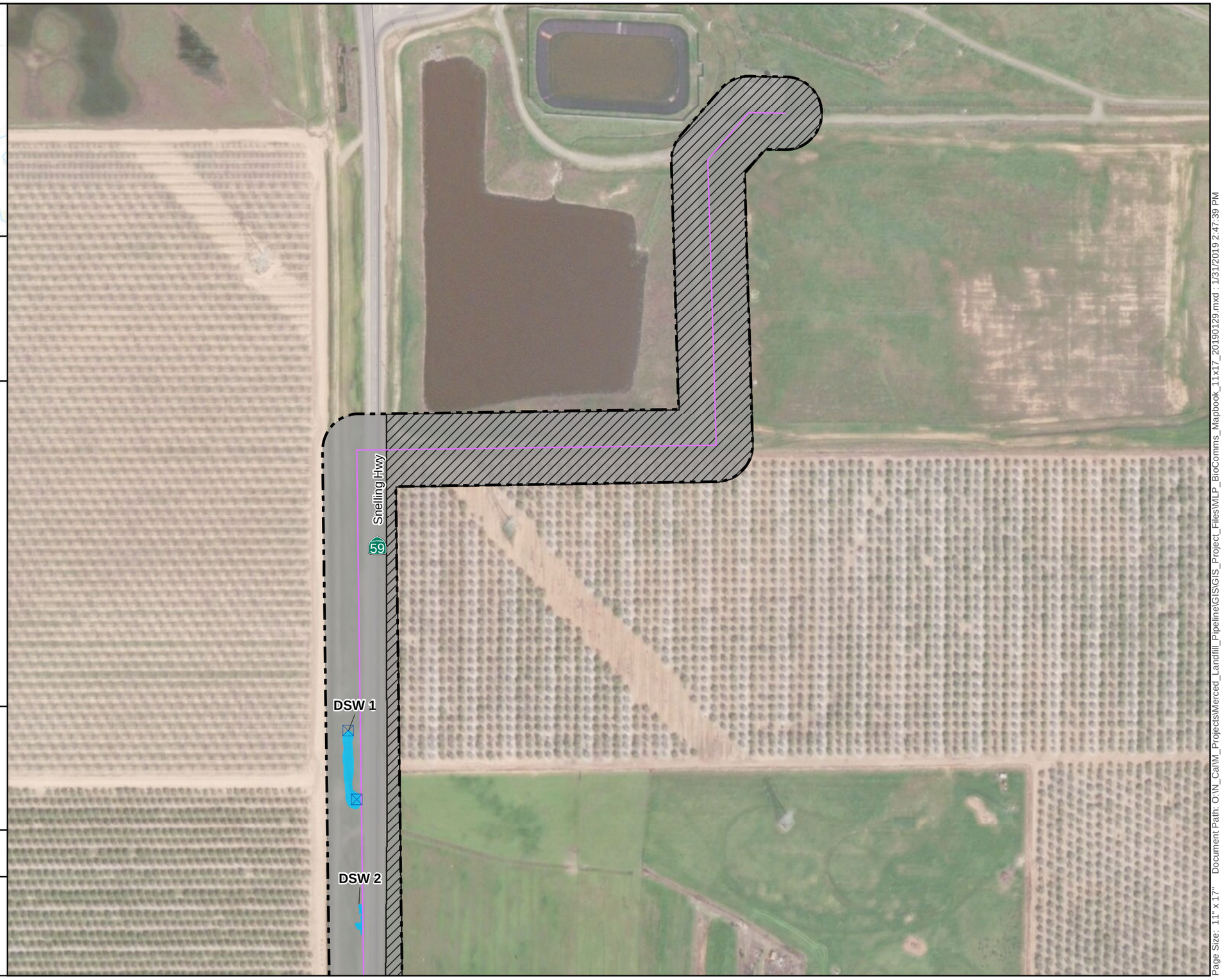

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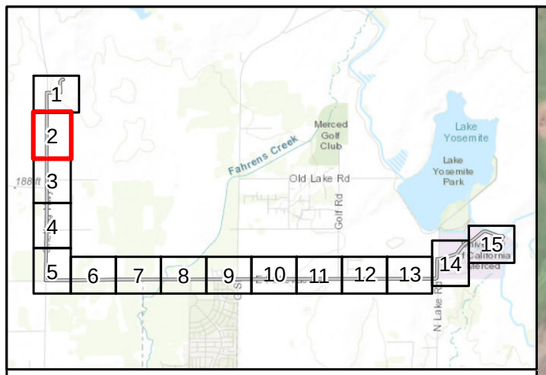

FIGURE 2
SHEET 2
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Depressional Seasonal Wetland (0.25 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Culvert
- Private Parcels - Direct Access Unavailable
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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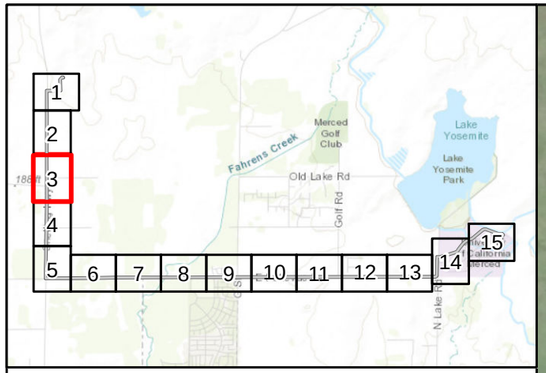

FIGURE 2
SHEET 3
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

Rudural (102.13 Acres)

Other Features

LFGTE Pipeline Alignment (37,442 Ft)

Private Parcels - Direct Access Unavailable

Study Area ±129 Acres

0 200 400

Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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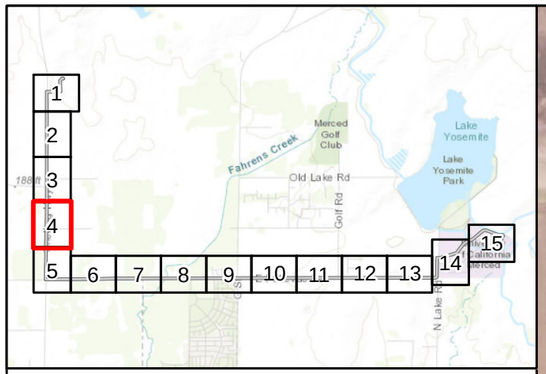

FIGURE 2
SHEET 4
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Irrigation Ditch (0.28 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Culvert
- Private Parcels - Direct Access Unavailable
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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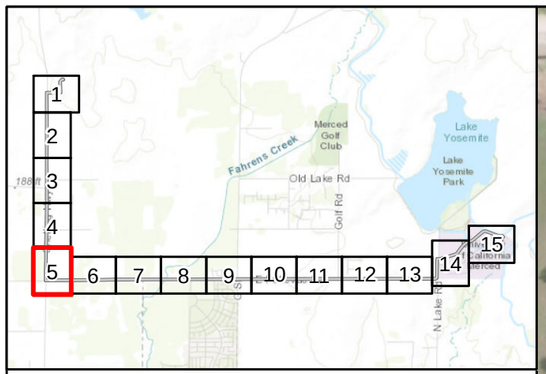

FIGURE 2
SHEET 5
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Irrigation Ditch (0.28 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Private Parcels - Direct Access Unavailable
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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MERCED LANDFILL PIPELINE

Ditch 1

59 Snelling Hwy

Bellevue Rd

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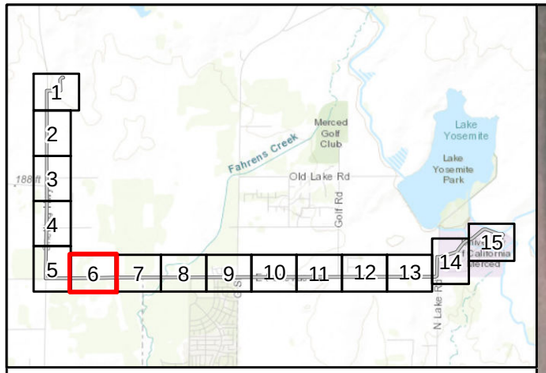

FIGURE 2
SHEET 6
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

Rudural (102.13 Acres)

Other Features

LFGTE Pipeline Alignment (37,442 Ft)

Study Area ±129 Acres

0 200 400

Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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MERCED LANDFILL PIPELINE

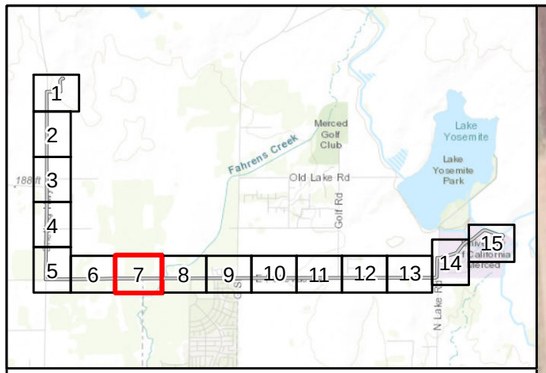

FIGURE 2
SHEET 7
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Creek
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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MERCED LANDFILL PIPELINE

Bellevue Rd

Fahrens Creek

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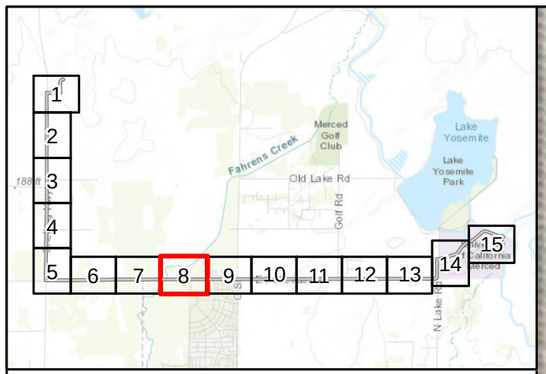

FIGURE 2
SHEET 8
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Riparian (0.26 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Creek
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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MERCED LANDFILL PIPELINE

Fahrens Creek

Tower Lateral

Bellevue Rd

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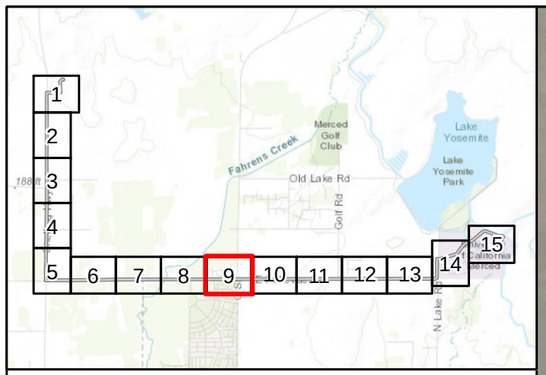

FIGURE 2
SHEET 9
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Canal
- Canal (Underground)
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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MERCED LANDFILL PIPELINE

Tower Lateral

G St

Bellevue Rd

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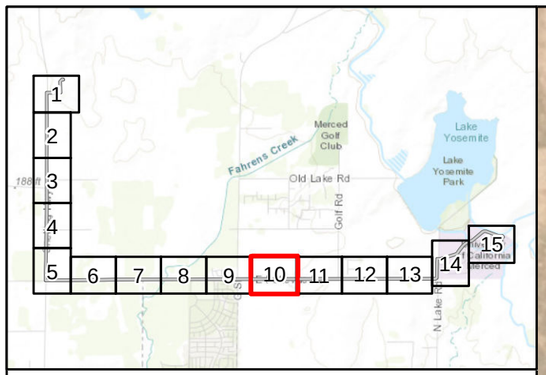

FIGURE 2
SHEET 10
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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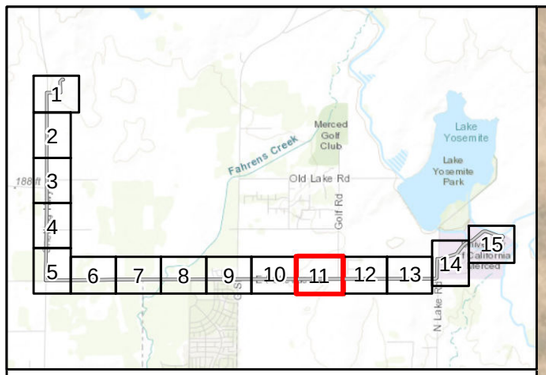

FIGURE 2
SHEET 11
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Potential Vernal Pool Area
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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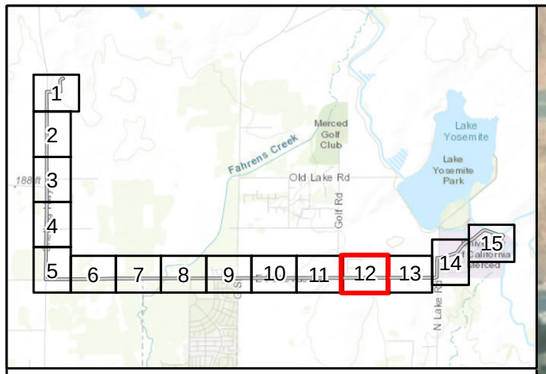

FIGURE 2
SHEET 12
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Riverine Seasonal Wetland (0.18 Acres)
- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Potential Depressional Seasonal Wetland
- Canal
- Canal (Underground)
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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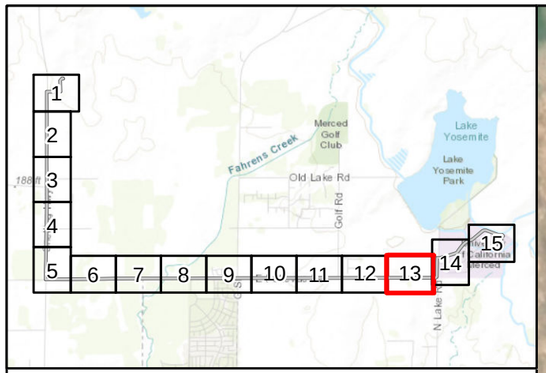

FIGURE 2
SHEET 13
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Potential Vernal Pool Area (0.84 Acres)
- Riverine Seasonal Wetland (0.18 Acres)
- Canal (1.02 Acres)
- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Culvert
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
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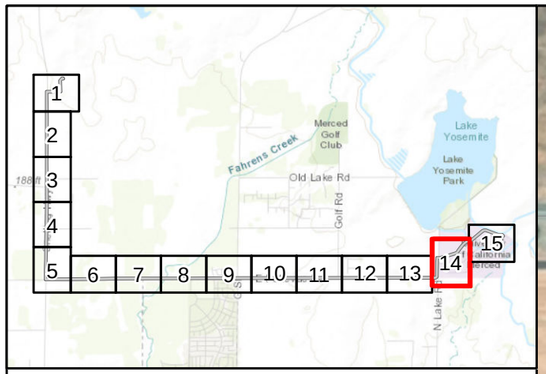

FIGURE 2
SHEET 14
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Canal (1.02 Acres)
- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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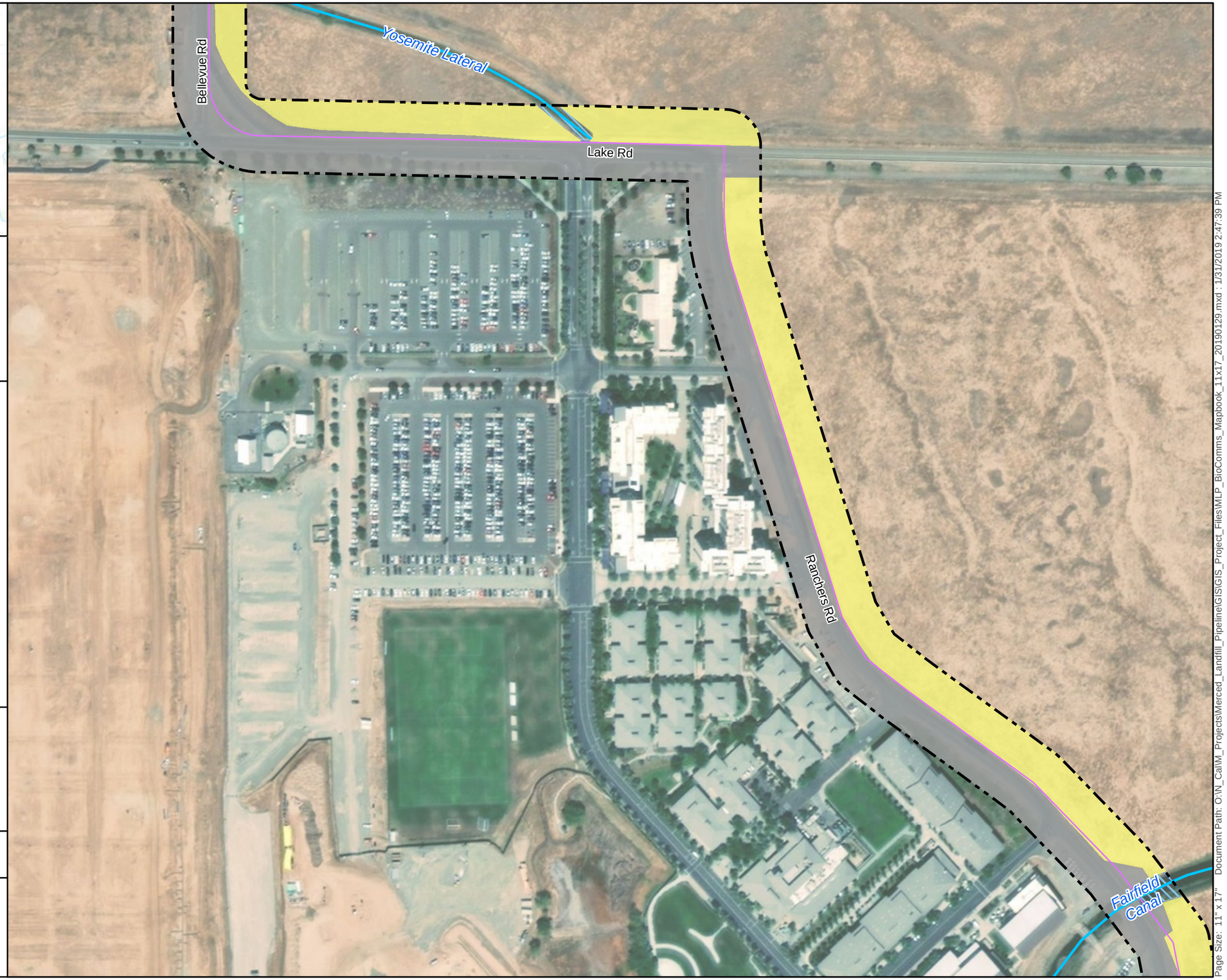

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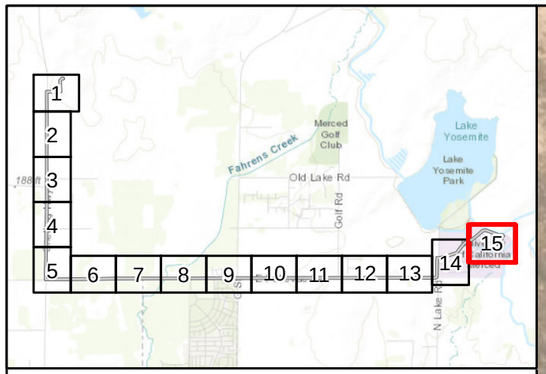

FIGURE 2
SHEET 15
BIOLOGICAL COMMUNITIES

Legend

Biological Communities

- Canal (1.02 Acres)
- Non-Native Annual Grassland (24.16 Acres)
- Rudural (102.13 Acres)

Other Features

- LFGTE Pipeline Alignment (37,442 Ft)
- Canal
- Study Area ±129 Acres

0 200 400
Feet

1 : 2,400

1 inch = 200 feet

N

Aerial Imagery Date: 3/12/2017 & 6/28/2017
Aerial Imagery Source: Vivid, Digital Globe, ESRI

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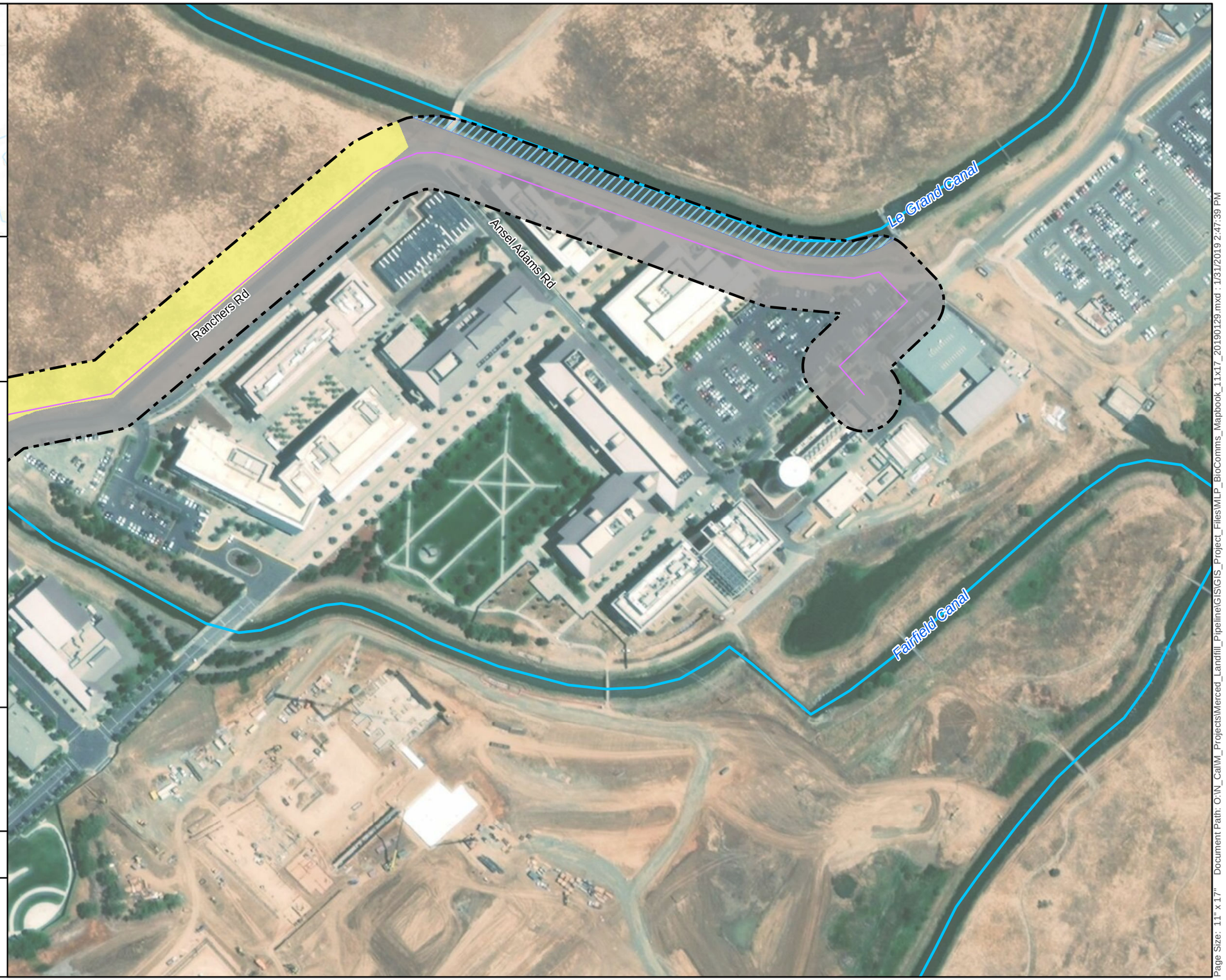

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Attachment A
Plant Species Observed in the Study Area

Family	Scientific Name	Common Name
Agavaceae	*Yucca* spp.	Spanish bayonet, yucca
Apocynaceae	*Nerium oleander*	Common oleander
Arecaceae	*Washingtonia robusta*	Mexican fan palm
Asteraceae	*Centaurea solstitialis*	Yellow star-thistle
Asteraceae	*Erigeron canadensis*	Horseweed
Asteraceae	*Lactuca serriola*	Prickly lettuce
Asteraceae	*Senecio vulgaris*	Common groundsel
Asteraceae	*Sonchus oleraceus*	Common sow thistle
Asteraceae	*Helminthotheca echioides*	Bristly ox-tongue
Asteraceae	*Cirsium vulgare*	Bull thistle
Asteraceae	*Dittrichia graveolens*	Stinkwort
Asteraceae	*Grindelia hirsutula*	Gumplant
Asteraceae	*Hypochaeris glabra*	Smooth cat's ear
Brassicaceae	*Brassica nigra*	Black mustard
Chenopodiaceae	*Salsola tragus*	Russian thistle, tumbleweed
Crassulaceae	*Crassula sp.*	Crassula
Cupressaceae	*Sequoia sempervirens*	Coast redwood
Cyperaceae	*Cyperus eragrostis*	Nutsedge
Cyperaceae	*Scirpus* spp.	Bulrush
Euphorbiaceae	*Croton setiger*	Turkey-mullein
Fabaceae	*Vicia* spp.	Vetch
Fagaceae	*Quercus douglasii*	Blue oak
Fagaceae	*Quercus lobata*	Valley oak, roble
Geraniaceae	*Geranium dissectum*	Cutleaf geranium
Geraniaceae	*Erodium botrys*	Storksbill, filaree
Geraniaceae	*Erodium cicutarium*	Redstem filaree
Juncaceae	*Juncus balticus* spp. *ater*	Baltic rush
Lamiaceae	*Mentha pulegium*	Pennyroyal
Liliaceae	*Lilium* spp.	Lily
Malvaceae	*Malva parviflora*	Cheeseweed, little mallow
Myrtaceae	*Eucalyptus camaldulensis*	Red gum, river red gum
Onagraceae	*Epilobium brachycarpum*	Willowherb
Plantaginaceae	*Plantago lanceolata*	English plantain
Platanaceae	*Platanus acerifolia*	London plane
Poaceae	*Deschampsia danthonioides*	Annual hair grass
Poaceae	*Avena barbata*	Slim oat
Poaceae	*Festuca perennis*	Rye grass
Poaceae	*Bromus hordeaceus*	Soft brome
Poaceae	*Bromus diandrus*	Ripgut grass
Poaceae	*Elymus caput-medusae*	Medusa head
Poaceae	*Bromus hordeaceus*	Soft chess
Poaceae	*Cynodon dactylon*	Bermuda grass
Poaceae	*Muhlenbergia spp.*	Muhly
Poaceae	*Paspalum dilatatum*	Dallis grass
Poaceae	*Festuca perennis*	Italian rye grass
Poaceae	*Beckmannia syzigachne*	Slough grass

Attachment A
Plant Species Observed in the Study Area

Family	Scientific Name	Common Name
Poaceae	*Scolochloa festucacea*	Whitetop
Polygonaceae	*Rumex crispus*	Curly dock
Rosaceae	*Rubus armeniacus*	Himalayan blackberry
Rosaceae	*Prunus dulcis*	Almond
Salicaceae	*Populus fremontii* ssp. *fremontii*	Alamo or Fremont cottonwood
Salicaceae	*Salix* spp.	Willow
Solanaceae	*Solanum spp.*	Nightshade
Typhaceae	*Typha* spp.	Cattail

Attachment A
Wildlife Species Observed in the Study Area

Scientific Name	Common Name
Accipiter cooperii	Cooper's hawk
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Ardea alba	great egret
Ardea herodias	great blue heron
Branta canadensis	Canada goose
Buteo jamaicensis	red-tailed hawk
Charadrius vociferus	killdeer
Colaptes auratus	northern flicker
Corvus brachyrhynchos	American crow
Aphelocoma californica	California scrub jay
Egretta thula	snowy egret
Euphagus cyanocephalus	Brewer's blackbird
Haemorhous mexicanus	house finch
Megaceryle alcyon	belted kingfisher
Melospiza melodia	song sparrow
Pandion haliaetus	osprey
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Spinus psaltria	lesser goldfinch
Sturnella neglecta	western meadowlark
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's wren
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow