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**SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY'S  
PIPELINE SAFETY & RELIABILITY PROJECT  
SPECIAL-STATUS PLANT SPECIES SURVEY REPORT  
ADDENDUM**

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**Prepared for:**



**Prepared by:**



**September 2017**



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## 1 – INTRODUCTION

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas)<sup>1</sup> filed a Proponent’s Environmental Assessment (PEA) on September 30, 2015, and a PEA Supplement on March 20, 2016, for a Certificate of Public Convenience and Necessity to construct and operate the proposed Pipeline Safety & Reliability Project (Proposed Project). The Special-Status Plant Species Report was provided as an attachment in the Biological Resources Technical Report (BRTR), and it summarized the 2015 special-status plant species survey results for the Proposed Project. Since the report was submitted, the Applicants have advanced the engineering and design of the pipeline, which has resulted in minor design refinements to the information presented in Chapter 3 – Project Description of the PEA, including additional laydown yards and minor route refinements that extend beyond the original Biological Resources Study Area (BRSA) that was presented in the BRTR. In addition, the California Public Utilities Commission (CPUC), the United States (U.S.) Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW)<sup>2</sup> requested biological resources data for three route segment alternatives, one alternative route, and a review and re-survey of suitable thread-leaved brodiaea (*Brodiaea filifolia*) habitat within the proposed route workspaces.

This Special-Status Plant Species Survey Report Addendum (Addendum) summarizes the 2017 special-status plant species surveys that Insignia Environmental (Insignia) conducted of the minor design refinements, as well as the 2015 and 2017 surveys of select alternative routes that were not previously surveyed.

In total, the Addendum BRSA covers approximately 1,210 acres. Additional BRSA details are included in Section 2.1 Survey Location and Setting. Insignia conducted surveys in two rounds to maximize the blooming periods for special-status plant species. The first round was conducted during the spring to document the majority of the species’ blooming periods, and the second round was conducted during the summer to document late blooming species. In addition, areas along the Proposed Project route that exhibit clay soil characteristics were spot-checked for thread-leaved brodiaea to determine if the species had become established since the conclusion of the 2015 surveys. This Addendum provides an introduction, a brief project description, survey methodology, results, and discussion of Insignia’s special-status plant species surveys.

### 1.0 BACKGROUND

In addition to the surveys conducted in 2015, a habitat assessment of seven minor design refinement laydown areas and two minor design refinement routes was conducted in late 2016. The results of the 2015 and 2016 surveys, as well as other biological resources and analysis of the Proposed Project data, is provided in the following documents:

- the 2015 BRTR,
- Attachment B: Special-Status Plant Species Survey Report (2015 Plants Report) within the 2015 BRTR,

<sup>1</sup> SDG&E and SoCalGas are hereinafter referred to as “the Applicants.”

<sup>2</sup> The USFWS and the CDFW are hereinafter referred to as “the Wildlife Agencies.”

- Attachment C: BRTR Addendum<sup>3</sup> within the Minor Design Refinements: Certificate of Public Convenience and Necessity for the Proposed Project, and
- 2017 Proposed Project Draft BRTR Alternatives Addendum.

Special-status plant species surveys are limited to spring and summer blooming periods for species with the potential to occur. Therefore, the special-status plant species surveys of the minor design refinements were conducted after the submittal of the BRTR Addendum on January 31, 2017.

The purpose of this Addendum is to satisfy the request of the CPUC and Wildlife Agencies for additional biological resources surveys. On April 26, 2017, the Applicants met with the CPUC and the Wildlife Agencies to discuss the Proposed Project's special-status species and potential impacts to the federal and state Endangered Species Acts. The CPUC and the Wildlife Agencies requested biological resources data for the following three route segment alternatives:

- Kearny Villa Road,
- West of Aqueduct Road, and
- Spring Canyon Firebreak.

The CPUC and the Wildlife Agencies also requested data for the Scripps Poway Parkway, Sycamore Canyon, and Santee portions of the Rainbow to Santee Non-Miramar Alternative (Non-Miramar Alternative). The Applicants proposed using existing data for the Non-Miramar Alternative; however, the CPUC and Wildlife Agencies requested 2017 field surveys of the three route segment alternatives and the Non-Miramar Alternative.

On June 8, 2017, the CPUC and the Wildlife Agencies requested additional surveys for thread-leaved brodiaea within suitable habitat in the Proposed Project workspaces due to the above average rainfall recorded during the 2016-2017 rainy season. Suitable habitat was evaluated based on soil maps and aerial photographs of the Proposed Project. Surveys were conducted within the workspace surrounding Mainline Valve (MLV) 10.

Although surveys began on different dates, the results from the minor design refinements, three route segment alternatives, the Non-Miramar Alternative, and suitable thread-leaved brodiaea habitat at MLV 10 special-status plant species surveys are provided in this Addendum.

## **2 – PROJECT DESCRIPTION**

### **2.0 PROJECT OVERVIEW**

The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from the existing Rainbow Metering Station to the pipeline's terminus on Marine Corps Air Station (MCAS) Miramar. A more detailed description of the Proposed Project is provided in the PEA and PEA Supplement.

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<sup>3</sup> Attachment C: BRTR Addendum includes additional details and maps of the Minor Design Refinements BRSA.  
September 2017

## 2.1 SURVEY LOCATION AND SETTING

The Addendum BRSA is located in San Diego County, California; and it crosses the cities of Escondido, Poway, San Diego, and Santee, as well as unincorporated areas of San Diego County. The Addendum BRSA is located within the following U.S. Geological Survey (USGS) 7.5-minute series quadrangles (quads):

- Bonsall,
- Valley Center,
- Escondido,
- Poway,
- La Mesa,
- San Vicente Reservoir, and
- El Cajon.

The Addendum BRSA is comprised of several smaller BRSA's for proposed components, which are described in the following subsections and presented in Table 1: Addendum BRSA Locations and Sizes, Figure 1: Minor Design Refinements Overview Map, and Figure 2: Alternatives Overview Map.

### 2.1.0 Minor Design Refinements

The Minor Design Refinements BRSA consists of the following:

- the 395 Stewart Canyon Road Laydown Yard,
- the Boulder Knolls Road Laydown Yard,<sup>4</sup>
- the Montego Laydown Yard,
- the Lake Hodges East Laydown Yard,
- the Alliant Laydown Yard
- the Highway 76 Route Refinement, and
- the Interstate (I-) 15 Route Refinement.

The Minor Design Refinements BRSA also includes an approximately 150-foot-wide buffer. Additional detail on the minor design refinements is provided in Table 1: Addendum BRSA Locations and Sizes and the 2017 BRTR Addendum.

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<sup>4</sup> The Boulder Knolls Road Laydown Yard was originally named Laydown Yard #4. To avoid revision errors associated with laydown yard numbering, each yard was instead assigned a unique name, because the addition or removal of a yard would have resulted in a non-congruent numbering system.

**Table 1: Addendum BRSA Locations and Sizes**

<b>BRSA</b>	<b>Location</b>	<b>Approximate Size (acres)</b>
<b>Minor Design Refinements</b>		
395 Stewart Canyon Laydown Yard	Old Highway 395 and Stewart Canyon Drive	5.60
Boulder Knolls Road Laydown Yard	Champagne Boulevard and Boulder Knolls Road	4.10
Montego	Old Highway 395 and West Country Club Lane	7.68
Lake Hodges East Laydown Yard	Highland Valley Road (Lake Hodges)	7.33
Alliant Laydown Yard	Alliant University near MCAS Miramar	3.78
Highway 76 Route Refinement	Old Highway 395 and Highway 76 south of the horizontal directional drilling location north and south of the San Luis Rey River	37.36
I-15 Route Refinement	Old Highway 395 and Urner Way south to Milepost (MP) 12.8, then east under I-15 to Old Highway 395	89.76
<b>Route Segment Alternatives</b>		
Kearny Villa Road	MP 43.0 west along Pomerado Road, west under I-15, south along Kearny Villa Road, to an existing pipe connection within MCAS Miramar	156.00
West of Aqueduct Road	West of the Proposed Project route within MCAS Miramar	70.50
Spring Canyon Firebreak	East along Spring Canyon Road, south along an unnamed dirt road that west of Spring Canyon to State Route (SR-) 52	277.96
<b>Alternative</b>		
Non-Miramar Alternative	Scripps Poway Parkway to Santee.	550.37
<b>Thread-leaved Brodiaea Suitable Habitat</b>		
MLV 10	Pomerado Road at MP 43.1	0.09
<b>TOTAL</b>		<b>1,210.53</b>

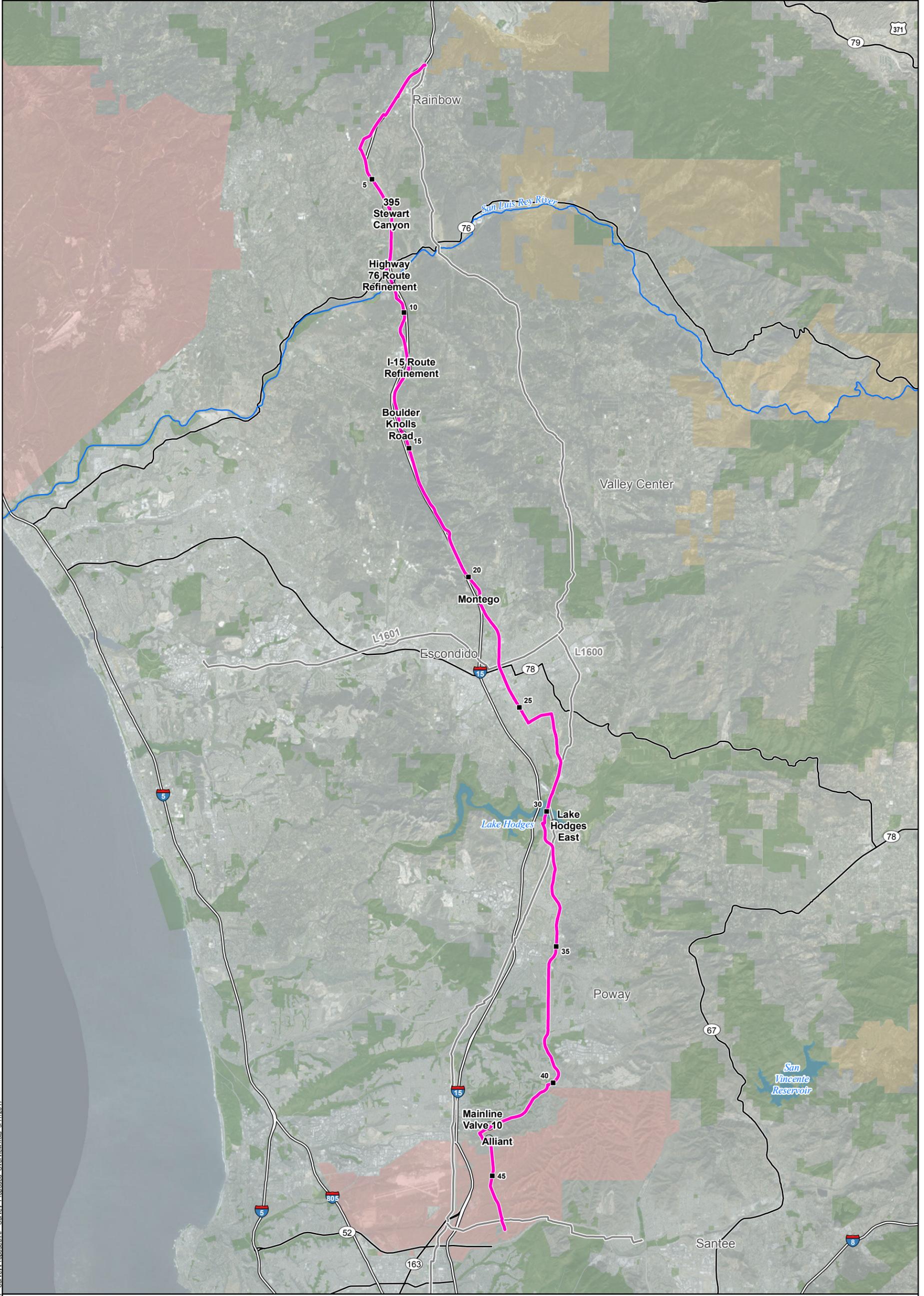
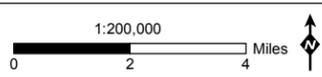


Figure 1: Minor Design Refinements Overview

Pipeline Safety & Reliability Project

- Milepost
- Proposed Project Route
- Existing Pipelines
- Interstate
- Major Road/State Highway
- Parks
- Military
- Bureau of Indian Affairs



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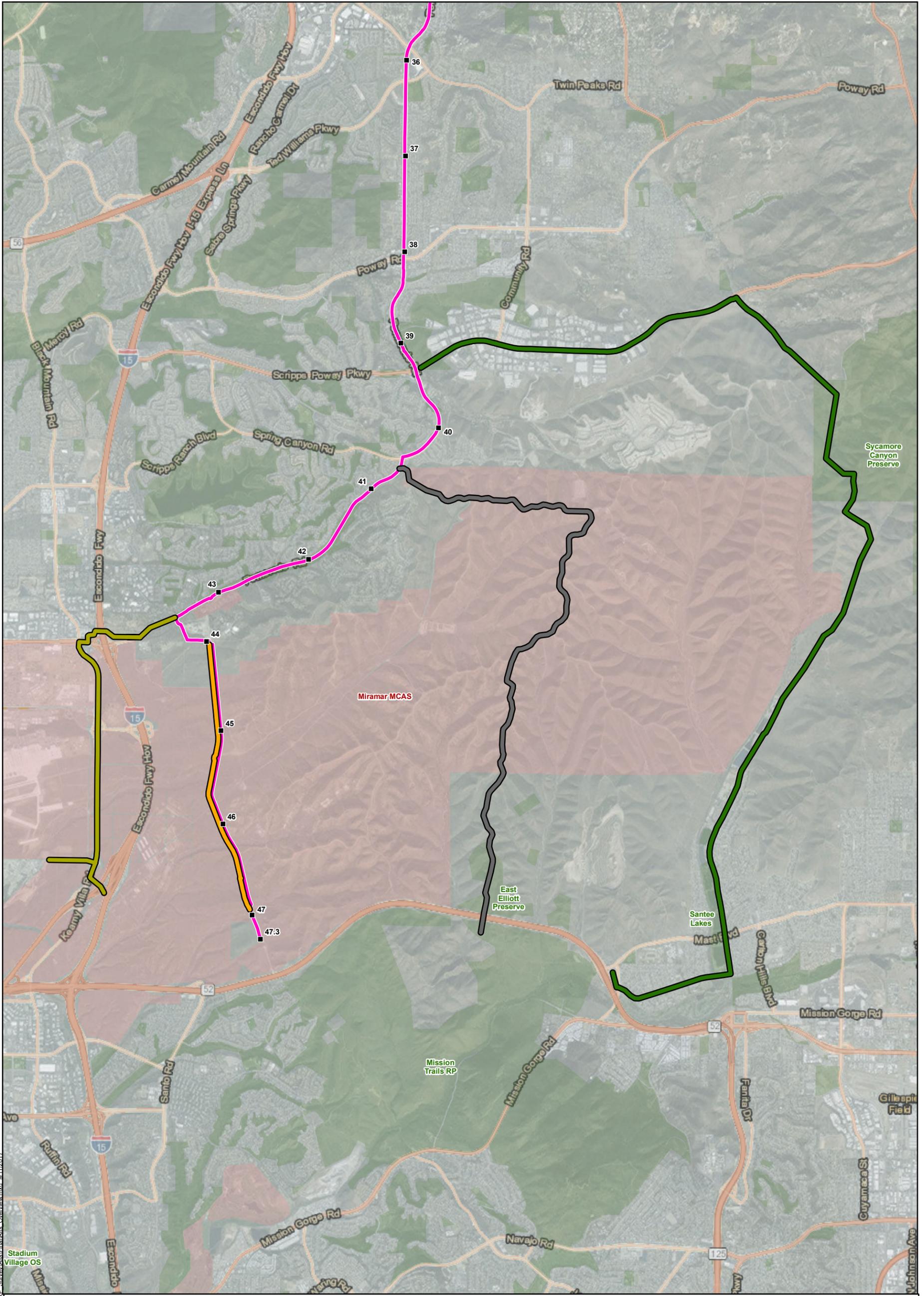
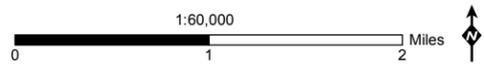


Figure 2: Alternatives Overview

- Milepost
- Proposed Project Route
- Non-Miramar
- Kearny Villa Road
- West of Aqueduct Road
- Spring Canyon Firebreak
- Alternative Route**
- Route Segment Alternatives**
- Parks
- Military
- Bureau of Indian Affairs



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### **2.1.1 Route Segment Alternatives**

#### **Kearny Villa Road Route Segment Alternative**

The Kearny Villa Road Route Segment Alternative BRSA is approximately four miles in length, and crosses the City of San Diego and unincorporated San Diego County. The route segment alternative leaves the Proposed Project near MP 43.0, follows Pomerado Road west, and then travels northwest through private property. The route segment alternative then heads west under I-15 to Kearny Mesa Road, south to Miramar Road, and then west until its intersection with Kearny Villa Road. It travels south along Kearny Villa Road, then southeast through MCAS Miramar to an existing pipe connection. The alternative terminus veers west off of Kearny Villa Road at Harris Plant Road. The proposed workspace for this route segment alternative is primarily within Kearny Villa Road. Due to chain-link fences and Kearny Villa Road's location adjacent to MCAS Miramar land, the width of the Kearny Villa Road Route Segment Alternative BRSA is smaller and not consistent like the other route segment alternatives.

#### **West of Aqueduct Road Route Segment Alternative**

The West of Aqueduct Road Route Segment Alternative is approximately 100 feet west of the Proposed Project route that travels through MCAS Miramar. The approximately 7.5-mile route segment alternative begins on the northern boundary of MCAS Miramar that is west of Aqueduct Road and includes a portion of the University of California San Diego's Elliott Chaparral Reserve. The proposed workspace for this route segment alternative is primarily within undeveloped native vegetation.

#### **Spring Canyon Firebreak Route Segment Alternative**

The Spring Canyon Firebreak Route Segment Alternative BRSA is approximately seven miles in length. The route segment alternative leaves the Proposed Project near MP 40.3, travels west along Spring Canyon Road for approximately 2.2 miles, and then heads south along an unnamed, unpaved road for approximately 4.8 miles. The route segment alternative continues through Mission Trails Regional Park and south of SR-52, but the BRSA ends just north of SR-52.<sup>5</sup> The proposed workspace for this route segment alternative is primarily within paved and unpaved roads.

### **2.1.2 Alternative**

#### **Rainbow to Santee Non-Miramar Alternative**

The Non-Miramar Alternative would follow the northern portion of the Proposed Project from the Rainbow Metering Station to the north of MCAS Miramar, where the route would veer to the east, avoiding MCAS Miramar and traveling south until its termination in the City of Santee.

The Addendum BRSA includes an approximately 13-mile Non-Miramar Alternative segment<sup>6</sup> from Scripps Poway Parkway to its termination in the City of Santee. The segment begins at Pomerado Road and Scripps Poway Parkway and travels along Scripps Poway Parkway for

<sup>5</sup> The portion of the route segment alternative that travels south of SR-52 was not surveyed in 2017. In addition, Insignia surveyed the northern approximately two-thirds of the route segment alternative in 2015 and the southern approximately one-third in 2017.

<sup>6</sup> The 2017 segment was updated since the PEA's submittal in 2015.

approximately 3.5 miles and then southeast along Sycamore Canyon Road for approximately 0.4 mile. The segment then travels south over steep, cross-county terrain through Goodan Ranch Sycamore Canyon Preserve,<sup>7</sup> then south along Fanita Parkway and east of Santee Lakes to Carlton Oaks Drive. The segment heads west along Carlton Oaks Drive beyond West Hills Parkway and into an undeveloped, non-native field east of SR-52, where it ends at a pipeline terminus in the City of Santee. This segment would cross approximately six miles of privately owned land. The proposed workspace for this alternative route is primarily within undeveloped native vegetation.

## **3 – METHODOLOGY**

This section describes the pre-survey background research and methods used to perform the special-status plant species surveys.

### **3.0 BACKGROUND RESEARCH**

Prior to conducting the 2017 surveys, Insignia biologists reviewed the data from the 2015 Plants Report and conducted a literature review of publicly available spatial data in ArcGIS, including aerial photographs, USGS topographic maps, and San Diego Association of Governments (SANDAG) vegetation mapping (SANDAG 2012). Insignia also utilized other reference materials, such as plant occurrence databases, local guides, and survey protocols and publications. Section 3.0 Methodology of the 2015 Plants Report provides a list of specific references.

For the purposes of this Addendum, special-status plant species are defined as follows:

- Federally endangered (FE) species
- California endangered (CE) species
- California Native Plant Society (CNPS) California Rare Plant Ranks (CRPRs) Lists
  - 1B: Rare or endangered in California and elsewhere
  - 2B: Rare or endangered in California, more common elsewhere
  - 3: A review list for plants, and more scientific information is needed
  - 4: Plants of limited distribution; a watch list

In this Addendum, special-status plants are presented from the most rare to the least rare (i.e., endangered, CRPR 1B, CRPR 2B, and CRPR 4) based on the species distribution in California and elsewhere.

In addition to the Proposed Project's 2017 surveys, SDG&E biologists also conducted special-status plant species surveys adjacent to Transmission Line (TL) 636, TL639, and associated access roads within Spring Canyon in 2017. The TL636 and TL639 survey area overlapped

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<sup>7</sup> The Goodan Ranch Sycamore Canyon Preserve is within a conservation easement.

southern portions of the Spring Canyon Firebreak Route Segment Alternative BRSA. The results of those surveys are provided separately (SDG&E 2017).

### 3.0.0 Special-Status Species' Potential to Occur

A list of potentially occurring special-status plant species was developed by compiling species that are documented in the California Natural Diversity Database (CNDDDB) (CDFW 2017a) within five miles of the Proposed Project and one mile of the route segments alternatives and Non-Miramar Alternative, as well as special-status plant species identified in a nine-quad search of the CNPS Inventory of Rare and Endangered Plants of California.<sup>8</sup> The 2015 Plants Report provides descriptions of the 129 species documented within five miles of the Proposed Project. Insignia biologists then determined the potential for those species to occur within the Addendum BRSA based on information from the literature and database searches and the habitat assessment.

## 3.1 SURVEY METHODOLOGY

During the spring and summer of 2017, Insignia conducted special-status plant surveys on approximately 1,008 acres. In addition, Insignia surveyed approximately 203 acres in the northern approximately two-thirds of the Spring Canyon Firebreak Route Segment Alternative BRSA in 2015.

Insignia conducted special-status plant surveys in accordance with survey guidelines published by the CNPS (2001), California Department of Fish and Game (CDFG)<sup>9</sup> (2009), and USFWS (1996). Insignia biologists examined all areas of the Addendum BRSA that could be accessed by walking transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants. Two areas in the southern portion of the Kearny Villa Road Route Segment Alternative could not be accessed. One area is between I-15 and SR-163, and the other area is within a fenced area on MCAS Miramar between Kearny Villa Road and SR-163. Developed areas (e.g., orchards and vineyards, intensive agricultural areas, and ornamental areas) were not surveyed. Areas mapped as disturbed habitat, as well as eucalyptus woodlands and non-native woodlands, were surveyed where there was potential for special-status plants to occur.

On April 3, 2017, Insignia biologist Melissa Tu conducted a reference population check for special-status plant species in northern San Diego County to ensure that these species were blooming, and therefore would be visible within the Addendum BRSA. San Diego goldenstar (*Bloomeria clevelandii*) was blooming at that time. Goldenstar is a type of lily in the Themidaceae family and has a short blooming period. In addition, the Insignia biologist observed the phenology of various plant species during the early spring of 2017 and noted that many species appeared to be blooming earlier than normal, likely due to the moderate temperatures during the spring and high rainfall during the 2016-2017 rainy season. As a result of these observations and the reference population check, it was determined that special-status

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<sup>8</sup> The CNPS nine-quad search covered 27 quads, including Temecula, Bonsall, San Marcos, Valley Center, Escondido, Poway, La Mesa, Wildomar, Murrieta, Bachelor Mountain, Fallbrook, Pechanga, Morro Hill, Pala, San Luis Rey, Encinitas, Rancho Santa Fe, Boucher Hill, Rodrigues Mountain, San Pasqual, Del Mar, San Vicente Reservoir, La Jolla, Point Loma, National City, Jamul Mountains, and El Cajon.

<sup>9</sup> The California Department of Fish and Game became the CDFW in 2013.

plant surveys could commence for the Minor Design Refinements BRSA. On April 18, 2017, the Insignia biologist observed San Diego mesa mint (*Pogogyne abramsii*) and Orcutt's brodiaea (*Brodiaea orcuttii*) blooming near MCAS Miramar. Special-status plant species surveys within the route segment alternatives and Non-Miramar Alternative BRSA began on May 1.

The first round of special-status plant surveys started on April 13 and was completed on May 31. The second round of surveys began on June 14 and was completed on July 19. The Minor Design Refinements BRSA surveys began in mid-April; the segment route alternatives BRSA surveys began on May 1; and the Non-Miramar Alternative BRSA surveys began on May 19.<sup>10</sup> MLV 10 was surveyed on June 21, 2017.

Table 2: Special-Status Plant Species Survey Schedule provides the names of the biologists, BRSA, date, cloud cover, and visibility for each survey day. Cloud cover percentages are included because brodiaea species and other lilies species are easier to observe on sunny days when their flower petals are open.

As requested by the CPUC, the Wildlife Agencies, and the Applicants, Insignia conducted surveys for thread-leaved brodiaea within suitable habitat in the Proposed Project workspaces. Figure A-5: Clay and Gabbroic Soils in the 2015 BRTR was reviewed prior to the 2017 surveys to identify Proposed Project workspaces within suitable habitat for thread-leaved brodiaea. Suitable habitat for this species occurs along Pomerado Road within the MLV 10 workspace. Workspaces north of MLV 10 that are within clay soils are located in paved roads. Workspaces south of MLV 10 within clay soils did not contain any thread-leaved brodiaea; however, Orcutt's brodiaea was noted in the workspaces. On June 21, Insignia surveyed MLV 10 and the surrounding workspace that was within mapped clay soils for thread-leaved brodiaea.

## **4 – RESULTS**

### **4.0 DATABASE AND LITERATURE REVIEW**

Based on the database and literature review, Insignia identified 80 special-status plant species with the potential to occur within the Addendum BRSA. Attachment A: CNDDDB Occurrences for Special-Status Plant Species presents the locations of CNDDDB special-status plant species within a quarter mile and one mile of the Addendum BRSA. Attachment B: Special-Status Plant Species with the Potential to Occur presents the 80 special-status plant species that were surveyed for within the Addendum BRSA and if each species was present or not present. includes the 80 special-status plant species that Insignia surveyed for in 2017. Potential to occur definitions and a description of the species with a potential to occur are included in the 2015 Plants Report.

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<sup>10</sup> The Non-Miramar Alternative BRSA surveys did not start until May 19 because the Applicants were coordinating with the CPUC to determine if surveys were needed.

**Table 2: Special-Status Plant Species Survey Schedule**

<b>Biologist(s)</b>	<b>BRSA</b>	<b>Date</b>	<b>Cloud Cover/ Visibility</b>
<b>First Round</b>			
Darren Burton and Melissa Tu	Minor Design Refinements	April 13, 2017	90% to 30% Good
Darren Burton and Melissa Tu	Minor Design Refinements	April 17, 2017	40% to 15% Excellent
Darren Burton and Melissa Tu	Minor Design Refinements	April 18, 2017	20% to 5% Excellent
Melissa Tu and Nick Wagner	West of Aqueduct Road Route Segment Alternative	May 1, 2017	0% Excellent
Melissa Tu and Nick Wagner	West of Aqueduct Road Route Segment Alternative	May 2, 2017	0% Excellent
Melissa Tu and Nick Wagner	Spring Canyon Firebreak Route Segment Alternative	May 3, 2017	20% to 0% Excellent
Melissa Tu and Nick Wagner	Kearny Villa Road Route Segment Alternative	May 4, 2017	100% to 25% Good
Melissa Tu and Nick Wagner	Kearny Villa Road	May 5, 2017	100% Good
Melissa Tu and Nick Wagner	Kearny Villa Road and West of Aqueduct Road Route Segment Alternatives	May 10, 2017	100% Okay
Melissa Tu and Nick Wagner	West of Aqueduct Road Route Segment Alternative	May 11, 2017	0% Excellent
Melissa Tu and Nick Wagner	Kearny Villa Road and West of Aqueduct Road Route Segment Alternatives	May 12, 2017	100% Okay
Chez Brungraber, Griffin Brungraber, Melissa Tu, and Nick Wagner	Spring Canyon Firebreak Route Segment Alternative (Southern Portion) <sup>11</sup>	May 16, 2017	0% to 25% Excellent
Chez Brungraber, Griffin Brungraber, Melissa Tu, and Nick Wagner	Spring Canyon Firebreak Route Segment Alternative (Southern Portion)	May 17, 2017	80% to 0% Excellent
Chez Brungraber, Griffin Brungraber, Darren Burton, and Melissa Tu	West of Aqueduct Road Route Segment Alternative	May 18, 2017	0% to 25% Excellent

<sup>11</sup> Insignia surveyed the northern approximately two-thirds of the Spring Canyon Firebreak Route Segment Alternative in 2015.

<b>Biologist(s)</b>	<b>BRSA</b>	<b>Date</b>	<b>Cloud Cover/ Visibility</b>
Chez Brungraber, Griffin Brungraber, Darren Burton, and Melissa Tu	Non-Miramar Alternative	May 19, 2017	0% Excellent
Chez Brungraber, Griffin Brungraber, Darren Burton, Victor Novik, and Nick Wagner	Non-Miramar Alternative	May 22, 2017	0% Excellent
Chez Brungraber, Griffin Brungraber, Darren Burton, Victor Novik, and Nick Wagner	Non-Miramar Alternative	May 23, 2017	0% to 25% Excellent
Chez Brungraber, Griffin Brungraber, Travis Cooper, Darren Burton, Alicia Hill, Victor Novik, Melissa Tu	Non-Miramar Alternative	May 24, 2017	0% to 50% Excellent
Chez Brungraber, Griffin Brungraber, Travis Cooper, Alicia Hill, Victor Novik, Melissa Tu, and Nick Wagner	Non-Miramar Alternative	May 25, 2017	0% to 100% Good
Chez Brungraber, Griffin Brungraber, Victor Novik, Melissa Tu, and Nick Wagner	Kearny Villa Road Route Segment Alternative	May 26, 2017	0% to 100% Good
Chez Brungraber, Griffin Brungraber, Melissa Tu, and Nick Wagner	Non-Miramar Alternative	May 30, 2017	100% Okay
Melissa Tu and Nick Wagner	Non-Miramar Alternative	May 31, 2017	80% to 100% Okay
Melissa Tu and Nick Wagner	West of Aqueduct Road Route Segment Alternative	June 9, 2017	0% Excellent
Melissa Tu and Nick Wagner	Non-Miramar Alternative	June 13, 2017	0% Excellent
Melissa Tu	MLV 10	June 21, 2017	0% Excellent
<b>Second Round</b>			
Melissa Tu	Minor Design Refinements	June 14, 2017	10% to 0% Excellent
Nick Fisher and Melissa Tu	Minor Design Refinements	June 28, 2017	100% to 50% Good
Travis Cooper and Melissa Tu	Minor Design Refinements	June 29, 2017	100% to 0% Good
Travis Cooper and Melissa Tu	Minor Design Refinements	June 30, 2017	0% to 25% Excellent

<b>Biologist(s)</b>	<b>BRSA</b>	<b>Date</b>	<b>Cloud Cover/ Visibility</b>
Melissa Tu	West of Aqueduct Road	July 4, 2017	5% to 0% Excellent
Melissa Tu and Nick Wagner	West of Aqueduct Road	July 7, 2017	20% to 0% Excellent
Nick Wagner	Kearny Villa Road Route Segment Alternative	July 10, 2017	0% Excellent
Melissa Tu and Nick Wagner	West of Aqueduct Road Route Segment Alternative	July 11, 2017	5% to 0% Excellent
Melissa Tu and Nick Wagner	Non-Miramar Alternative	July 12, 2017	15% to 0% Excellent
Travis Cooper and Melissa Tu	Non-Miramar Alternative	July 13, 2017	100% to 0% Okay
Travis Cooper and Melissa Tu	Non-Miramar Alternative	July 14, 2017	100% to 0% Okay
Audrey Johnson and Melissa Tu	Spring Canyon Firebreak Route Segment Alternative (Southern Portion)	July 17, 2017	30% to 0% Excellent
Travis Cooper and Melissa Tu	Non-Miramar Alternative	July 18, 2017	30% to 0% Excellent
Travis Cooper and Melissa Tu	Non-Miramar Alternative	July 19, 2017	90% to 25% Good

## 4.1 SPECIAL-STATUS PLANT SURVEY RESULTS

Insignia observed 17 special-status plant species within the Addendum BRSA during the 2017 focused surveys for special-status plant species. These include two FE and CE species, six CRPR 1B species, one CRPR 2B species, and eight CRPR 4 species. Table 3: Special-Status Plant Species Observed within the Addendum BRSA presents the BRSA locations and approximate number of individuals observed within each BRSA. Attachment C: Special-Status Plant Species Occurrences Map presents the geographic locations of the special-status plant species observed.

A complete list of all plant taxa observed during the surveys is included in Attachment D: Plant Species Observed. Representative photographs of the special-status plant species observed within the Addendum BRSA are included in Attachment E: Special-Status Plant Species Photographs.

The majority of the special-status plant species identified within the Addendum BRSA are located in the three route segment alternatives and the Non-Miramar Alternative. Insignia documented two special-status plant species within the Minor Design Refinements BRSA. Thread-leaved brodiaea was not observed in the 2015 BRSA or the Addendum BRSA. A summary of the special-status plant species observed in each BRSA is presented in the following subsections.

### 4.1.0 Special-Status Species Summary by Biological Resources Survey Area

#### Minor Design Refinements Biological Resources Survey Area

Insignia biologists observed two CRPR 4 plant species—ashy spike-moss (*Selaginella cinerascens*) and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)—within the Minor Design Refinements BRSA. Biologists mapped a patch of ashy spike-moss within the I-15 Route Refinement, and two southwestern spiny rush individuals were mapped east of the Lake Hodges East Laydown Yard.

#### Kearny Villa Road Route Segment Alternative Biological Resources Survey Area

Five special-status plant species were observed within the Kearny Villa Road Route Segment Alternative BRSA. Insignia mapped approximately 800 FE, CE, and CRPR 1B San Diego mesa mint individuals within one vernal pool south of Harris Plant Road. A CRPR 1B species (Orcutt's brodiaea) and two CRPR 4 species (ashy spike-moss and graceful tarplant [*Holocarpha virgata* ssp. *elongata*]) were also documented in the Kearny Villa Road Route Segment Alternative BRSA.

#### West of Aqueduct Road Route Segment Alternative Biological Resources Survey Area

Eight special-status species were observed within the West of Aqueduct Road Route Segment Alternative BRSA. Insignia observed 10 FE, CE, and CRPR 1B willowy monardella (*Monardella viminea*) individuals within a dry creek bed in San Clemente Canyon. Another four CRPR 1B species (long-spined spineflower [*Chorizanthe polygonoides* var. *longispina*], Nuttall's scrub oak [*Quercus dumosa*], Orcutt's brodiaea, and San Diego goldenstar) and two CRPR 4 species (ashy spike-moss and graceful tarplant) were observed in the West of Aqueduct Road Route Segment Alternative BRSA.

**Table 3: Special-Status Plant Species Observed within the Addendum BRSA**

Plant Species	Status <sup>12</sup>	Number of Plants Identified in Each BRSA				
		Minor Design Refinements	Kearny Villa Road	West of Aqueduct Road	Spring Canyon Firebreak	Non-Miramar Alternative
<b>FE and CE Species</b>						
San Diego mesa mint ( <i>Pogogyne abramsii</i> ) <sup>13</sup>	FE, CE, 1B.1	-	800	-	-	-
Willowy monardella ( <i>Monardella viminea</i> )	FE, CE, 1B.1	-	-	10	-	571
<b>CRPR 1B</b>						
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	1B.2	-	-	-	12	4
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	-	-	432	-	-
Nuttall's scrub oak ( <i>Quercus dumosa</i> )	1B.1	-	-	25	712	-
Orcutt's brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	-	1,404	6,791	-	91
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	-	-	3	3	109
Variegated dudleya ( <i>Dudleya variegata</i> )	1B.2	-	-	-	13	21

<sup>12</sup> CRPR Threat Codes<sup>12</sup>:

- 1: Seriously Endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- 2: Fairly Endangered in California (20 to 80 percent of occurrences threatened)
- 3: Not very Endangered in California (less than 20 percent of occurrences threatened or no current threats known)

<sup>13</sup> The San Diego mesa mint individuals were all within one vernal pool south of Harris Plant Road.

Plant Species	Status <sup>12</sup>	Number of Plants Identified in Each BRSA				
		Minor Design Refinements	Kearny Villa Road	West of Aqueduct Road	Spring Canyon Firebreak	Non-Miramar Alternative
<b>CRPR 2B</b>						
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	-	-	-	60	13
<b>CRPR 4</b>						
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	50	1,131	7,926	13,333	10,322
California black walnut ( <i>Juglans californica</i> )	4.2	-	-	-	-	2
Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	-	-	-	-	18
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	-	-	17	6,674	1,932
Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	-	1,168	1,001	25	6,704
San Diego County viguiera ( <i>Bahiopsis [Viguiera] laciniata</i> )	4.2	-	-	-	25	4
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	2	-	-	-	-
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	-	-	0	670	83

### **Spring Canyon Firebreak Route Segment Alternative Biological Resources Survey Area**

Ten special-status species were observed within the Spring Canyon Firebreak Route Segment Alternative BRSA. Insignia conducted surveys within the Spring Canyon Firebreak Route Segment Alternative BRSA in 2015 and 2017. Biologists observed four CRPR 1B species (decumbent goldenbush [*Isocoma menziesii* var. *decumbens*], Nuttall's scrub oak, San Diego goldenstar, and variegated dudleya [*Dudleya variegata*]), one CRPR 2B species (San Diego barrel cactus [*Ferocactus viridescens*]), and five CRPR 4 species (ashy spike-moss, golden-rayed pentachaeta [*Pentachaeta aurea* ssp. *aurea*], graceful tarplant, San Diego County viguiera [*Bahiopsis* [*Viguiera*] *laciniata*], and western dichondra [*Dichondra occidentalis*]) within the Spring Canyon Firebreak Route Segment Alternative BRSA.

### **Non-Miramar Alternative Biological Resources Survey Area**

Thirteen special-status species were observed within the Non-Miramar Alternative BRSA. Insignia observed approximately 571 willowy monardella individuals within a dry creek bed in Clark Canyon. Biologists observed another five CRPR 1B species (decumbent goldenbush, Nuttall's scrub oak, Orcutt's brodiaea, San Diego goldenstar, and variegated dudleya); one CRPR 2B species (San Diego barrel cactus), and seven CRPR 4 species (ashy spike-moss, California black walnut [*Juglans californica*], Engelmann oak [*Quercus engelmannii*], graceful tarplant, golden-rayed pentachaeta, San Diego County viguiera, and western dichondra) within the Non-Miramar Alternative BRSA.

#### **4.1.1 Special-Status Species Observed**

Thirteen of the 17 special-status plant species found in 2017 were also documented in the 2015 BRSA and are described in more detail in Section 4.2 Special-Status Plant Survey Results of the 2015 Plants Report. Four species—San Diego mesa mint, willowy monardella, variegated dudleya, and California black walnut—were only documented during the 2017 surveys and not were found along the Proposed Project route in 2015. Descriptions of the 17 special-status plant species are provided as follows.

#### **Federally and State-Endangered Species**

Insignia documented two FE and CE plant species in the Addendum BRSA—San Diego mesa mint and willowy monardella.

##### ***San Diego Mesa Mint***

San Diego mesa mint was not documented in the 2015 Proposed Project BRSA. It is an FE, CE, and CRPR 1B.1 annual herb that occurs in vernal pools between 295 and 660 feet in elevation. It has a blooming period of March through July. Vernal pools that support San Diego mesa mint occur in central San Diego County from the City of Del Mar to the City of San Diego, with the majority of the pools occurring within MCAS Miramar and along Kearny Villa Road (USFWS 2010).

##### ***Willowy Monardella***

Willowy monardella was not documented in the 2015 Proposed Project BRSA. It is an FE, CE, and CRPR 1B.1 perennial rhizomatous herb that occurs in alluvial ephemeral washes in

chaparral, coastal scrub habitat, and riparian vegetation between 160 and 740 feet in elevation. It has a blooming period of June through August. Willowy monardella is a narrow endemic species restricted to three watersheds north of the Kearny Mesa area in San Diego County (USFWS 2012).

This species was observed within a dry creek bed in San Clemente Canyon in the West of Aqueduct Road Route Segment Alternative BRSA and a dry creek bed in Clark Canyon within the Non-Miramar Alternative BRSA. Insignia observed approximately 10 individuals within the West of Aqueduct Road Route Segment Alternative BRSA and 571 individual plants within the Non-Miramar Alternative BRSA.

### **California Rare Plant Rank 1B**

Insignia documented six CRPR 1B plant species in the Addendum BRSA, as discussed in the following subsections.

#### ***Decumbent Goldenbush***

Decumbent goldenbush is one of two varieties of Menzie's goldenbush (*Isocoma menziesii*) observed in the Addendum BRSA. The majority of the Menzie's goldenbush in the Addendum BRSA was variety menziessi. Insignia mapped 16 decumbent goldenbush individuals within the Spring Canyon Firebreak Route Segment Alternative BRSA and the Non-Miramar Alternative BRSA.

#### ***Long-Spined Spineflower***

Long-spined spineflower typically blooms from April to July, but was already senesced in May when the first round of surveys was conducted within the West of Aqueduct Road Route Segment Alternative BRSA. The individuals in this area were within sparsely vegetated areas and could be identified and mapped. Insignia did not observe long-spined spineflower in the Spring Canyon Firebreak Route Segment Alternative BRSA, but long-spined spineflower has been previously documented in the area (SDG&E 2017).

#### ***Nuttall's Scrub Oak***

The route segment alternatives BRSAs are situated within an area of overlap between the geographic range of Nuttall's scrub oak and the common scrub oak (*Quercus berberidifolia*). Nuttall's scrub oak within the Addendum BRSA exhibited characteristics indicative of hybridization with the common scrub oak. The 2015 Plants Report provides additional details on identifying common scrub oak and Nuttall's scrub oak. To ensure consistency in mapping Nuttall's scrub oak in the field, specimens were determined to be Nuttall's scrub oak only if spreading two- to six-rayed hairs were visible with or without the use of a hand lens on the underside of the leaves. Insignia mapped Nuttall's scrub oaks within the Spring Canyon Firebreak Route Segment Alternative BRSA in 2015 and within the West of Road Aqueduct Route Segment Alternative BRSA in 2017.

#### ***Orcutt's brodiaea***

Orcutt's brodiaea occurs in the Addendum BRSA and is locally common in the clay soils within the Kearny Villa Road Route Segment Alternative BRSA, the West of Aqueduct Road Route

Segment Alternative BRSA, and the Proposed Project route from Pomerado Road through MCAS Miramar to its terminus.

### ***San Diego Goldenstar***

San Diego goldenstar typically blooms from April to May. Two San Diego goldenstar individuals were observed in the Spring Canyon Firebreak Route Segment Alternative BRSA during the initial habitat assessment survey on May 3, 2017. Insignia observed common goldenstar (*Bloomeria crocea*) in the Minor Design Refinements BRSA on June 28, 2017 during the second round of special-status plant species surveys. Common goldenstar typically blooms from April to June.

During the first round of special-status plant species surveys in the Non-Miramar Alternative in May, goldenstar blooms were senesced. Insignia mapped the senesced goldenstar individuals in the Non-Miramar Alternative as San Diego goldenstar. The mapped locations overlapped with historic locations of San Diego goldenstar (CDFW 2017a) (SANDAG 2017).

### ***Variegated Dudleya***

Variegated dudleya was not documented in the 2015 Proposed Project BRSA. It is a CRPR 1B.2 perennial herb that occurs in clay soils in chaparral, cismontane woodland, coastal scrub, grassland, and vernal pool habitats between 10 and 1,900 feet in elevation. It has a blooming period of April through June, though the leaves are identifiable after the rainy season and prior to the presence of flowers. Insignia observed this species within native and non-native grassland communities in the Spring Canyon Firebreak Route Segment Alternative and Non-Miramar Alternative BRSA and documented approximately 29 individual plants.

### **California Rare Plant Rank 2B**

Insignia documented one CRPR 2B plant species in the Addendum BRSA—San Diego barrel cactus.

### ***San Diego Barrel Cactus***

Insignia documented San Diego barrel cactus in the Spring Canyon Firebreak Route Segment Alternative and Non-Miramar Alternative BRSA.

### **California Rare Plant Rank 4**

Insignia documented eight CRPR 4 plant species in the Addendum BRSA. Insignia observed many of the CRPR 4 species at the landscape level (i.e., hundreds or thousands of individuals) within the Addendum BRSA. Table 3: Special-Status Plant Species Observed within the Addendum BRSA and Attachment C: Special-Status Plant Species Occurrences Map locations likely underestimate the number of ashy spike-moss, golden-rayed pentachaeta, graceful tarplant, and western dichondra individuals. Ashy spike-moss is difficult to count on an individual level, and most occurrences within the Addendum BRSA covered a large area. Insignia mapped the golden-rayed pentachaeta near the end of its 2017 blooming period and mapped graceful tarplant during the second round of surveys, near the beginning of its 2017 blooming period.

### ***Ashy Spike-Moss***

Insignia documented ashy spike-moss throughout many of the undisturbed native habitats within the West of Aqueduct Road Route Segment Alternative, Spring Canyon Firebreak Route Segment Alternative, and the Non-Miramar Alternative BRSA.

### ***California Black Walnut***

In 2015, Insignia did not document California black walnut in the BRSA. It is a CRPR 4.2 perennial deciduous tree that occurs on hillsides and canyons in chaparral, cismontane woodland, and riparian woodland between 160 and 1,300 feet in elevation. It has a blooming period of March through May. In 2017, Insignia documented two California black walnut trees in southern portion of the Non-Miramar Alternative near SR-52 and Mast Boulevard.

### ***Engelmann Oak***

Insignia mapped 18 Engelmann oak individuals at Goodan Ranch Sycamore Canyon Preserve within the Non-Miramar Alternative BRSA. A native stand of nine Engelmann oaks were documented within a coast live oak woodland and along an unnamed ephemeral creek within Goodan Ranch. Nine planted Engelmann oaks occur within Goodan Ranch Sycamore Canyon Preserve, four occur outside the ranger's station, and five occur within a post-2003 Cedar Fire restoration area (County of San Diego 2013).

### ***Golden-Rayed Pentachaeta***

Golden-rayed pentachaeta typically blooms from March to July. Insignia mapped this species in the Spring Canyon Firebreak Route Segment Alternative and the Non-Miramar Alternative BRSA in May and June during the first round of special-status plant species surveys. However, the number of golden-rayed pentachaeta observed during the survey may not accurately reflect the actual population size, due to low humidity and high temperatures east of I-15 during the spring. These conditions may have resulted in a shorter-than-average blooming period.

### ***Graceful Tarplant***

According to CNPS, graceful tarplant begins blooming in May. Within the Addendum BRSA, graceful tarplant did not begin blooming until June. Some tarplant annuals had sprouted in May and could be identified vegetatively, so Insignia mapped them during the first round of special-status plant species surveys. However, Insignia mapped most of the graceful tarplant individuals during the second round of special-status plant species surveys in June and July, and some individuals still had not bloomed. Graceful tarplant was widespread within the Kearny Villa Road, West of Aqueduct Road, and Spring Canyon Firebreak route segment alternatives BRSA, as well as the Non-Miramar Alternative BRSA.

### ***San Diego County Viguiera***

Twenty-nine San Diego County viguiera individuals were mapped in the Addendum BRSA. Insignia mapped 25 individuals near Pomerado Road within the Spring Canyon Route Segment Alternative in 2015 and four individuals along Scripps Poway Parkway within the Non-Miramar Alternative in 2017. San Diego County viguiera occurs along Kearny Villa Road south of the Addendum BRSA.

***Southwestern Spiny Rush***

Southwestern spiny rush was documented within the Minor Design Refinements BRSA east of the Lake Hodges East Laydown Yard.

***Western Dichondra***

Insignia mapped western dichondra, a small rhizomatous herb that usually grows in shady areas under larger shrubs, in the Spring Canyon Firebreak Route Segment Alternative and Non-Miramar Alternative BRSAs.

**4.2 THREAD-LEAVED BRODIAEA RESULTS**

No thread-leaved brodiaea was observed in the Addendum BRSA or within areas of the Proposed Project that were resurveyed specifically for this species.<sup>14</sup> Thread-leaved brodiaea is a perennial herb with underground bulb-like storage stems in the Themidaceae family. Individual plants are less than 16 inches tall, with narrow leaves and saucer-shaped violet flowers arranged in a loose umbel. Thread-leaved brodiaea occurs in Southern California from the foothills of the San Gabriel Mountains in Los Angeles County, east to Arrowhead Hot Springs in the western foothills of the San Bernardino Mountains in San Bernardino County, and south through eastern Orange County and western Riverside County to central San Diego County.

This species is usually found in herbaceous plant communities that occur in open areas on clay soils, soils with a clay subsurface, or clay lenses within loamy, silty loam, loamy sand, silty deposits with cobbles, or alkaline soils; depending on the soils series, they may range in elevation from 100 to 2,500 feet, depending on soil series.

Thread-leaved brodiaea was not observed and is not expected to occur in the Addendum BRSA. The Proposed Project and Addendum BRSAs are east and south of the documented range of this species. The species is known to occur in San Diego County on Camp Pendleton; in the Cleveland National Forest; in the cities of Carlsbad, Oceanside, and San Marcos; and in the communities of Rancho Santa Fe and 4S Ranch (USFWS 2009, 2011). The Proposed Project is approximately two miles east of the nearest occupied habitat. Revised critical habitat occurs in the City of San Marcos and the community of 4S Ranch, which are approximately four miles west of the Proposed Project (USFWS 2011).

**5 – DISCUSSION**

Based on the seasonal variation and blooming periods of the special-status species that occur within the Proposed Project and Addendum BRSAs, Insignia biologists determined the 2017 survey windows. The majority of the special-status plant species documented with the Addendum BRSA bloomed from March to August in 2017. Surveys of the Minor Design Refinements BRSA began in April, and the surveys of the route segment alternatives and Non-Miramar Alternative BRSAs began in May. Mainline Valve 10 was surveyed in June.

<sup>14</sup>Based on a review of the soils in the Proposed Project area, it was determined that the workspace surrounding MLV 10 had potential for thread-leaved brodiaea, and therefore it was resurveyed.

## 5.0 SPECIAL-STATUS PLANT SPECIES

Insignia documented federally listed plant species within the Kearny Villa Road and West of Aqueduct Road route segment alternative BRSA and the Non-Miramar Alternative BRSA.

The West of Aqueduct Road Route Segment Alternative BRSA is within native habitat and is occupied with large populations of Orcutt's brodiaea and other special-status plant species. Although numerous special-status plant species occur within the Kearny Villa Road Route Segment Alternative BRSA, most of the workspace would be within paved roads. The majority of the Spring Canyon Firebreak Route Segment Alternative would be within a dirt road and outside of native habitat.

Two FE species—Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) and San Diego button-celery (*Eryngium aristulatum* var. *parishii*)—occur within MCAS Miramar near the Addendum BRSA. Del Mar manzanita, an FE shrub, occurs in chaparral vegetation near the Spring Canyon Firebreak Route Segment Alternative BRSA. San Diego button-celery (*Eryngium aristulatum* var. *parishii*), an FE and CE annual or perennial herb, occurs in vernal pools near the Kearny Villa Road Route Segment Alternative BRSA (U.S. Marine Corps [USMC] 2017).

Due to the seasonal variation in blooming periods for special-status annual plants species, additional pre-construction surveys are recommended within suitable habitat in the Proposed Project workspaces and other potential impact areas.

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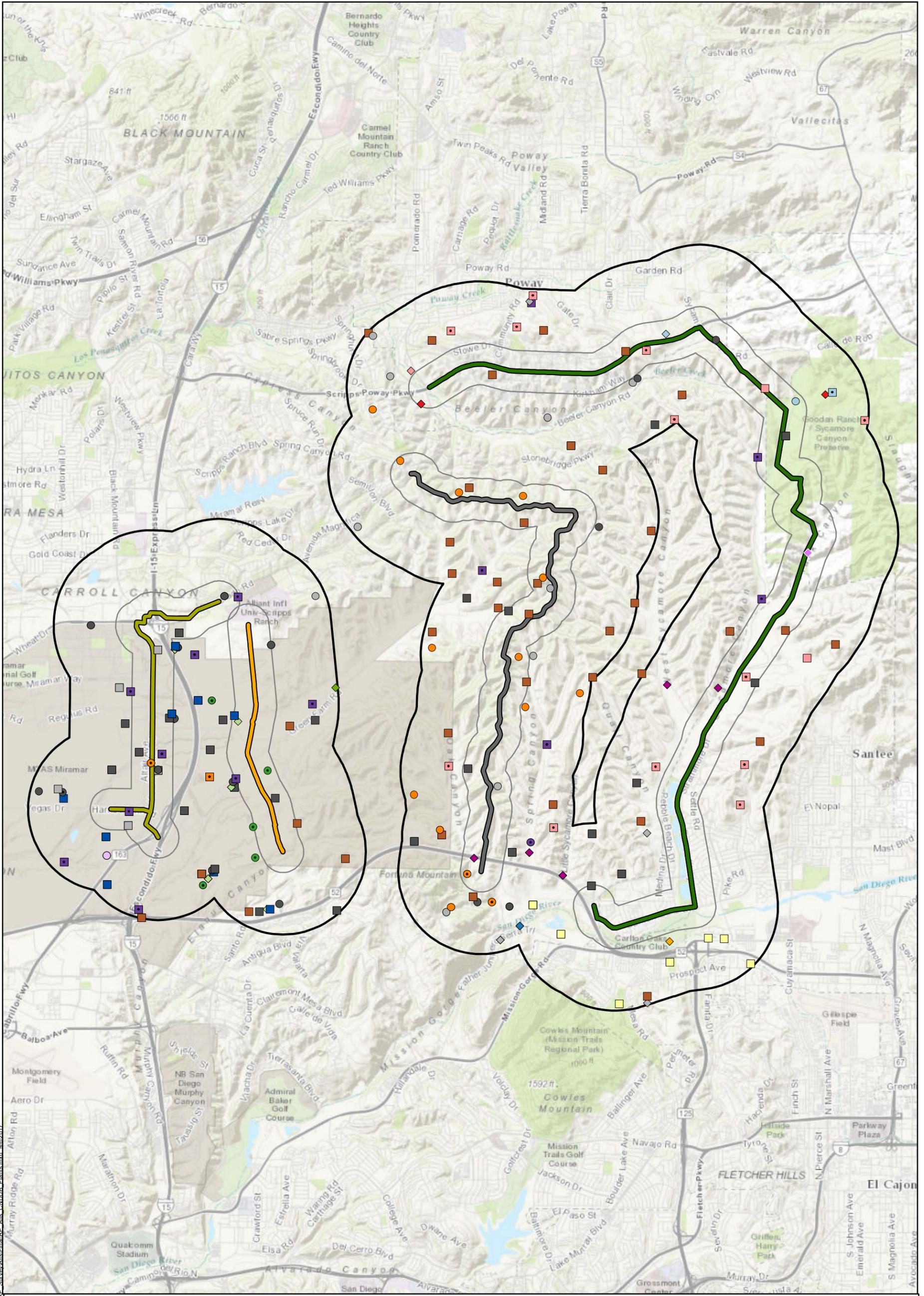
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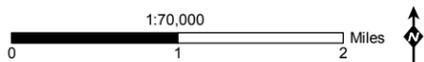
**ATTACHMENT A: CNDDDB OCCURRENCES FOR SPECIAL-STATUS PLANT SPECIES**





Attachment A: CNDDDB Occurrences for Special-Status Plant Species Map

Pipeline Safety & Reliability Project



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**ATTACHMENT B: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO  
OCCUR**



## ATTACHMENT B: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR

Species Name	Federal, State, and CRPR Listing <sup>1</sup>	Occurrence <sup>2</sup>
<b>BRYOPHYTES</b>		
<b>Liverworts</b>		
Bottle liverwort ( <i>Sphaerocarpos drewei</i> )	1B.1	Not Present
<b>Mosses</b>		
California screwmoss ( <i>Tortula californica</i> )	1B.2	Not Present
Coastal triquetrella ( <i>Triquetrella californica</i> )	1B.2	Not Present
<b>LYCOPHYTES</b>		
<b>Selaginellaceae – Spike Moss Family</b>		
Ashy spike-moss ( <i>Selaginella cinerascens</i> )	4.1	Present
<b>GYMNOSPERMS</b>		
<b>Cupressaceae – Cypress Family</b>		
Tecate cypress ( <i>Hesperocyparis forbesii</i> )	1B.1	Not Present
<b>Pinaceae – Pine Family</b>		
Torrey pine ( <i>Pinus torreyana</i> ssp. <i>torreyana</i> )	1B.2	Not Present
<b>ANGIOSPERMS – DICOTS</b>		
<b>Apiaceae (Umbelliferae) – Carrot Family</b>		
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> )	FE, CE, 1B.1	Not Present

<sup>1</sup> Explanation of federal and state listing codes:

**Federal listing codes:**

- FE: Federally endangered
- FT: Federally threatened

**California listing codes:**

- CE: State listed as endangered
- CT: State listed as threatened
- CR: State listed as rare

**California Rare Plant Ranks (CRPRs):**

- 1B: Rare or endangered in California and elsewhere
- 2B: Rare or endangered in California, more common elsewhere
- 3: A review list for plants which more scientific information is needed
- 4: Plants of limited distribution; a watch list

**CRPR Threat Codes:**

- .1: Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- .2: Fairly endangered in California (20 to 80 percent of occurrences threatened)

<sup>2</sup> Only species with a potential to occur are included in this table. Table 4: Special-Status Plant Species with Potential to Occur in the 2015 Biological Resources Technical Report includes additional California Natural Diversity Database species within five miles of the Biological Resources Survey Area (BRSA) and habitat details for each species. The occurrence column includes present, not-present, or not-expected based on 2015 and 2017 surveys.

Species Name	Federal, State, and CRPR Listing <sup>1</sup>	Occurrence <sup>2</sup>
<b>Asteraceae (Compositae) – Sunflower Family</b>		
Singlewhorl burrobrush ( <i>Ambrosia monogyra</i> )	2B.2	Not Present
San Diego ambrosia ( <i>Ambrosia pumila</i> )	FE, 1B.1	Not Present
San Diego sagewort <sup>3</sup> ( <i>Artemisia palmeri</i> )	4.2	Not Present
Encinitas Baccharis ( <i>Baccharis vanessae</i> )	FT, CE, 1B.1	Not Present
San Diego County viguiera ( <i>Bahiopsis laciniata</i> )	4.2	Present
Southern tarplant ( <i>Centromadia parryi</i> ssp. <i>australis</i> )	1B.1	Not Present
Smooth tarplant ( <i>Centromadia pungens</i> ssp. <i>laevis</i> )	1B.1	Not Present
San Diego sand aster ( <i>Corethrogyne filaginifolia</i> var. <i>incana</i> )	1B.1	Not Present
Otay tarplant ( <i>Deinandra conjugens</i> )	FT, CE, 1B.1	Not Present
Palmer's goldenbush ( <i>Ericameria palmeri</i> var. <i>palmeri</i> )	1B.1	Not Present
San Diego gum plant ( <i>Grindelia hallii</i> )	1B.2	Not Present
Orcutt's hazardia ( <i>Hazardia orcuttii</i> )	CT, 1B.1	Not Present
Graceful tarplant ( <i>Holocarpha virgata</i> ssp. <i>elongata</i> )	4.2	Present
Decumbent goldenbush ( <i>Isocoma menziesii</i> var. <i>decumbens</i> )	1B.2	Present
San Diego marsh-elder ( <i>Iva hayesiana</i> )	2B.2	Not Present
Coulter's goldfields ( <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> )	1B.1	Not Present
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpa</i> )	4.2	Not Present
Golden-rayed pentachaeta ( <i>Pentachaeta aurea</i> ssp. <i>aurea</i> )	4.2	Present
White rabbit-tobacco ( <i>Pseudognaphalium leucocephalum</i> )	2B.2	Not Present
Chaparral ragwort ( <i>Senecio aphanactis</i> )	2B.2	Not Present
<b>Beberidaceae – Barberry Family</b>		
Nevin's barberry ( <i>Berberis nevinii</i> )	FE, CE, 1B.1	Not Present
<b>Boraginaceae – Borage Family</b>		
Wiggin's cryptantha ( <i>Cryptantha wigginsii</i> )	1B.2	Not Expected <sup>4</sup>
Mud nama ( <i>Nama stenocarpa</i> )	2B.2	Not Present
<b>Cactaceae – Cactus Family</b>		
Golden-spined cereus ( <i>Bergerocactus emoryi</i> )	2B.2	Not Present

<sup>3</sup> This species was documented in the BRSA near Avenue of the Nations and Pomerado Road.

<sup>4</sup> Wiggin's cryptantha occurs west of the Addendum BRSA.

Species Name	Federal, State, and CRPR Listing <sup>1</sup>	Occurrence <sup>2</sup>
Snake cholla ( <i>Cylindropuntia californica</i> var. <i>californica</i> )	1B.1	Not Present
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	2B.1	Present
<b>Chenopodiaceae – Goosefoot Family</b>		
Coulter’s saltbush ( <i>Atriplex coulteri</i> )	1B.2	Not Present
South Coast saltscale ( <i>Atriplex pacifica</i> )	1B.2	Not Present
<b>Convolvulaceae – Morning-Glory Family</b>		
Western dichondra ( <i>Dichondra occidentalis</i> )	4.2	Present
<b>Crassulaceae – Stonecrop Family</b>		
Variegated dudleya ( <i>Dudleya variegata</i> )	1B.2	Present
Sticky dudleya ( <i>Dudleya viscida</i> )	1B.2	Not Present
<b>Ericaceae – Heath Family</b>		
Del Mar manzanita ( <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> )	FE, 1B.1	Not Present
Rainbow manzanita ( <i>Arctostaphylos rainbowensis</i> )	1B.1	Not Present
Summer holly ( <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> )	1B.2	Not Present
<b>Euphorbiaceae – Spurge Family</b>		
Cliff spurge ( <i>Euphorbia misera</i> )	2B.2	Not Present
<b>Fabaceae – Legume Family</b>		
Dean’s milkvetch ( <i>Astragalus deanei</i> )	1B.1	Not Present
<b>Fagaceae – Oak Family</b>		
Cedros Island oak ( <i>Quercus cedrosensis</i> )	2B.2	Not Present
Nuttall’s scrub oak ( <i>Quercus dumosa</i> )	1B.1	Present
Engelmann oak ( <i>Quercus engelmannii</i> )	4.2	Present
<b>Geraniaceae – Geranium Family</b>		
Round-leaved filaree ( <i>California macrophylla</i> )	1B.1	Not Present
<b>Juglandaceae – Walnut Family</b>		
California black walnut ( <i>Juglans californica</i> )	4.2	Present
<b>Lamiaceae – Mint Family</b>		
San Diego thorn-mint ( <i>Acanthomintha ilicifolia</i> )	FT, CE, 1B.1	Not Present
San Miguel savory ( <i>Clinopodium chandleri</i> )	1B.2	Not Expected <sup>5</sup>

<sup>5</sup> San Miguel savory occurs east and south of the Addendum BRSA.

Species Name	Federal, State, and CRPR Listing <sup>1</sup>	Occurrence <sup>2</sup>
Gander's pitcher sage ( <i>Lepechinia ganderi</i> )	1B.3	Not Present
Heart-leaved pitcher sage ( <i>Lepechinia cardiophylla</i> )	1B.2	Not Present
Intermediate monardella ( <i>Monardella hypoleuca</i> ssp. <i>intermedia</i> )	1B.3	Not Expected <sup>6</sup>
Felt-leaved monardella ( <i>Monardella hypoleuca</i> ssp. <i>lanata</i> )	1B.2	Not Present
Willow monardella ( <i>Monardella viminea</i> )	FE, CE, 1B.1	Present
San Diego mesa mint ( <i>Pogogyne abramsii</i> )	FE, CE, 1B.1	Present
<b>Malvaceae – Mallow Family</b>		
Mexican flannelbush ( <i>Fremontodendron mexicanum</i> )	FE, CR, 1B.1	Not Present
<b>Montiaceae – Miner's Lettuce Family</b>		
Brewer's calandrinia ( <i>Calandrinia breweri</i> )	4.2	Not Present
<b>Nyctaginaceae – Four O'Clock Family</b>		
Chaparral sand-verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	1B.1	Not Expected <sup>7</sup>
<b>Onagraceae – Evening Primrose Family</b>		
Delicate clarkia ( <i>Clarkia delicata</i> )	1B.3	Not Present
<b>Picrodendraceae – Bitter-Tree Family</b>		
Parry's tetracoccus <sup>8</sup> ( <i>Tetracoccus dioicus</i> )	1B.2	Not Present
<b>Plantaginaceae – Plantain Family</b>		
Purple stemodia ( <i>Stemodia durantifolia</i> )	2B.1	Not Present
<b>Polemoniaceae – Phlox Family</b>		
Spreading navarretia ( <i>Navarretia fossalis</i> )	1B.1	Not Present
Prostrate vernal pool navarretia ( <i>Navarretia prostrata</i> )	1B.1	Not Present
<b>Polygonaceae – Buckwheat Family</b>		
Long-spined spineflower ( <i>Chorizanthe polygonoides</i> var. <i>longispina</i> )	1B.2	Present
<b>Ranunculaceae – Buttercup Family</b>		
Little mousetail ( <i>Myosurus minimus</i> ssp. <i>apus</i> )	3.1	Not Present
<b>Rhamnaceae – Buckthorn Family</b>		

<sup>6</sup> Intermediate monardella occurs northwest of the northern portion of the Addendum BRSA.

<sup>7</sup> Chaparral sand-verbena occurs north and west of the northern portion of the Addendum BRSA.

<sup>8</sup> This species was documented in the BRSA near Interstate 15 in the community of Bonsall.

Species Name	Federal, State, and CRPR Listing <sup>1</sup>	Occurrence <sup>2</sup>
California adolphia <sup>9</sup> ( <i>Adolphia californica</i> )	2B.1	Not Present
Lakeside ceanothus ( <i>Ceanothus cyaneus</i> )	1B.2	Not Present
Otay Mountain ceanothus ( <i>Ceanothus otayensis</i> )	1B.2	Not Expected
Wart-stemmed ceanothus ( <i>Ceanothus verrucosus</i> )	2B.2	Not Expected <sup>10</sup>
<b>Rosaceae – Rose Family</b>		
Mesa horkelia ( <i>Horkelia cuneata</i> var. <i>puberula</i> )	1B.1	Not Expected <sup>11</sup>
Ramona horkelia ( <i>Horkelia truncata</i> )	1B.3	Not Present
<b>ANGIOSPERMS – MONOCOTS</b>		
<b>Juncaceae – Rush Family</b>		
Southwestern spiny rush ( <i>Juncus acutus</i> ssp. <i>leopoldii</i> )	4.2	Present
Santa Lucia dwarf rush ( <i>Juncus luciensis</i> )	1B.2	Not Expected <sup>12</sup>
<b>Liliaceae – Lily Family</b>		
Dunn’s mariposa lily ( <i>Calochortus dunnii</i> )	CR,1B.2	Not Present
<b>Poaceae – Grass Family</b>		
California Orcutt grass ( <i>Orcuttia californica</i> )	FE, CE,1B.1	Not Present
<b>Ruscaceae – Butcher’s Broom Family</b>		
Chaparral nolina ( <i>Nolina cismontane</i> )	1B.2	Not Present
<b>Themidaceae – Brodiaea Family</b>		
San Diego goldenstar ( <i>Bloomeria clevelandii</i> )	1B.1	Present
Thread-leaved brodiaea ( <i>Brodiaea filifolia</i> )	FT, CE,1B.1	Not Present
Orcutt’s brodiaea ( <i>Brodiaea orcuttii</i> )	1B.1	Present

<sup>9</sup> This species was documented in the BRSA near Pomerado Road at milepost 31.

<sup>10</sup> Wart-stemmed ceanothus occurs near Lake Hodges just west of the Addendum BRSA.

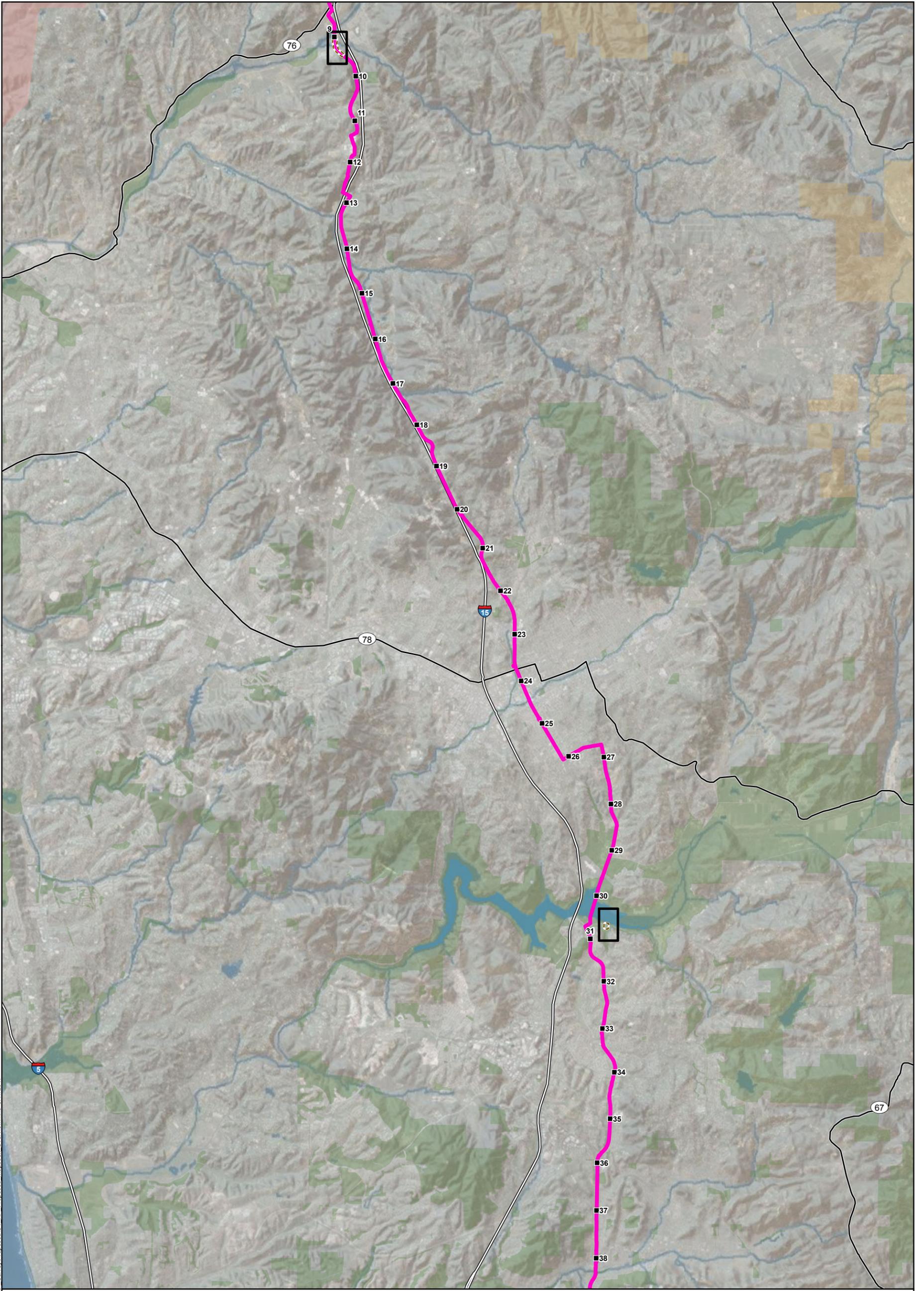
<sup>11</sup> Mesa horkelia occurs north of the Addendum BRSA.

<sup>12</sup> In San Diego County, Santa Lucia dwarf rush only occurs in Cuyamaca Rancho State Park.



**ATTACHMENT C: SPECIAL-STATUS PLANT SPECIES OCCURRENCES MAP**

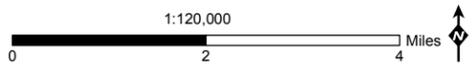




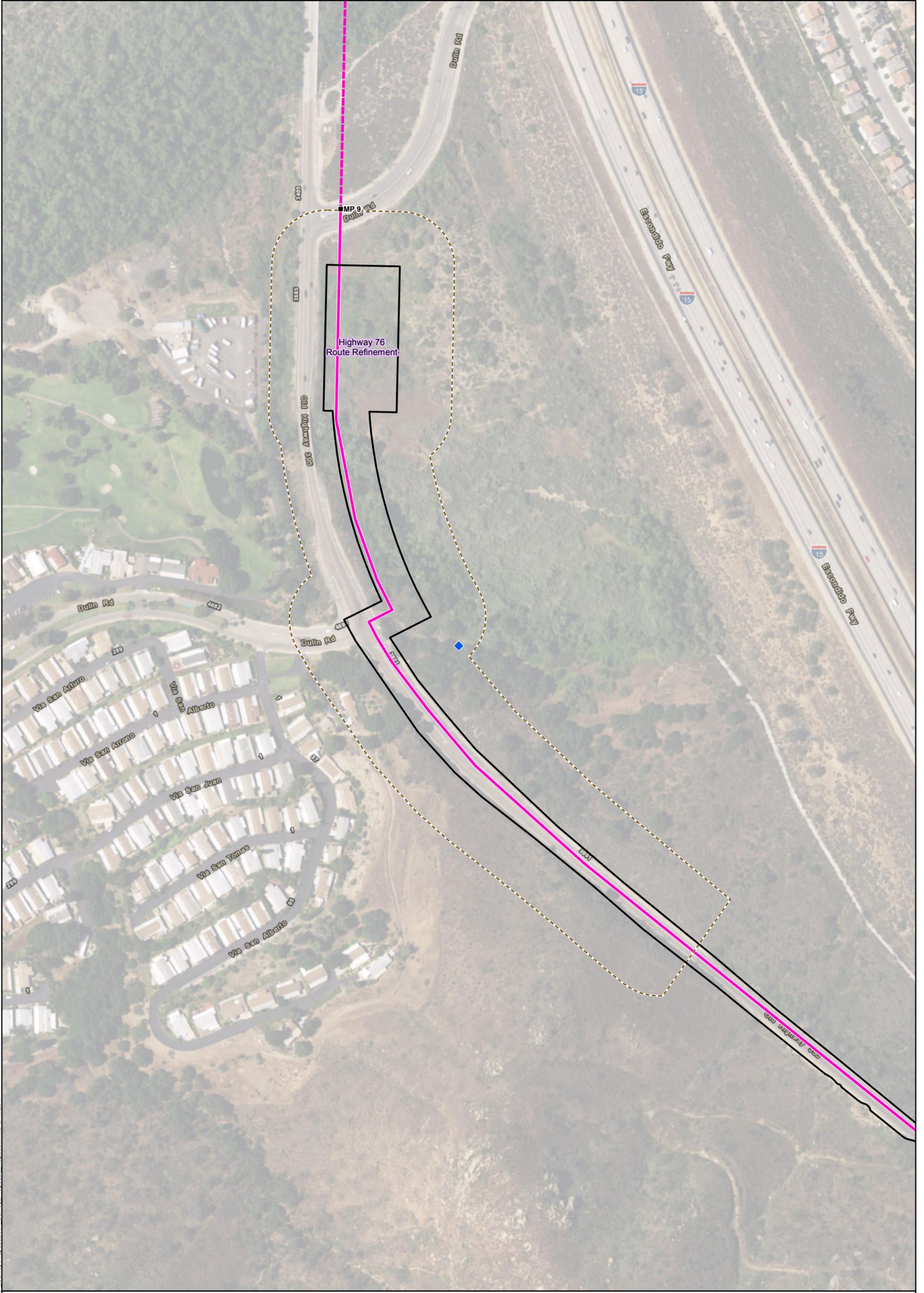
**Attachment C-1: Minor Design Refinements Overview Map**

**Pipeline Safety & Reliability Project**

- Milepost
- Proposed Project Route
- Mapbook Extent
- Biological Resources Survey Area

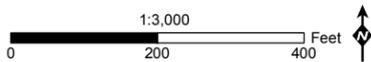
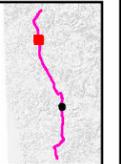


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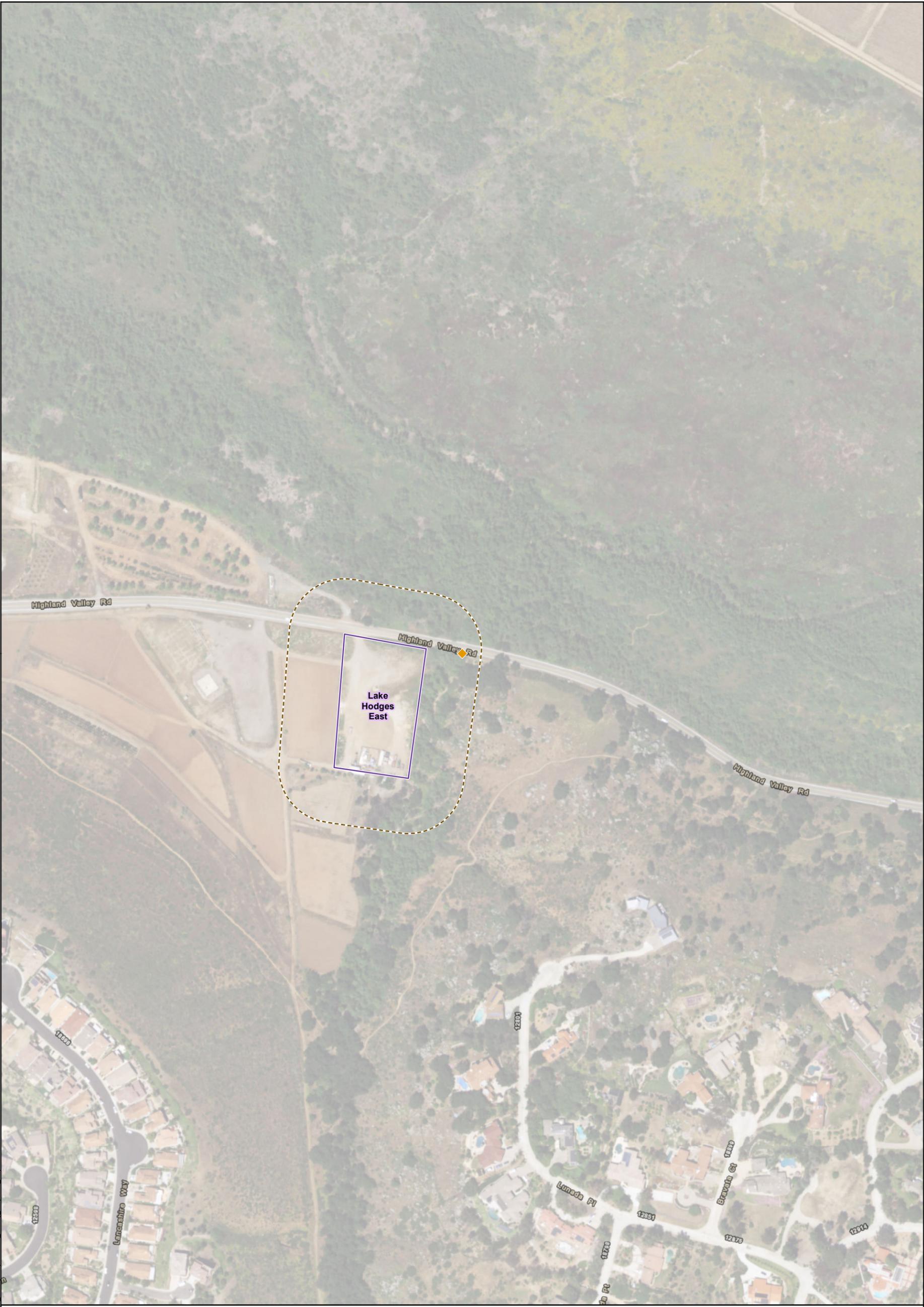


Attachment C-1: Special-Status Plant Species Occurrences Map 1 of 2

- Milepost
- PSRP Alignment
- Proposed Trenchless
- Temporary Impacts
- Workspace
- Biological Resources Survey Area
- Ashy spike-moss



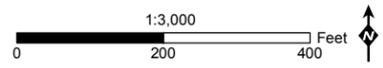
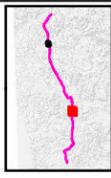
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Attachment C-1: Special-Status Plant Species Occurrences Map 2 of 2

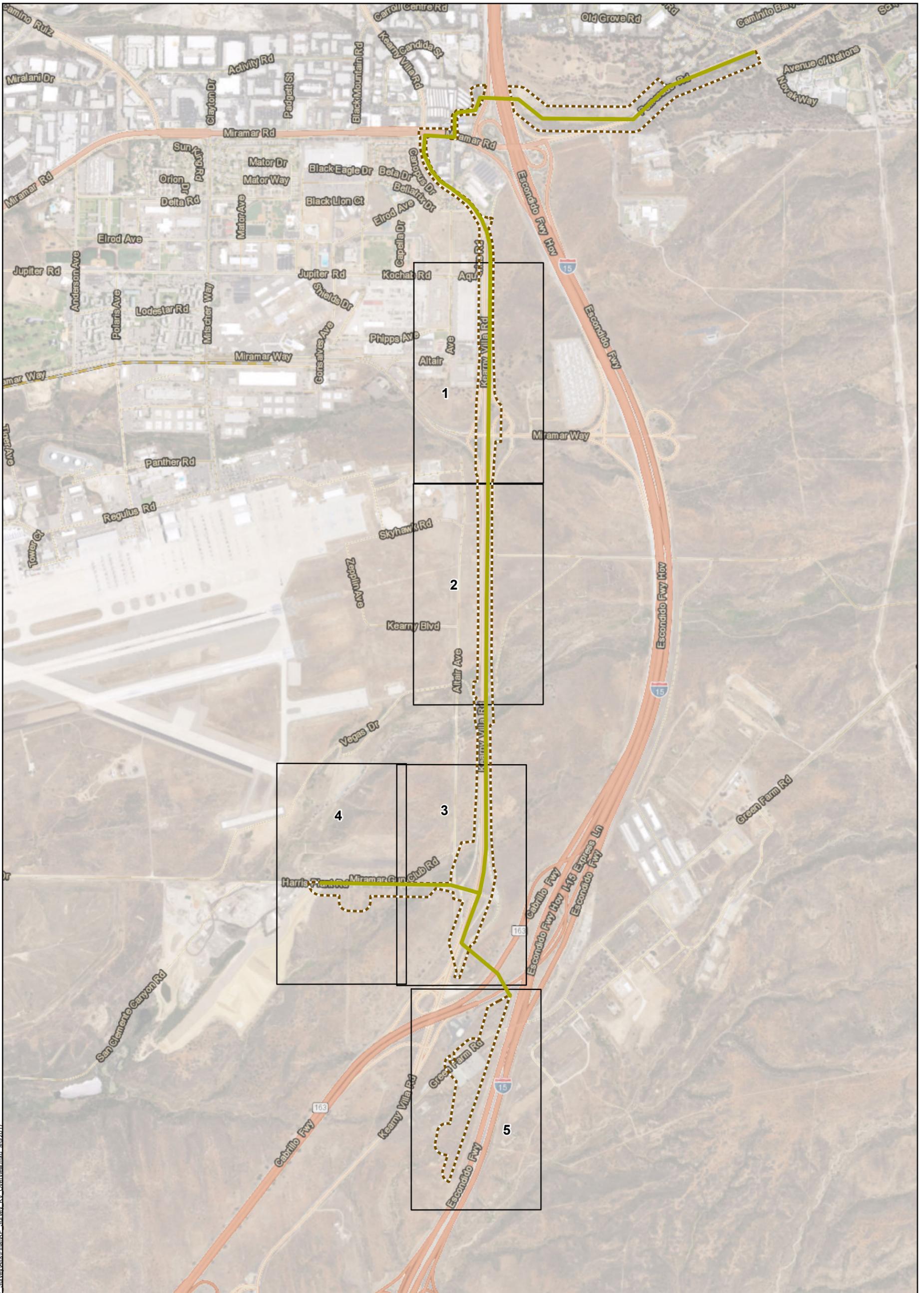
Pipeline Safety & Reliability Project

Temporary Impacts  
 Biological Resources Survey Area    
 ◆ Southwestern spiny rush  
 Laydown Area



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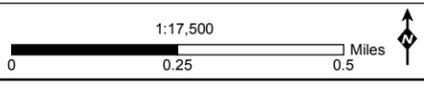




**Attachment C-2: Kearny Villa Road Alternative Segment Overview Map**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Biological Resources Survey Area
- Mapbook Extent



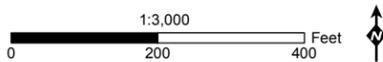
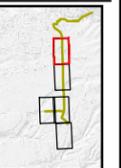
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Attachment C-2: Kearny Villa Road Special-Status Plant Species Occurrences Map 1 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- ◆ Orcutt's brodiaea
- Orcutt's brodiaea
- Biological Resources Survey Area

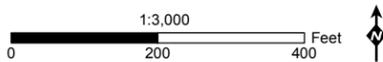
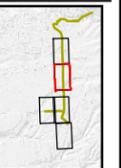




Attachment C-2: Kearny Villa Road Special-Status Plant Species Occurrences Map 2 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Graceful tarplant
- Graceful tarplant
- Biological Resources Survey Area
- ◆ Orcutt's brodiaea
- Orcutt's brodiaea

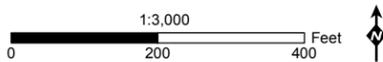
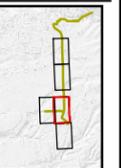




Attachment C-2: Kearny Villa Road Special-Status Plant Species Occurrences Map 3 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Biological Resources Survey Area
- Graceful tarplant
- ◆ Orcutt's brodiaea
- Graceful tarplant
- ◆ Orcutt's brodiaea



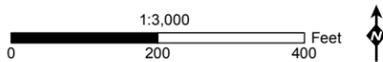
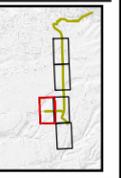
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Attachment C-2: Kearny Villa Road Special-Status Plant Species Occurrences Map 4 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- ◆ Orcutt's brodiaea
- Ashy spike-moss
- Biological Resources Survey Area



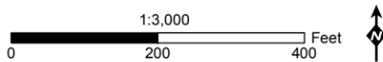
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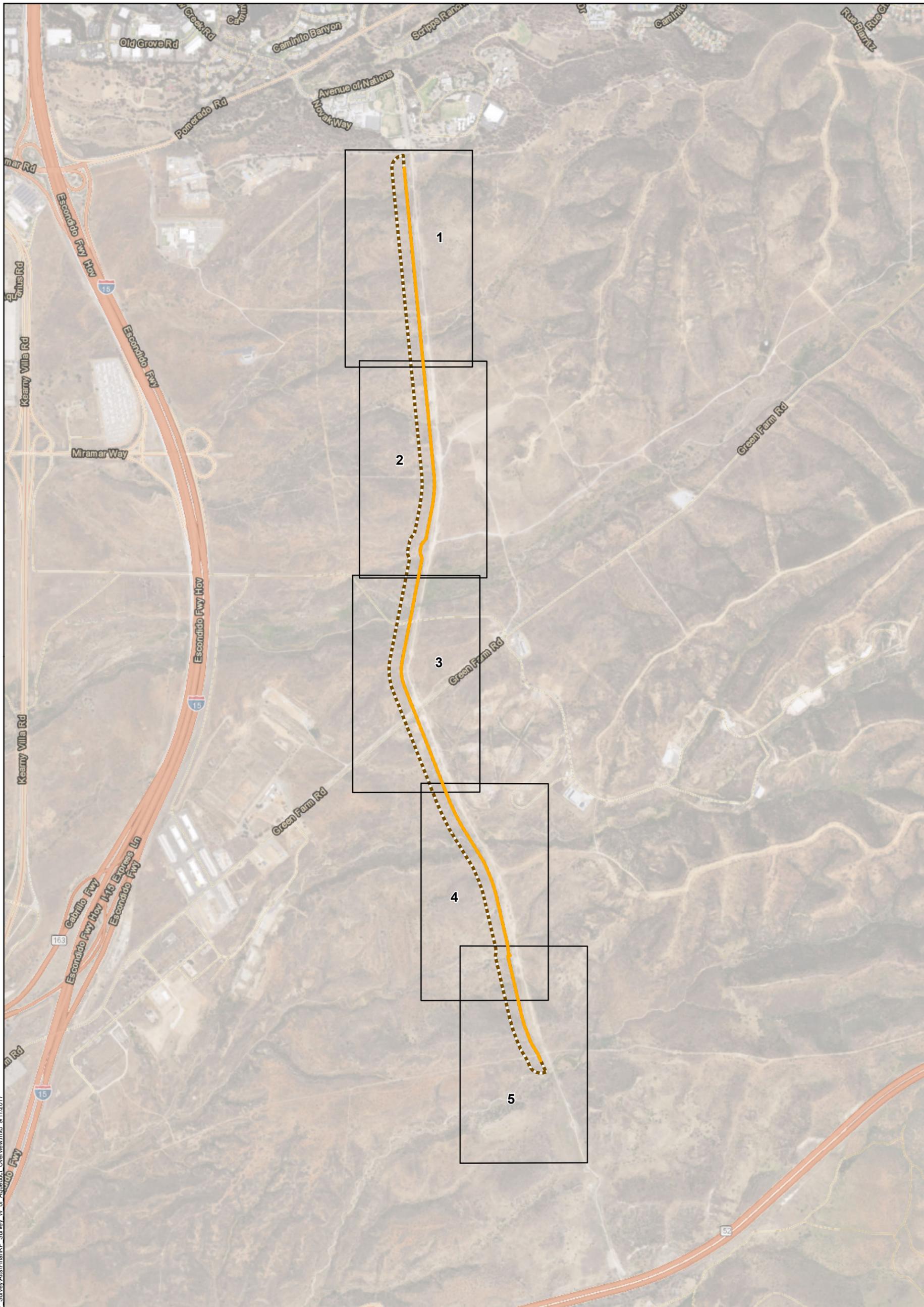


Attachment C-2: Kearny Villa Road Special-Status Plant Species Occurrences Map 5 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Ashy spike-moss
- ◆ Orcutt's brodiaea
- Biological Resources Survey Area
- ◆ Orcutt's brodiaea



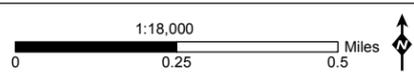


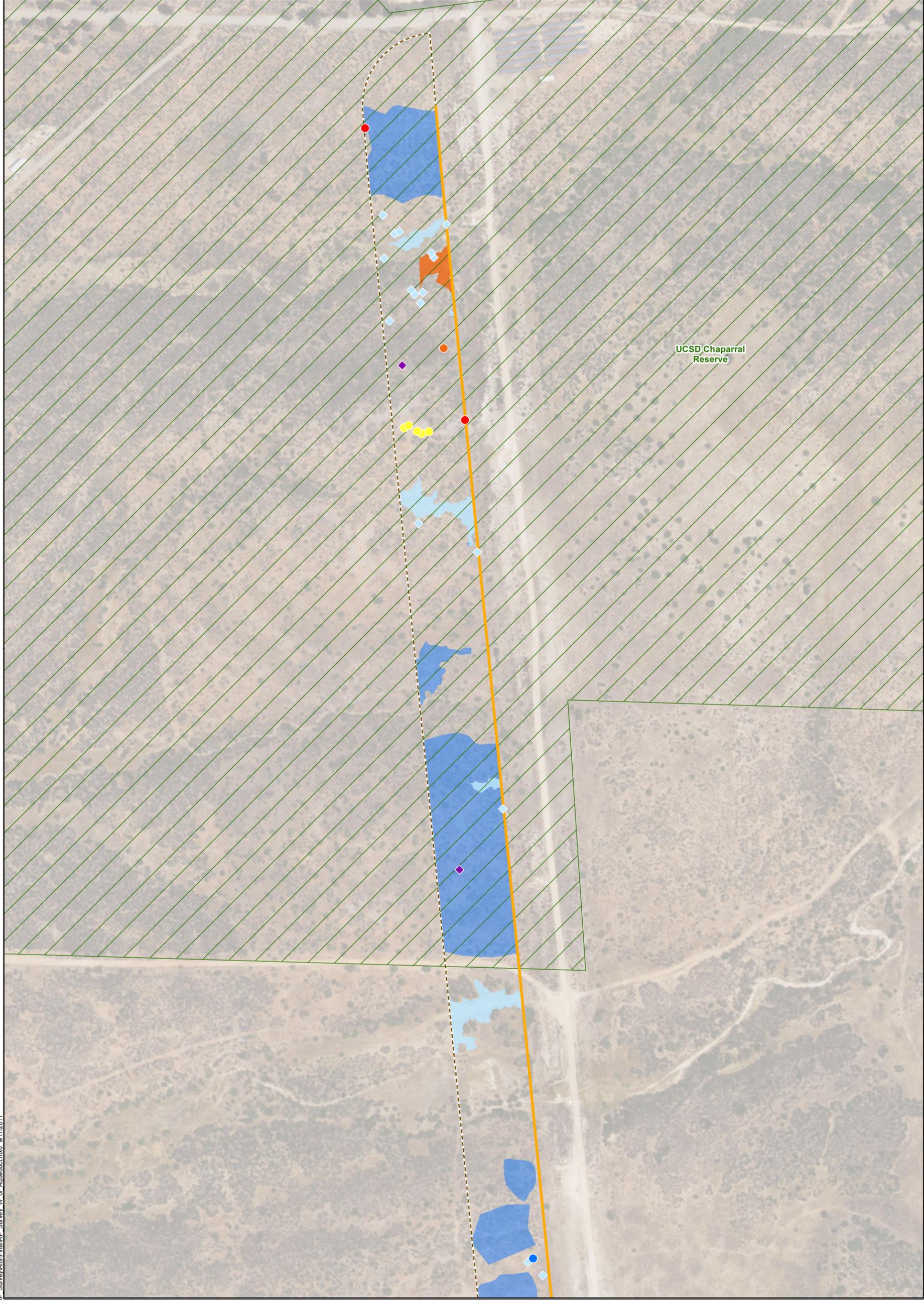
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**Attachment C-3: West of Aqueduct Road Route Segment Alternative Overview Map**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Biological Resources Survey Area
- Mapbook Extent



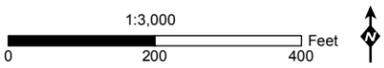
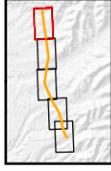


UCSD Chaparral Reserve

Attachment C-3: West of Aqueduct Road Special-Status Plant Species Occurrences Map 1 of 5

Pipeline Safety & Reliability Project

- |                                  |                          |                     |
|----------------------------------|--------------------------|---------------------|
| Route Segment Alternative        | Ashy spike-moss          | Ashy spike-moss     |
| Biological Resources Survey Area | Golden-rayed pentachaeta | Nuttall's scrub oak |
| UCSD Chaparral Reserve           | Long-spined spineflower  | Orcutt's brodiaea   |
|                                  | Nuttall's scrub oak      |                     |
|                                  | Orcutt's brodiaea        |                     |
|                                  | San Diego goldenstar     |                     |



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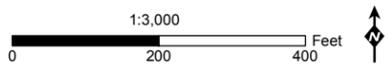
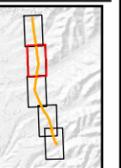
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Attachment C-3: West of Aqueduct Road Special-Status Plant Species Occurrences Map 2 of 5

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Ashy spike-moss
- Ashy spike-moss
- Biological Resources Survey Area
- Long-spined spineflower
- ◆ Orcutt's brodiaea
- ◆ Orcutt's brodiaea



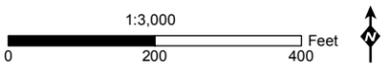
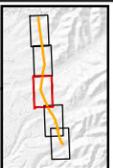


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**Attachment C-3: West of Aqueduct Road Special-Status Plant Species Occurrences Map 3 of 5**

**Pipeline Safety & Reliability Project**

- |                                  |                         |                         |
|----------------------------------|-------------------------|-------------------------|
| Route Segment Alternative        | Graceful tarplant       | Ashy spike-moss         |
| Biological Resources Survey Area | Long-spined spineflower | Long-spined spineflower |
|                                  | Orcutt's brodiaea       | Orcutt's brodiaea       |
|                                  | Willoway monardella     |                         |



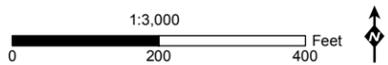
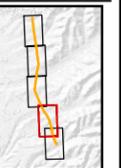
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Attachment C-3: West of Aqueduct Road Special-Status Plant Species Occurrences Map 4 of 5

Pipeline Safety & Reliability Project

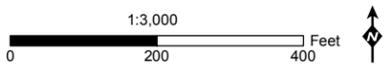
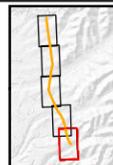
- Route Segment Alternative
- Ashy spike-moss
- Ashy spike-moss
- Biological Resources Survey Area
- ◆ Orcutt's brodiaea
- Nuttall's scrub oak
- Orcutt's brodiaea





Attachment C-3: West of Aqueduct Road Special-Status Plant Species Occurrences Map 5 of 5

- Route Segment Alternative
- Ashy spike-moss
- ◆ Orcutt's brodiaea
- Biological Resources Survey Area
- Ashy spike-moss
- Nuttall's scrub oak
- Orcutt's brodiaea

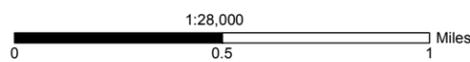




**Attachment C-4: Spring Canyon Firebreak Route Segment Alternative Overview Map**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Mapbook Extent
- Biological Resources Survey Area



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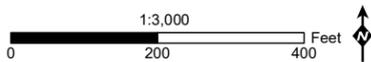
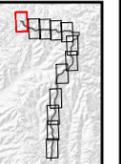


Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 1 of 12

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Biological Resources Survey Area
- San Diego County viguiera\*

\*Data collected in 2015.

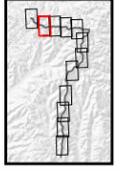
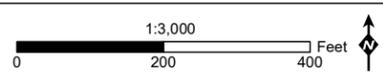




Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 2 of 12

- Route Segment Alternative
- Biological Resources Survey Area
- Nuttall's scrub oak\*
- ◆ San Diego barrel cactus\*

\*Data collected in 2015.



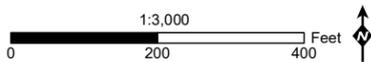
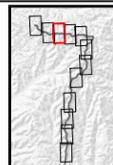
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Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 3 of 12

- Route Segment Alternative
- Biological Resources Survey Area
- Nuttall's scrub oak\*
- San Diego barrel cactus\*

\*Data collected in 2015.



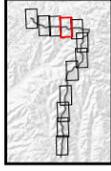
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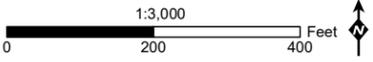
**Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 4 of 12**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Nuttall's scrub oak\*
- - - Biological Resources Survey Area



\*Data collected in 2015.



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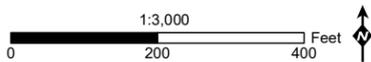
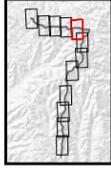
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**Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurences Map 5 of 12**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Biological Resources Survey Area
- Nuttall's scrub oak\*

\*Data collected in 2015.



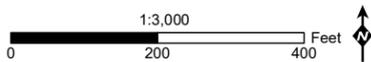
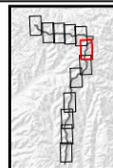


Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 6 of 12

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Nuttall's scrub oak\*
- Biological Resources Survey Area

\*Data collected in 2015.



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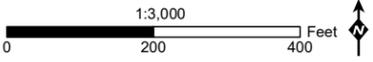
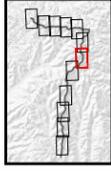
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**Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 7 of 12**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Nuttall's scrub oak\*
- Biological Resources Survey Area

\*Data collected in 2015.





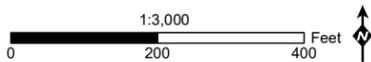
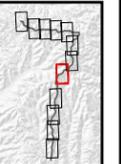
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**Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 8 of 12**

**Pipeline Safety & Reliability Project**

- Route Segment Alternative
- Biological Resources Survey Area
- San Diego barrel cactus\*

\*Data collected in 2015.



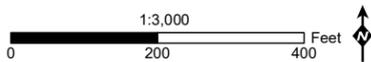
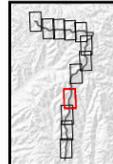


Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurences Map 9 of 12

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Biological Resources Survey Area
- San Diego barrel cactus\*

\*Data collected in 2015.



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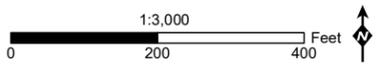
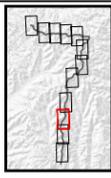


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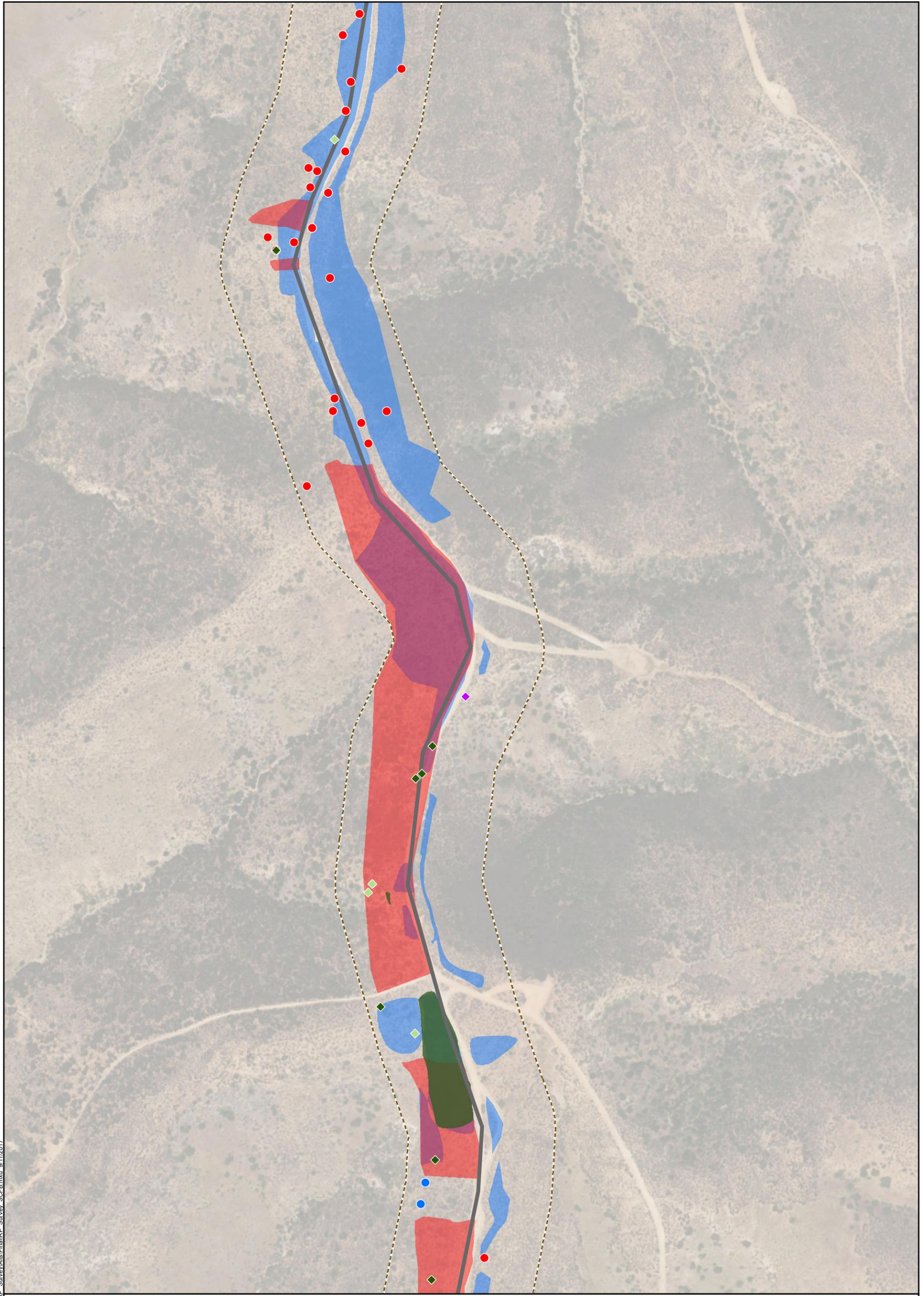
**Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurences Map 10 of 12**

**Pipeline Safety & Reliability Project**

- |                                  |                          |                          |
|----------------------------------|--------------------------|--------------------------|
| Route Segment Alternative        | Ashy spike-moss          | Ashy spike-moss          |
| Biological Resources Survey Area | Golden-rayed pentachaeta | Golden-rayed pentachaeta |
|                                  | San Diego barrel cactus  |                          |
|                                  | San Diego goldenstar     |                          |
|                                  | Western dichondra        |                          |



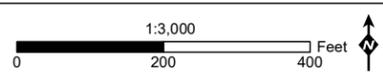
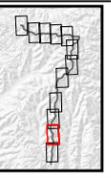
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Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurences Map 11 of 12

Pipeline Safety & Reliability Project

- Route Segment Alternative
- Biological Resources Survey Area
- Ashy spike-moss
- Golden-rayed pentachaeta
- San Diego barrel cactus
- Variegated dudleya
- Western dichondra
- Ashy spike-moss
- Golden-rayed pentachaeta
- Western dichondra

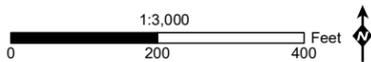
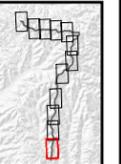




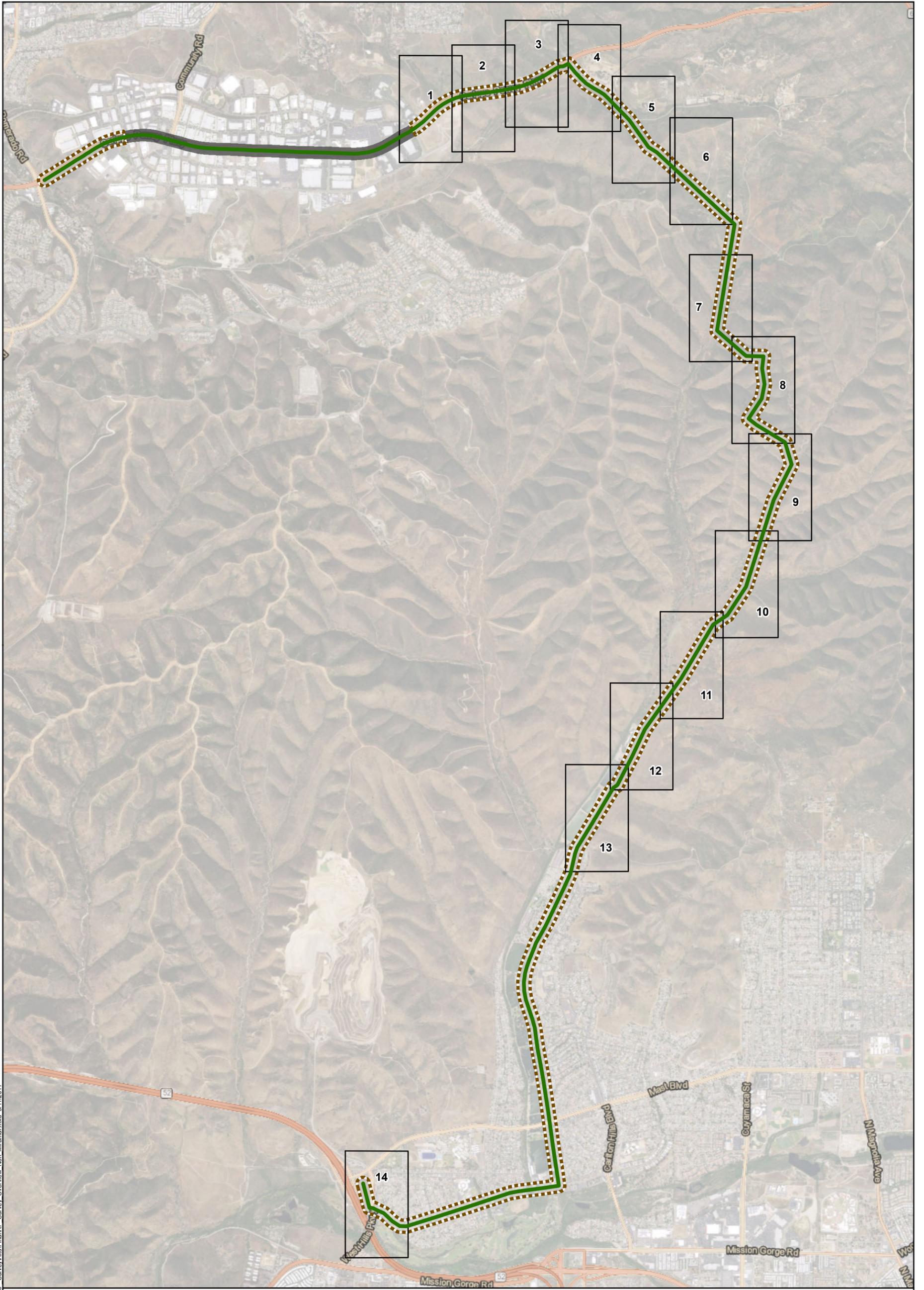
Attachment C-4: Spring Canyon Firebreak Special-Status Plant Species Occurrences Map 12 of 12

Pipeline Safety & Reliability Project

- |                                      |                            |                            |
|--------------------------------------|----------------------------|----------------------------|
| — Route Segment Alternative          | ● Ashy spike-moss          | ● Ashy spike-moss          |
| --- Biological Resources Survey Area | ● Decumbent goldenbush     | ● Golden-rayed pentachaeta |
|                                      | ● Golden-rayed pentachaeta | ● Graceful tarplant        |
|                                      | ● Graceful tarplant        | ● Variegated dudleya       |
|                                      | ◆ San Diego barrel cactus  | ◆ Western dichondra        |
|                                      | ◆ Variegated dudleya       |                            |
|                                      | ◆ Western dichondra        |                            |





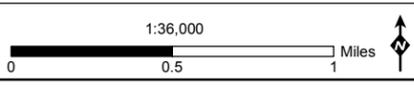


MXD\S\Surveys\2017 RP Survey\Atlas\Final\RP Survey Overview Non\_Miramar.mxd 9/11/2017

**Attachment C-5: Non-Miramar Alternative Overview Map**

**Pipeline Safety & Reliability Project**

- Alternative Route
- Biological Resources Survey Area
- Area Not Surveyed
- Mapbook Extent

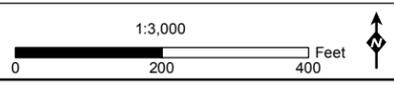
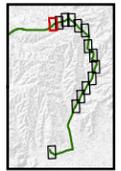




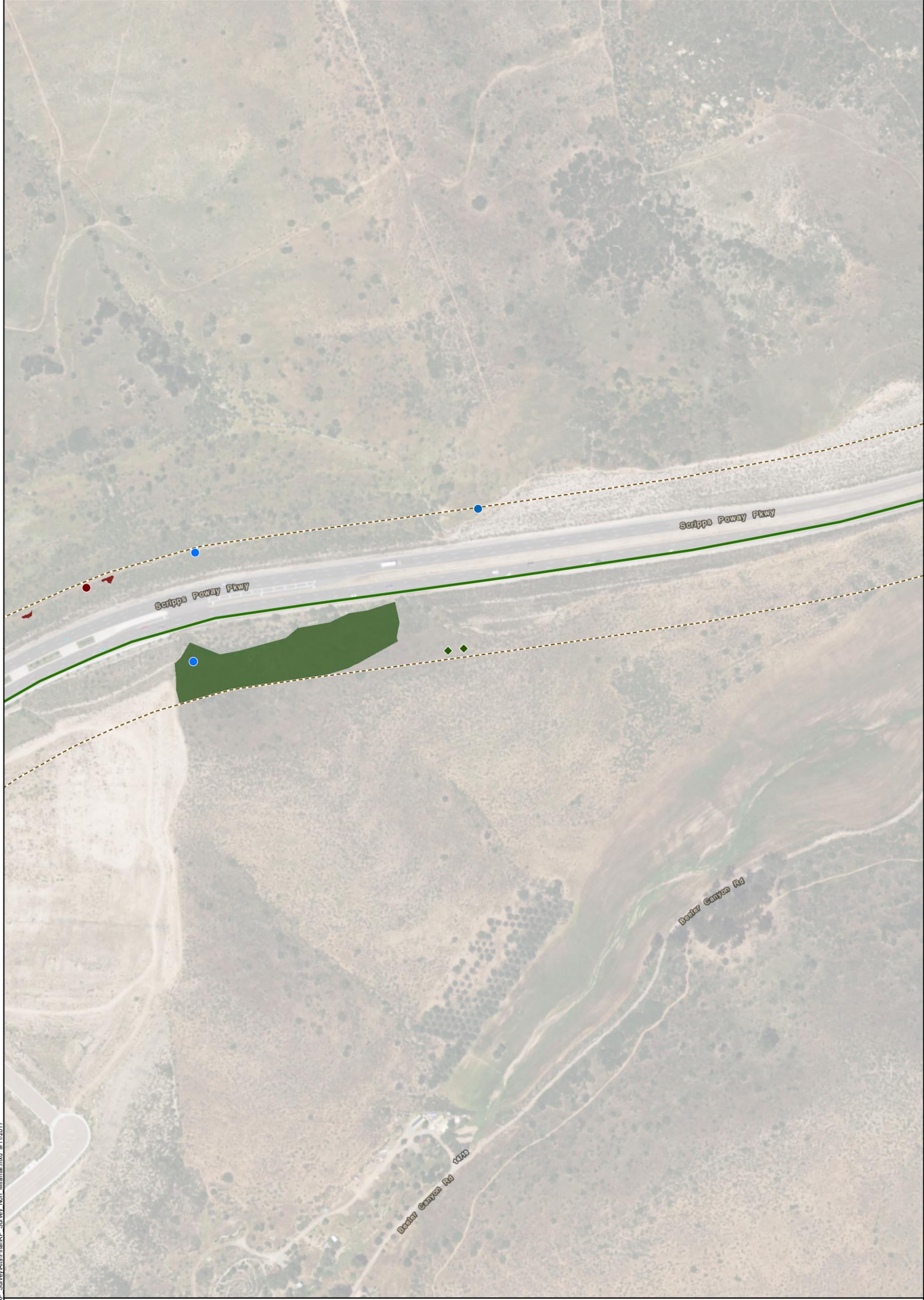
Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 1 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Biological Resources Survey Area
- Ashy spike-moss
- Graceful tarplant
- ◆ San Diego County viguiera
- ◆ San Diego barrel cactus
- Graceful tarplant
- Western dichondra



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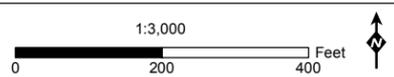
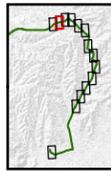


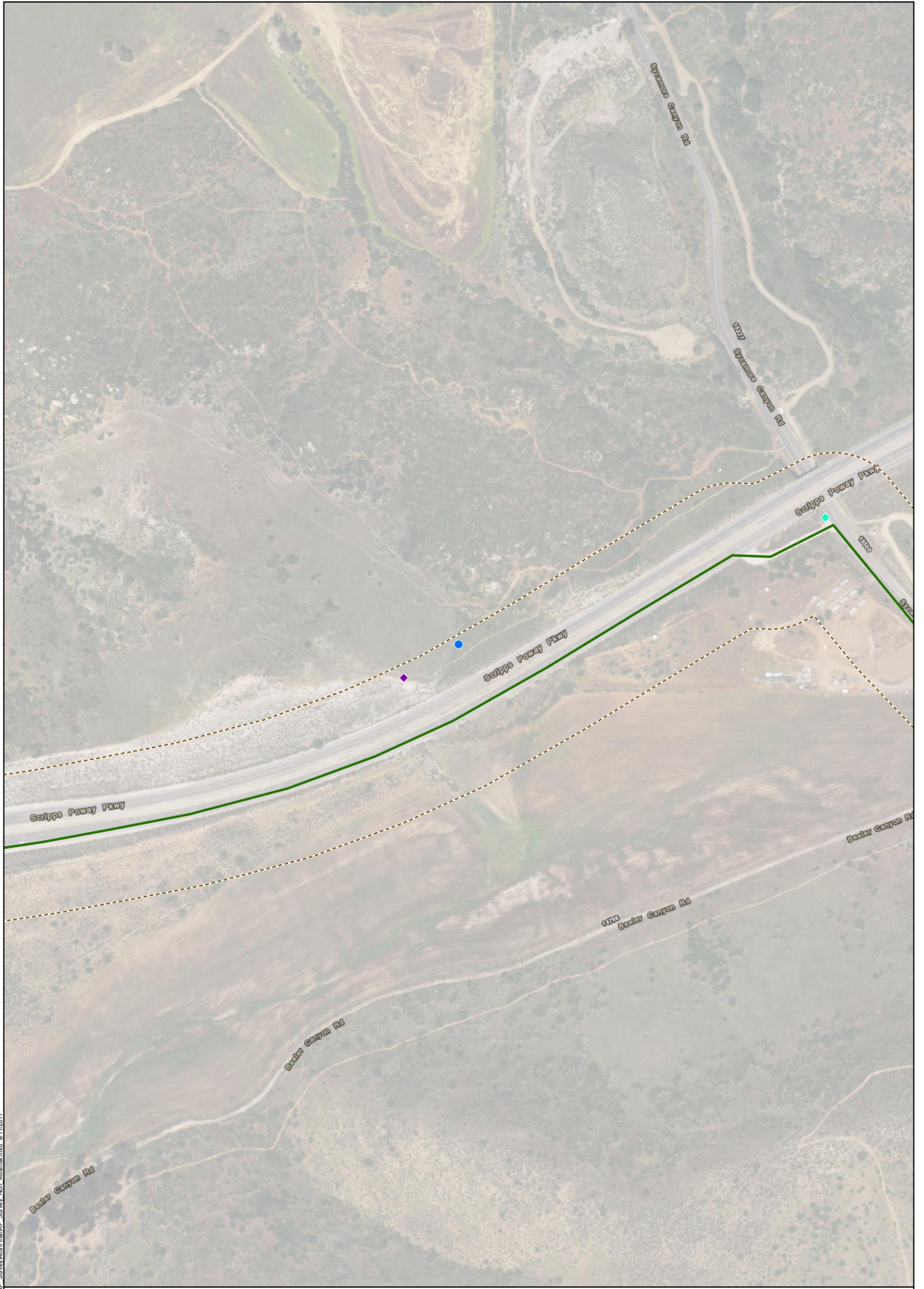
MXD\Surveys\2017 RP Survey\Atlas\Final\RP\_Survey\_Non\_Miramar.mxd 9/11/2017

**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 2 of 14**

**Pipeline Safety & Reliability Project**

- |                                  |                      |                   |
|----------------------------------|----------------------|-------------------|
| Alternative Route                | Ashy spike-moss      | Graceful tarplant |
| Biological Resources Survey Area | Decumbent goldenbush | Western dichondra |
|                                  | Graceful tarplant    |                   |
|                                  | Western dichondra    |                   |



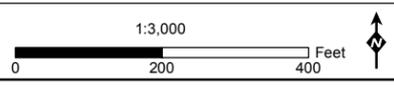
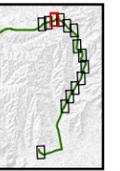


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**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 3 of 14**

**Pipeline Safety & Reliability Project**

- Alternative Route
- - - Biological Resources Survey Area
- Ashy spike-moss
- ◆ San Diego County viguiera
- ◆ San Diego goldenstar



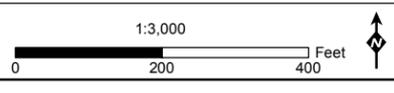
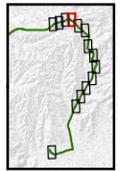


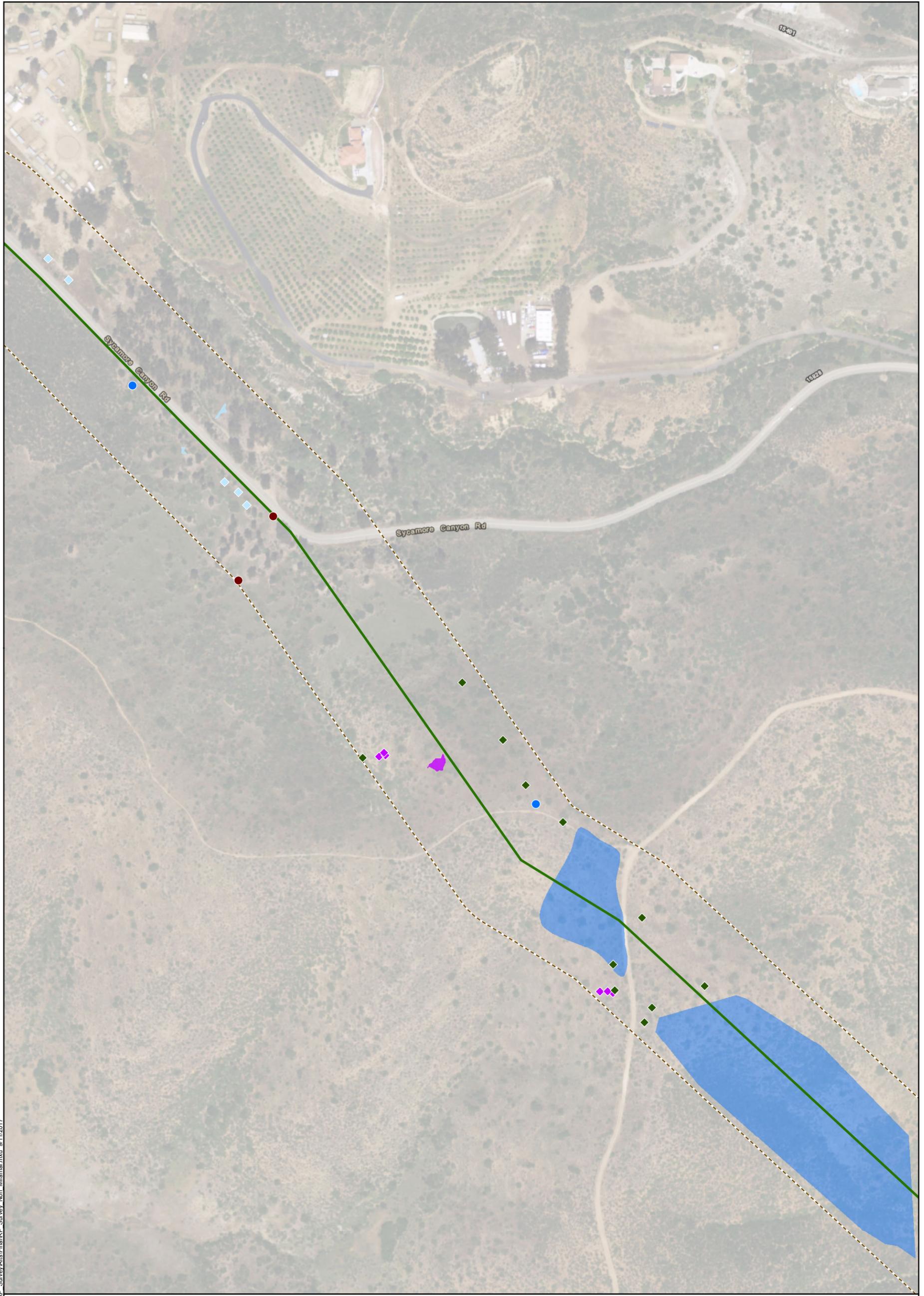
MXD\S\Surveys\2017 RP Survey\GIS\Final\RP\_Survey\_Non\_Miramar.mxd 9/11/2017

**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 4 of 14**

**Pipeline Safety & Reliability Project**

- Alternative Route
- Biological Resources Survey Area
- Ashy spike-moss
- ◆ Orcutt's brodiaea
- ◆ San Diego County viguiera
- Orcutt's brodiaea

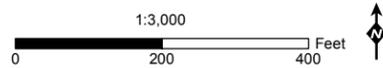
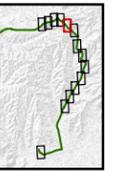




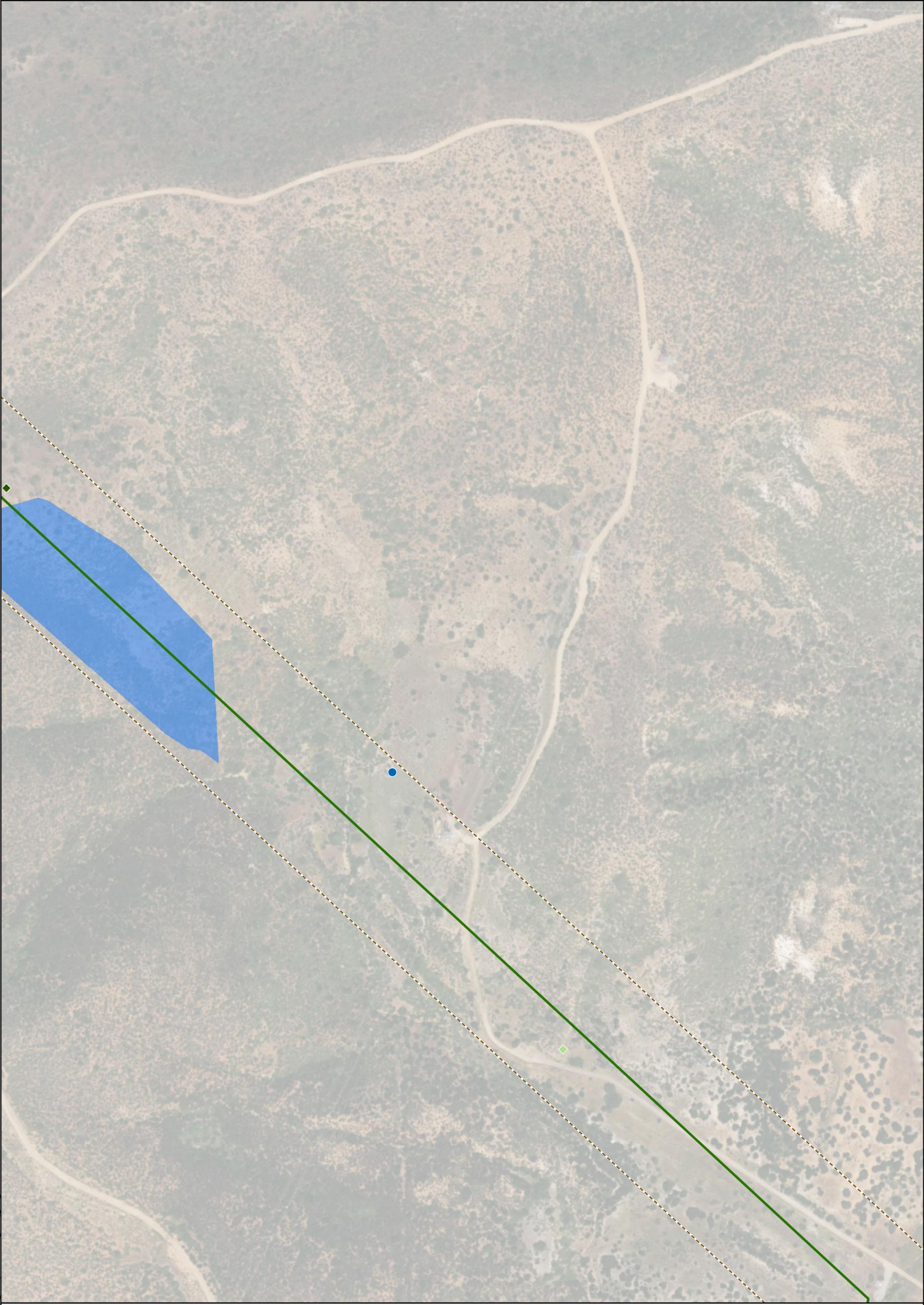
Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 5 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Biological Resources Survey Area
- Ashy spike-moss
- Graceful tarplant
- ◆ Orcutt's brodiaea
- ◆ Variegated dudleya
- ◆ Western dichondra
- Ashy spike-moss
- Orcutt's brodiaea
- Variegated dudleya



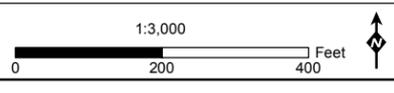
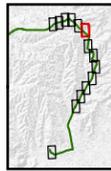
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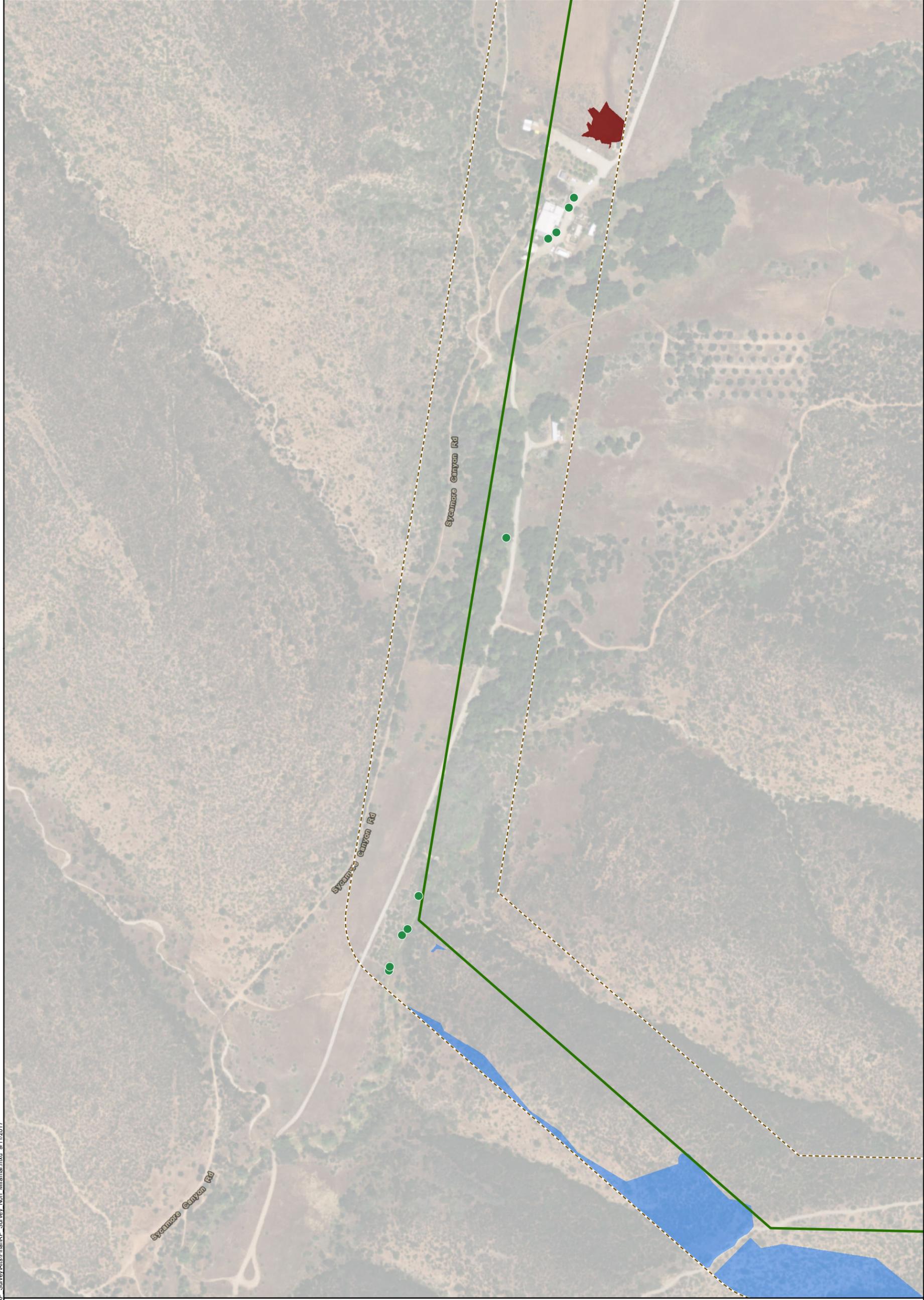
Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 6 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Biological Resources Survey Area
- Decumbent goldenbush
- ◆ San Diego barrel cactus
- Ashy spike-moss



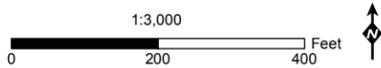
MXD\SURVEYS\2017 RP Survey\GIS\Final\RP\_Survey\_Non\_Miramar.mxd 9/11/2017



Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 7 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Engelmann oak
- Ashy spike-moss
- Biological Resources Survey Area
- Graceful tarplant



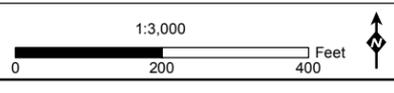
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**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 8 of 14**

**Pipeline Safety & Reliability Project**

- Alternative Route
- Ashy spike-moss
- Ashy spike-moss
- Biological Resources Survey Area



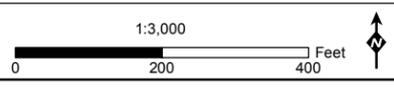
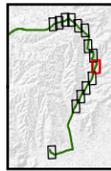
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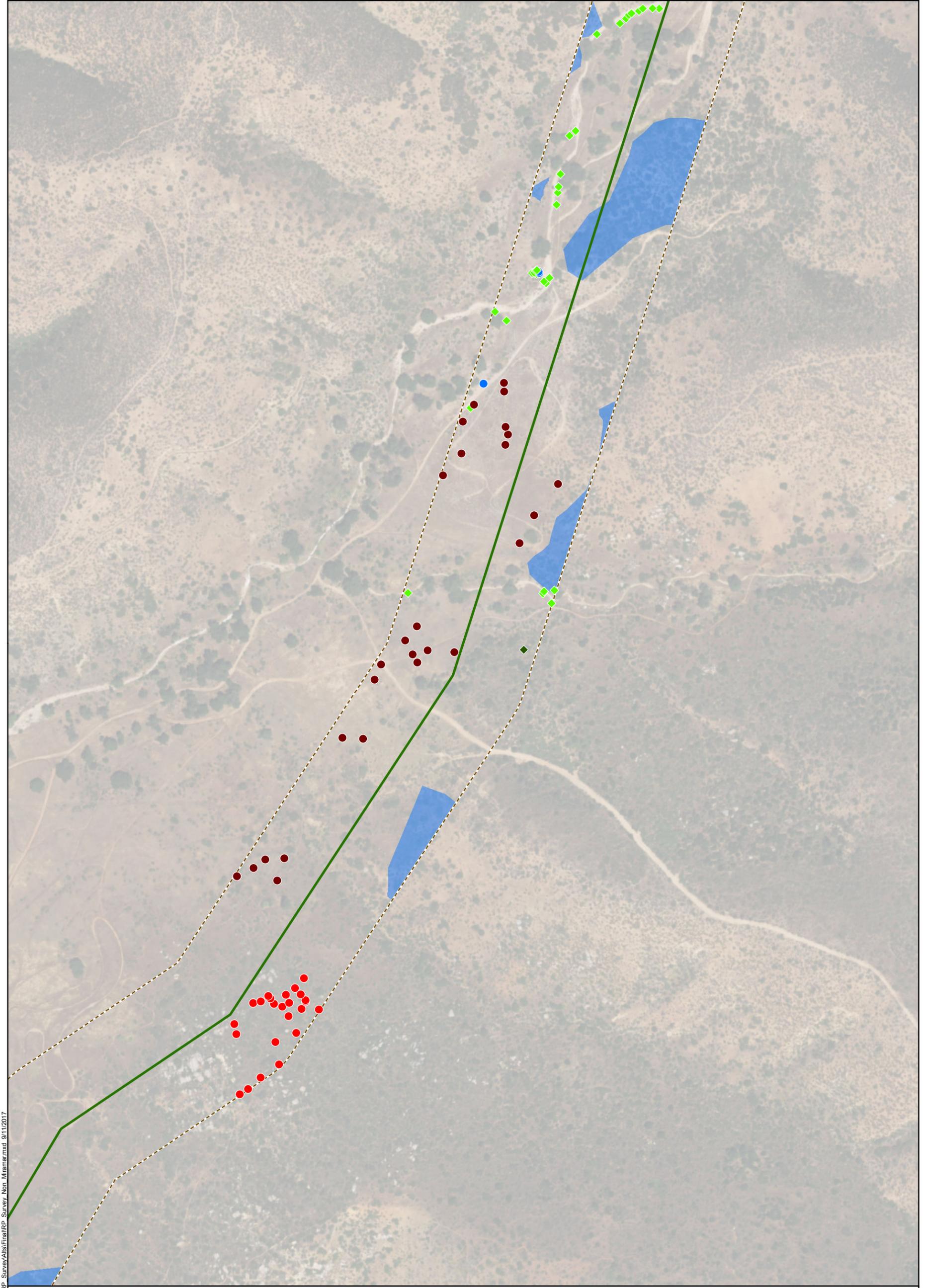


Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 9 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Ashy spike-moss
- Ashy spike-moss
- Biological Resources Survey Area
- ◆ Willowy monardella



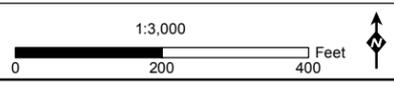
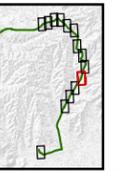


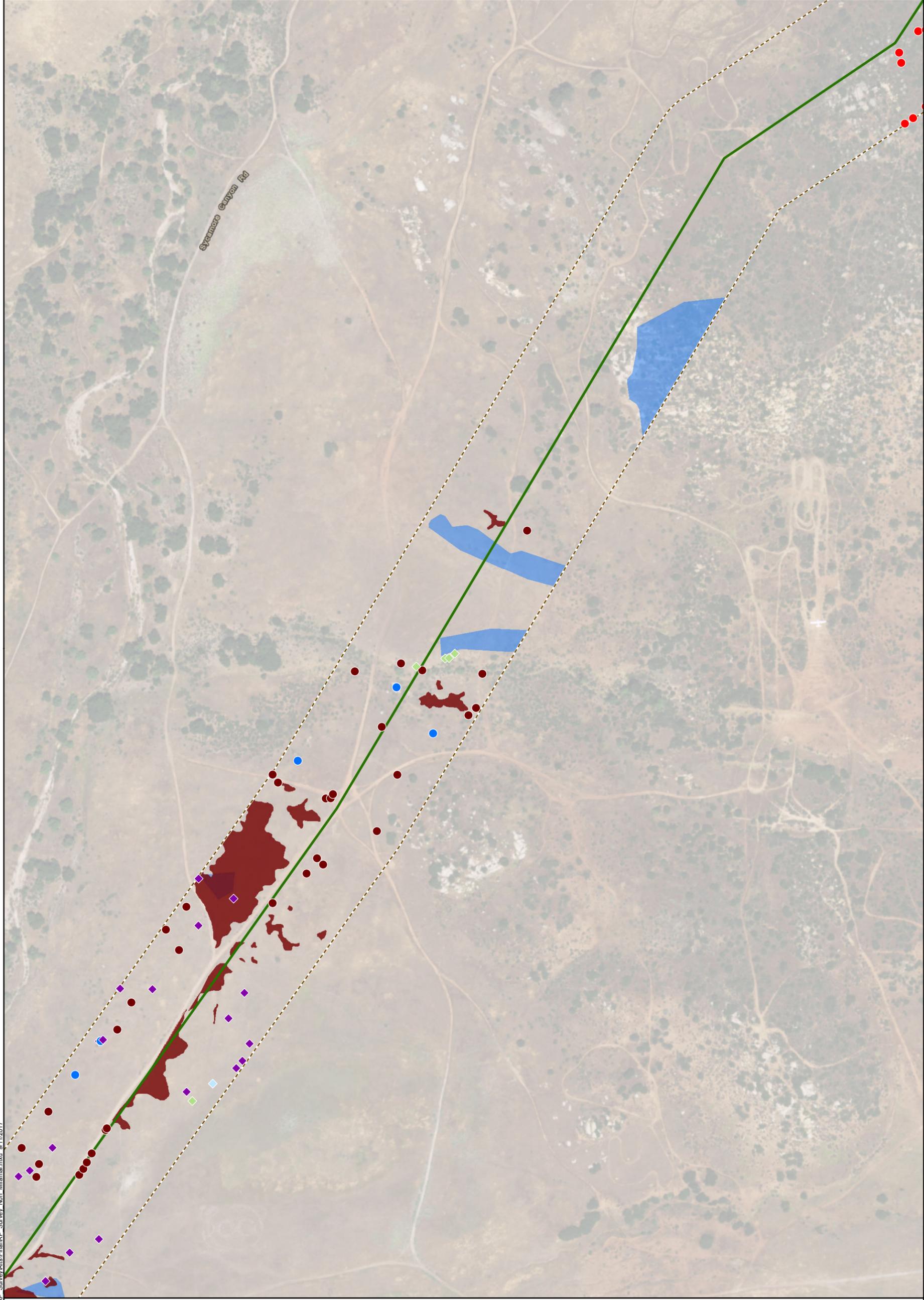
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**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 10 of 14**

**Pipeline Safety & Reliability Project**

- |                                  |                          |                    |
|----------------------------------|--------------------------|--------------------|
| Alternative Route                | Ashy spike-moss          | Ashy spike-moss    |
| Biological Resources Survey Area | Golden-rayed pentachaeta | Graceful tarplant  |
|                                  | Western dichondra        | Willowy monardella |



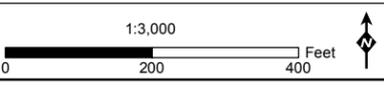


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**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 11 of 14**

**Pipeline Safety & Reliability Project**

- |                                  |                         |                   |
|----------------------------------|-------------------------|-------------------|
| Alternative Route                | Ashy spike-moss         | Ashy spike-moss   |
| Biological Resources Survey Area | Graceful tarplant       | Graceful tarplant |
|                                  | Orcutt's brodiaea       |                   |
|                                  | San Diego barrel cactus |                   |
|                                  | San Diego goldenstar    |                   |



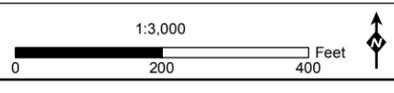
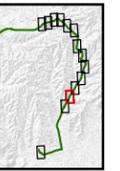
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Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 12 of 14

Pipeline Safety & Reliability Project

- Alternative Route
- Biological Resources Survey Area
- Ashy spike-moss
- Graceful tarplant
- ◆ Orcutt's brodiaea
- ◆ San Diego barrel cactus
- ◆ San Diego goldenstar
- ▭ Ashy spike-moss
- ▭ Graceful tarplant



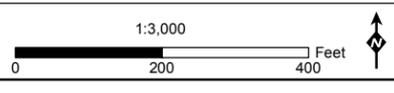
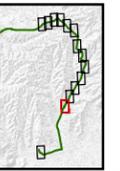
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**Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 13 of 14**

**Pipeline Safety & Reliability Project**

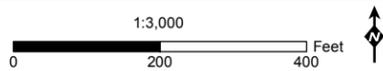
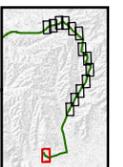
- Alternative Route
- Graceful tarplant
- Graceful tarplant
- Biological Resources Survey Area
- ◆ San Diego barrel cactus



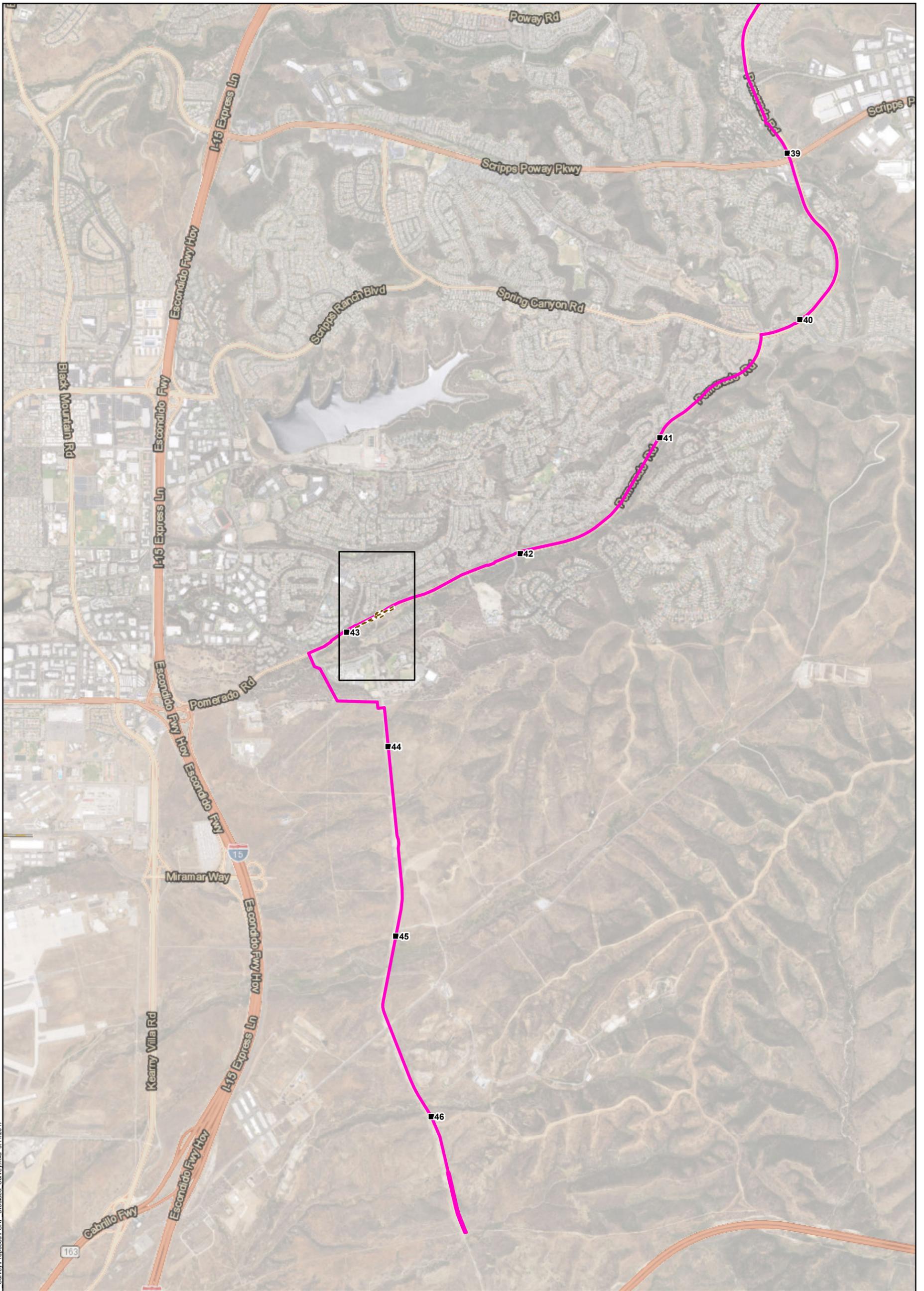


Attachment C-5: Non-Miramar Alternative Special-Status Plants Map 14 of 14

- Alternative Route
- Biological Resources Survey Area
- ◆ San Diego County viguiera
- ◆ Southern California black walnut



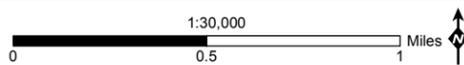




Attachment C-6: Mainline Valve 10 Thread-Leaved Brodiaea Survey Overview Map

Pipeline Safety & Reliability Project

- Milepost
- Proposed Project Route
- - - Thread-Leaved Brodiaea Survey Area
- Mapbook Extent

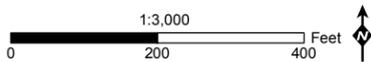
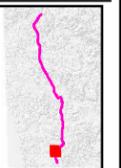




Attachment C-6: Mainline Valve 10 Thread-Leaved Brodiaea Survey Area Map 1 of 1

Pipeline Safety & Reliability Project

- Milepost
- Permanent Impacts
- Temporary Impacts
- Thread-Leaved Brodiaea Survey Area
- PSRP Alignment
- Aboveground Facility
- Workspace



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**ATTACHMENT D: PLANT SPECIES OBSERVED**





**Angiosperms - Dicots**

---

***Adoxaceae - Muskroot Family****Sambucus nigra* ssp. *caerulea* Blue elderberry***Aizoaceae - Fig-Marigold Family***

\**Aptenia cordifolia* Heartleaf ice-plant  
 \**Carpobrotus edulis* Fig-marigold  
 \**Mesembryanthemum crystallinum* Crystalline iceplant

***Amaranthaceae - Amaranth Family***

\**Amaranthus albus* Tumble pigweed  
*Amaranthus californicus* California amaranth

***Anacardiaceae - Cashew or Sumac Family***

*Malosma laurina* Laurel sumac  
*Rhus aromatica* Sourberry  
*Rhus integrifolia* Lemonadeberry  
*Rhus ovata* Sugar sumac  
 \**Schinus molle* Peruvian pepper tree  
 \**Schinus terebinthifolius* Brazilian pepper tree  
*Toxicodendron diversilobum* Western poison-oak

***Apiaceae (Umbelliferae) - Carrot Family***

\**Anthriscus caucalis* Bur-chervil  
*Apiastrum angustifolium* Wild celery  
 \**Apium graveolens* Celery  
*Bowlesia incana* Hoary bowlesia  
 \**Conium maculatum* Poison hemlock  
 \**Daucus carota* Queen Anne's lace  
*Daucus pusillus* Southwestern carrot  
 \**Foeniculum vulgare* Sweet fennel  
*Sanicula arguta* Sanicle  
*Tauschia arguta* Southern umbrellawort

***Apocynaceae - Dogbane/Milkweed Family***

*Asclepias fascicularis* Narrow leaf milkweed  
*Nerium oleander* Oleander  
 \**Vinca major* Periwinkle

***Asteraceae (Compositae) - Sunflower Family***

*Achillea millefolium* Common yarrow  
*Acourtia microcephala* Acourtia  
*Ambrosia psilostachya* Western ragweed  
 \**Anthemis cotula* Mayweed

<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	Douglas' mugwort
<i>Baccharis pilularis</i> ssp. <i>consanguinea</i>	Coyote brush
<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i>	Mulefat
<i>Baccharis sarothroides</i>	Broom Baccharis
<i>Bahioopsis laciniata</i> <sup>2</sup>	San Diego County viguiera
<i>Brickellia californica</i>	California brickell bush
* <i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle
* <i>Centaurea melitensis</i>	Tocalote
<i>Chaenactis artemisiifolia</i>	White pincushion
<i>Chaenactis glabriuscula</i>	Pebble pincushion
<i>Cichorium intybus</i>	Chicory
* <i>Cirsium vulgare</i>	Spear thistle
<i>Corethrogyne filaginifolia</i>	Sand-aster
<i>Cotula coronopifolia</i>	Brass buttons
* <i>Cynara cardunculus</i> ssp. <i>cardunculus</i>	Artichoke
<i>Deinandra fasciculata</i>	Clustered tarweed
<i>Dimorphotheca sinuata</i>	African daisy
* <i>Dittrichia graveolens</i>	Stinkwort
<i>Encelia californica</i>	California encelia
<i>Encelia farinosa</i>	Brittlebush
<i>Erigeron canadensis</i>	Canada horseweed
<i>Erigeron foliosus</i> var. <i>foliosus</i>	Thread stemmed fleabane
<i>Eriophyllum confertiflorum</i>	Yellow-yarrow
<i>Gazania linearis</i>	Treasure flower
* <i>Glebionis coronarium</i>	Garland daisy
<i>Gutierrezia californica</i>	California matchweed
<i>Hazardia squarrosa</i>	Saw-toothed hazardia
* <i>Hedypnois cretica</i>	Crete weed
<i>Helianthus annuus</i>	Common sunflower
<i>Helianthus californicus</i>	California sunflower
<i>Helianthus gracilentus</i>	Slender sunflower
* <i>Helminthotheca echioides</i>	Bristly ox-tongue
<i>Heterotheca grandiflora</i>	Telegraph weed
<i>Holocarpha virgata</i> ssp. <i>elongata</i> <sup>2</sup>	Graceful tarplant
* <i>Hypochaeris glabra</i>	Smooth cat's-ear
* <i>Hypochaeris radicata</i>	Rough cat's ear
<i>Isocoma menziesii</i> var. <i>decumbens</i> <sup>3</sup>	Decumbent goldenbush
<i>Isocoma menziesii</i> var. <i>menziesii</i>	San Diego goldenbush
* <i>Lactuca serriola</i>	Prickly lettuce
<i>Lasthenia californica</i> ssp. <i>californica</i>	California goldfields
<i>Layia platyglossa</i>	Coastal tidy tips
<i>Logfia depressa</i>	Dwarf cottonrose

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<sup>2</sup> California Rare Plant Rank 4.2.

<sup>3</sup> California Rare Plant Rank 1B.2.

<i>*Logfia gallica</i>	Narrowleaf cottonrose
<i>*Matricaria discoidea</i>	Pineapple-weed
<i>Osmadenia tenella</i>	Osmadenia
<i>Pentachaeta aurea</i> ssp. <i>aurea</i> <sup>2</sup>	Golden-rayed pentachaeta
<i>Porophyllum gracile</i>	Odora
<i>Pseudognaphalium benolens</i>	White everlasting
<i>Pseudognaphalium biolettii</i>	Bioletti's rabbit-tobacco
<i>Pseudognaphalium californicum</i>	California everlasting
<i>Pseudognaphalium canescens</i>	Wright's cudweed
<i>*Pseudognaphalium luteoalbum</i>	Everlasting cudweed
<i>Pseudognaphalium microcephalum</i>	San Diego rabbit-tobacco
<i>Pseudognaphalium stramineum</i>	Cotton-batting plan
<i>Psilocarphus brevissimus</i> var. <i>brevissimus</i>	Dwarf woolly-heads
<i>Psilocarphus tenellus</i>	Slender woolly-marbles
<i>*Silybum marianum</i>	Milk thistle
<i>*Sonchus asper</i> ssp. <i>asper</i>	Prickly sow-thistle
<i>*Sonchus oleraceus</i>	Common sow-thistle
<i>Stephanomeria exigua</i>	Stephanomeria
<i>Stephanomeria exigua</i> var. <i>deanei</i>	Dean's stephanomeria
<i>Stephanomeria virgata</i> ssp. <i>pleurocarpa</i>	Tall stephanomeria
<i>Stylocline gnaphaloides</i>	Everlasting neststraw
<i>Uropappus lindleyi</i>	Silver puffs
<i>Xanthium strumarium</i>	Rough cocklebur

***Boraginaceae - Borage Family***

<i>Amsinckia intermedia</i>	Common fiddleneck
<i>Amsinckia menziesii</i>	Rancher's fireweed
<i>Cryptantha intermedia</i> var. <i>intermedia</i>	Common cryptantha
<i>Echium candicans</i>	Pride of madeira
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	Whispering bells
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	Thickleaf yerba santa
<i>Eucrypta chrysanthemifolia</i> var. <i>chrysanthemifolia</i>	Common eucrypta
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Salt heliotrope
<i>Nemophila menziesii</i>	Baby blue-eyes
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	Narrow-toothed pectocarya
<i>Phacelia cicutaria</i> var. <i>hispida</i>	Caterpillar phacelia
<i>Phacelia distans</i>	Common phacelia
<i>Phacelia grandiflora</i>	Grand phacelia
<i>Phacelia parryi</i>	Parry phacelia
<i>Phacelia ramosissima</i>	Branching phacelia
<i>Pholistoma auritum</i> var. <i>auritum</i>	Blue fiesta flower
<i>Pholistoma racemosum</i>	San Diego fiesta flower
<i>Plagiobothrys collinus</i> var. <i>californicus</i>	Californica popcornflower

**Brassicaceae (Cruciferae) - Mustard Family**

* <i>Brassica nigra</i>	Black mustard
* <i>Brassica rapa</i>	Field mustard
* <i>Brassica tournefortii</i>	Sahara mustard
<i>Caulanthus lasiophyllus</i>	California mustard
* <i>Hirschfeldia incana</i>	Short podded mustard
* <i>Lepidium chalepense</i>	Lens-podded hoary cress
* <i>Lepidium didymum</i>	Wart cress
* <i>Lepidium latifolium</i>	Broad-leaved pepperwort
<i>Lepidium nitidum</i> var. <i>nitidum</i>	Peppergrass
* <i>Nasturtium officinale</i>	Watercress
* <i>Raphanus sativus</i>	Wild radish
* <i>Sisymbrium altissimum</i>	Tumble mustard
* <i>Sisymbrium irio</i>	London rocket
* <i>Sisymbrium orientale</i>	Indian hedge mustard

**Cactaceae - Cactus Family**

<i>Cylindropuntia californica</i> var. <i>parkeri</i>	Cane cholla
<i>Ferocactus viridescens</i> <sup>3</sup>	San Diego barrel cactus
* <i>Opuntia ficus-indica</i>	Indian-fig
<i>Opuntia littoralis</i>	Mesa prickly-pear

**Campanulaceae - Bellflower Family**

<i>Triodanis biflora</i>	Venus looking glass
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**Caprifoliaceae - Honeysuckle Family**

<i>Lonicera subspicata</i>	Honeysuckle
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**Caryophyllaceae - Pink Family**

<i>Cardionema ramosissimum</i>	Sand mat
<i>Cerastium arvense</i> ssp. <i>strictum</i>	Field mouse-ear chickweed
<i>Polycarpon tetraphyllum</i>	Four leaved all seed
* <i>Silene gallica</i>	Small-flower catchfly
<i>Silene laciniata</i> ssp. <i>laciniata</i>	Cardinal catchfly
* <i>Spergularia bocconi</i>	Boccone's sand spurry
<i>Spergularia macrotheca</i>	Sticky sand spurry

**Chenopodiaceae - Goosefoot Family**

<i>Atriplex canescens</i> var. <i>canescens</i>	Shadscale
<i>Atriplex lentiformis</i>	Big saltbush
* <i>Atriplex prostrata</i>	Fat-hen
* <i>Atriplex semibaccata</i>	Australian saltbush
* <i>Atriplex suberecta</i>	Sprawling saltbush
* <i>Chenopodium album</i>	Lamb's quarters
<i>Chenopodium californicum</i>	California goosefoot

\**Chenopodium murale* Nettle-leaf goosefoot  
 \**Salsola tragus* Russian thistle

***Cistaceae - Rock-Rose Family***

\**Cistus ladanifer* Gum cistus  
*Helianthemum scoparium* var. *scoparium* Peak rush-rose

***Convolvulaceae - Morning-Glory Family***

*Calystegia macrostegia* Morning-glory  
 \**Convolvulus arvensis* Bindweed  
*Cressa truxillensis* Alkali weed  
*Cuscuta californica* var. *californica* California dodder  
*Dichondra occidentalis*<sup>2</sup> Western dichondra

***Crassulaceae - Stonecrop Family***

*Crassula connata* Sand pygmy-weed  
*Dudleya edulis* Lady-fingers  
*Dudleya lanceolata* Lance-leaved dudleya  
*Dudleya pulverulenta* Chalk dudleya  
*Dudleya variegata*<sup>3</sup> Variegated dudleya

***Cucurbitaceae - Gourd Family***

*Cucurbita foetidissima* Calabazilla  
*Marah macrocarpa* Cucamonga manroot

***Elatinaceae - Elatine and Bergia Family***

*Elatine* sp. Waterwort species

***Ericaceae - Heath Family***

*Arctostaphylos glandulosa* var. *glandulosa* Eastwood manzanita  
*Xylococcus bicolor* Mission-manzanita

***Euphorbiaceae - Spurge Family***

*Croton californicus* Croton  
*Croton setigerus* Turkey mullein  
 \**Euphorbia maculata* Spotted spurge  
 \**Euphorbia pepulus* Petty spurge  
*Euphorbia polycarpa* Prostrate spurge  
 \**Ricinus communis* Castor bean

***Fabaceae (Leguminosae) - Legume Family***

\**Acacia baileyana* Cootamundra wattle  
 \**Acacia cyclops* Western coastal wattle  
 \**Acacia longifolia* Sydney golden wattle  
 \**Acacia redolens* Vanilla-scented wattle

<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus
<i>Acmispon glaber</i> var. <i>brevialatus</i>	California broom
<i>Acmispon glaber</i> var. <i>glaber</i>	Deerweed
<i>Acmispon micranthus</i>	Small-flowered lotus
<i>Acmispon strigosus</i>	Strigose lotus
* <i>Lathyrus latifolius</i>	Perennial pea
* <i>Lathyrus sativus</i>	Grass pea
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	San Diego pea
<i>Lotus corniculatus</i>	Bird's foot trefoil
<i>Lupinus bicolor</i>	Miniature lupine
<i>Lupinus formosus</i> var. <i>robustus</i>	Giant western lupine
<i>Lupinus hirsutissimus</i>	Stinging lupine
<i>Lupinus succulentus</i>	Succulent lupine
<i>Lupinus truncatus</i>	Collar lupine
* <i>Medicago polymorpha</i>	California burclover
* <i>Melilotus albus</i>	White sweetclover
* <i>Melilotus indicus</i>	Sourclover
* <i>Parkinsonia aculeata</i>	Mexican palo verde
<i>Senegalia greggii</i> <sup>4</sup>	Catclaw acacia
* <i>Senna marilandica</i>	Maryland senna
* <i>Spartium junceum</i>	Spanish broom
* <i>Trifolium hirtum</i>	Rose clover
* <i>Vicia benghalensis</i>	Purple vetch
<i>Vicia villosa</i>	Hairy vetch

### ***Fagaceae - Oak Family***

<i>Quercus agrifolia</i> var. <i>agrifolia</i>	California coast live oak
<i>Quercus agrifolia</i> var. <i>oxyadenia</i>	Southern coast live oak
<i>Quercus berberidifolia</i>	Scrub oak
<i>Quercus dumosa</i> <sup>3</sup>	Nuttall's scrub oak
<i>Quercus engelmannii</i> <sup>2</sup>	Engelmann oak
<i>Quercus xacutidens</i>	Torrey's hybrid oak

### ***Gentianaceae - Gentian Family***

<i>Zeltnera venusta</i>	California centaury
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### ***Geraniaceae - Geranium Family***

* <i>Erodium botrys</i>	Broad-leaf filaree
* <i>Erodium cicutarium</i>	Red-stemmed filaree
* <i>Erodium moschatum</i>	White-stem filaree
<i>Geranium carolinianum</i>	Carolina geranium

### ***Grossulariaceae - Gooseberry Family***

<i>Ribes indecorum</i>	White flowering currant
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<sup>4</sup> This species is native east of the Addendum Biological Resources Survey Area.

*Ribes speciosum*

Fuchsia-flowered gooseberry

***Juglandaceae - Walnut Family***

*Juglans californica*<sup>2</sup>

Southern California black walnut

***Lamiaceae (Labiatae) - Mint Family***

\**Marrubium vulgare*

White horehound

*Monardella viminea*<sup>5</sup>

Willowy monardella

*Pogogyne abraamsii*<sup>5</sup>

San Diego mesa mint

\**Rosmarinus officinalis*

Rosemary

*Salvia apiana*

White sage

*Salvia clevelandii*

Cleveland sage

*Salvia columbariae*

Chia

*Salvia mellifera*

Black sage

\**Stachys ajugoides*

Bugle hedge-nettle

*Trichostema lanceolatum*

Vinegar weed

*Trichostema parishii*

Parish's bluecurls

***Lythraceae - Loosestrife Family***

\**Lythrum hyssopifolia*

Hyssop loosestrife

***Malvaceae - Mallow Family***

*Malacothamnus fasciculatus*

Chaparral mallow

\**Malva parviflora*

Cheeseweed

*Sidalcea sparsifolia*

Southern checkerbloom

***Meliaceae - Mahogany Family***

\**Melia azedarach*

Pride of India

***Montiaceae - Miner's Lettuce Family***

*Claytonia perfoliata*

Common miner's lettuce

***Myrsinaceae - Myrsine Family***

\**Lysimachia arvensis*

Scarlet pimpernel

***Myrtaceae - Myrtle Family***

\**Eucalyptus camaldulensis*

Red gum

\**Eucalyptus citriodora*

Lemon-scented gum

\**Eucalyptus cladocalyx*

Sugar gum

\**Eucalyptus globulus*

Blue gum

\**Melaleuca citrina (Callistemon*

Crimson Bottlebrush

*Citrinus)*

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<sup>5</sup> Federally and state-listed as endangered.

**Nyctaginaceae - Four O'Clock Family**

*Mirabilis laevis* var. *crassifolia* Wishbone bush

**Oleaceae - Olive Family**

\**Jasminum multiflorum* Star jasmine

\**Olea europaea* Olive

**Onagraceae - Evening Primrose Family**

*Camissoniopsis bistorta* California sun cup

*Camissoniopsis hirtella* Hairy sun cup

*Clarkia purpurea* ssp. *quadrivulnera* Winecup clarkia

*Epilobium canum* California fuchsia

*Epilobium ciliatum* Fringed willow-herb

*Eulobus californicus* California primrose

*Oenothera elata* Evening primrose

*Oenothera elata* ssp. *hookeri* Hooker's evening primrose

*Oenothera suffrutescens* Wild honeysuckle

**Orobanchaceae - Broomrape Family**

*Castilleja exserta* ssp. *exserta* Red owl's-clover

*Cordylanthus rigidus* ssp. *setigerus* Bird's beak

*Orobanche* sp. Broomrape species

**Oxalidaceae - Oxalis Family**

*Oxalis californica* California wood sorrel

\**Oxalis pes-caprae* Bermuda buttercup

**Paeoniaceae - Peony Family**

*Paeonia californica* California peony

**Papaveraceae - Poppy Family**

*Eschscholzia californica* California poppy

*Eschscholzia minutiflora* Poppy

*Platystemon californicus* Cream cups

**Phrymaceae - Lopseed Family**

*Mimulus aurantiacus* var. *aurantiacus* Orange bush monkeyflower

*Mimulus aurantiacus* var. *puniceus* Sticky monkeyflower

*Mimulus guttatus* Common monkeyflower

*Mimulus pilosus* Downy monkey flower

**Plantaginaceae - Plantain Family**

*Antirrhinum nuttallianum* ssp. *nuttallianum* Nuttall Snapdragon

*Collinsia heterophylla* var. *austromantana* Downy Chinese houses

*Keckiella ternata* var. *ternata* Penstemon bush

<i>Nuttallanthus texanus</i>	Blue toadflax
<i>Penstemon spectabilis</i> var. <i>spectabilis</i>	Beardtongue
* <i>Plantago coronopus</i>	Cut-leaf plantain
<i>Plantago erecta</i>	California plantain
* <i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	Broadleaf plantain
<i>Veronica anagallis-aquatica</i>	Water speedwell

***Platanaceae - Plane Tree Family***

<i>Platanus racemosa</i>	Western sycamore
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***Plumbaginaceae - Leadwort Family***

* <i>Plumbago auriculata</i>	Cape leadwort
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***Polemoniaceae - Phlox Family***

<i>Eriastrum filifolium</i>	Lavender woolly-star
<i>Eriastrum sapphirinum</i>	Sapphire wool star
<i>Gilia capitata</i>	Globe gilia
<i>Gilia stellata</i>	Star gilia
<i>Navarretia hamata</i> ssp. <i>leptantha</i>	Hooked pincushion plant

***Polygonaceae - Buckwheat Family***

<i>Chorizanthe fimbriata</i> var. <i>fimbriata</i>	Fringed spineflower
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> <sup>3</sup>	Long-spined spineflower
<i>Chorizanthe procumbens</i>	Prostrate spineflower
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	Coastal California buckwheat
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Leafy California buckwheat
<i>Pterostegia drymarioides</i>	Woodland threadstem
* <i>Rumex crispus</i>	Curly dock
<i>Rumex salicifolius</i>	Willow dock

***Primulaceae - Primrose Family***

<i>Primula clevelandii</i>	Padre's shooting star
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***Ranunculaceae - Buttercup Family***

<i>Clematis lasiantha</i>	Chaparral clematis
<i>Clematis pauciflora</i>	Southern California clematis
<i>Delphinium parryi</i>	San Bernardino larkspur
<i>Thalictrum fendleri</i>	Fendler's meadow-rue

***Resedaceae - Mignonette Family***

* <i>Reseda luteola</i>	Dyer's mignonette
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***Rhamnaceae - Buckthorn Family***

<i>Ceanothus leucodermis</i>	Chaparral whitethorn
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<i>Ceanothus oliganthus</i> var. <i>orcuttii</i>	Hairy ceanothus
<i>Ceanothus tomentosus</i>	Woolly leaf ceanothus
<i>Rhamnus crocea</i>	Spiny redberry
<i>Rhamnus ilicifolia</i>	Hollyleaf redberry
<b><i>Rosaceae - Rose Family</i></b>	
<i>Adenostoma fasciculatum</i>	Chamise
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	Birch-leaf mountain mahogany
<i>Heteromeles arbutifolia</i>	Toyon
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-leaf cherry
* <i>Raphiolepis indica</i>	Indian hawthorn
<i>Rosa californica</i>	California rose
<i>Rubus ursinus</i>	California blackberry
<b><i>Rubiaceae - Madder Family</i></b>	
<i>Galium angustifolium</i> ssp. <i>angustifolium</i>	Narrow-leaved bedstraw
<i>Galium aparine</i>	Goose grass
<i>Galium nuttallii</i> ssp. <i>nuttallii</i>	San Diego bedstraw
<i>Galium parisiense</i>	Wall bedstraw
<b><i>Rutaceae - Rue Family</i></b>	
<i>Cneoridium dumosum</i>	Spicebush
<b><i>Salicaceae - Willow Family</i></b>	
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	Narrow-leaved willow
<i>Salix gooddingii</i>	Goodding's black willow
<i>Salix laevigata</i>	Red willow
<i>Salix lasiolepis</i>	Arroyo willow
<b><i>Saururaceae - Lizard's-Tail Family</i></b>	
<i>Anemopsis californica</i>	Yerba mansa
<b><i>Scrophulariaceae - Figwort Family</i></b>	
<i>Scrophularia californica</i>	California figwort
<b><i>Simaroubaceae - Quassia Family</i></b>	
* <i>Ailanthus altissima</i>	Tree of heaven
<b><i>Solanaceae - Nightshade Family</i></b>	
<i>Datura wrightii</i>	Thornapple
* <i>Nicotiana glauca</i>	Tree tobacco
* <i>Solanum elaeagnifolium</i>	White horse-nettle
<i>Solanum parishii</i>	Parish's purple nightshade

***Tamaricaceae - Tamarisk Family***

\**Tamarix ramosissima* Salt cedar

***Urticaceae - Nettle Family***

*Urtica dioica* ssp. *holosericea* Hoary nettle

***Verbenaceae - Vervain Family***

\**Lantana camara* Lantana  
*Verbena menthifolia* Mint leafed vervain

***Violaceae - Violet Family***

*Viola pedunculata* Johnny-jump-up

***Vitaceae - Grape Family***

*Vitis girdiana* Desert wild grape

***Zygophyllaceae - Caltrop Family***

\**Tribulus terrestris* Puncture vine

**Angiosperms -Monocots**

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***Agavaceae – Agave Family***

\**Agave americana* Century plant  
 \**Agave attenuata* Lion’s tail agave  
 \**Cordyline australis* Tī kōuka  
*Hesperoyucca whipplei* Our Lord’s candle  
*Yucca schidigera* Mohave yucca

***Alliaceae - Onion Family***

*Allium* sp. Onion species

***Areaceae (Palmae) - Palm Family***

\**Washingtonia robusta* Mexican fan palm  
 \**Phoenix canariensis* Canary Island date palm

***Asphodelaceae - Asphodel Family***

\**Aloe maculata* Zebra aloe  
 \**Asphodelus fistulosus* Asphodel

***Cyperaceae - Sedge Family***

*Carex triquetra* Triangular fruit sedge  
*Crex spissa* San Diego sedge  
*Cyperus eragrostis* Tall flatsedge  
*Eleocharis macrostachya* Creeping spikerush  
*Eleocharis montevidensis* Montevideo spike rush

<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	Common tule
<i>Schoenoplectus americanus</i>	Olney's bulrush
<b><i>Hyacinthaceae - Hyacinth Family</i></b>	
<i>Chlorogalum parviflorum</i>	Small-flowered amole
<i>Chlorogalum pomeridianum</i> var. <i>divaricatum</i>	Soaproot
<b><i>Iridaceae - Iris Family</i></b>	
* <i>Dietes grandiflora</i>	Fairy iris
<i>Sisyrinchium bellum</i>	Western blue-eyed grass
<b><i>Juncaceae - Rush Family</i></b>	
<i>Juncus acutus</i> ssp. <i>leopoldii</i> <sup>2</sup>	Southwestern spiny rush
<i>Juncus bufonius</i>	Toad rush
<i>Juncus dubius</i>	Dubius rush
<i>Juncus mexicanus</i>	Mexican rush
<b><i>Liliaceae - Lily Family</i></b>	
<i>Calochortus splendens</i>	Lilac mariposa lily
<i>Calochortus weedii</i> var. <i>weedii</i>	Mariposa lily
<b><i>Poaceae (Gramineae) - Grass Family</i></b>	
* <i>Agrostis avenacea</i>	Pacific bentgrass
<i>Alopecurus</i> sp.	Foxtail species
<i>Aristida purpurea</i> var. <i>wrightii</i>	Wright's threeawn
* <i>Arundo donax</i>	Giant reed
* <i>Avena barbata</i>	Slender wild oat
* <i>Avena fatua</i>	Wild oat
<i>Bothriochloa barbinodis</i>	Beard grass
* <i>Brachypodium distachyon</i>	Purple falsebrome
* <i>Briza minor</i>	Little rattlesnake grass
* <i>Bromus diandrus</i>	Ripgut grass
* <i>Bromus hordeaceus</i>	Soft chess
* <i>Bromus madritensis</i> ssp. <i>madritensis</i>	Foxtail chess
* <i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome
* <i>Bromus tectorum</i>	Cheatgrass
* <i>Cortaderia selloana</i>	Selloa pampas grass
* <i>Cynodon dactylon</i>	Bermuda grass
<i>Distichlis spicata</i>	Saltgrass
* <i>Ehrharta calycina</i>	Panic veldt grass
<i>Elymus condensatus</i>	Giant wildrye
<i>Elymus triticoides</i> ssp. <i>triticoides</i>	Creeping wildrye
* <i>Festuca myuros</i>	Rattail sixweeks grass
* <i>Festuca perennis</i>	Italian ryegrass

<i>*Gastridium phleoides</i>	Nit grass
<i>*Hordeum murinum</i>	Foxtail barley
<i>Koeleria macrantha</i>	June grass
<i>*Lamarckia aurea</i>	Goldentop
<i>Melica frutescens</i>	Heligrass
<i>Melica imperfecta</i>	Small-flowered melic
<i>*Melinis repens</i>	Natal grass
<i>Muhlenbergia microsperma</i>	Littleseed muhly
<i>Muhlenbergia rigens</i>	Deer grass
<i>*Pennisetum clandestinum</i>	Kikuyu grass
<i>*Pennisetum setaceum</i>	Crimson fountain grass
<i>*Phalaris aquatica</i>	Harding grass
<i>*Phleum pratense</i>	Common timothy
<i>Poa secunda</i> ssp. <i>secunda</i>	One sided blue grass
<i>*Polypogon monspeliensis</i>	Rabbit's-foot grass
<i>*Schismus barbatus</i>	Mediterranean grass
<i>Stipa coronata</i>	Crested needle grass
<i>Stipa lepida</i>	Foothill needlegrass
<i>Stipa miliacea</i>	Smilo grass
<i>Stipa pulchra</i>	Purple needlegrass

***Themidaceae - Brodiaea Family***

<i>Bloomeria clevelandii</i> <sup>3</sup>	San Diego goldenstar
<i>Bloomeria crocea</i>	Common goldenstar
<i>Brodiaea orcuttii</i> <sup>3</sup>	Orcutt's brodiaea
<i>Brodiaea terrestris</i> ssp. <i>kernensis</i>	Kern brodiaea
<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	Blue dicks

***Typhaceae - Cattail Family***

<i>Typha domingensis</i>	Southern cattail
<i>Typha latifolia</i>	Common cattail

**ATTACHMENT E: SPECIAL-STATUS PLANT SPECIES PHOTOGRAPHS**



**ATTACHMENT E: SPECIAL-STATUS PLANT SPECIES PHOTOGRAPHS**



**Photograph 1:**  
San Diego mesa mint  
(*Pogogyne abramsii*) in a  
vernal pool near Harris  
Plant Road within the  
Kearny Villa Road  
Alternative Route  
Segment Biological  
Resources BRSA  
(BRSA).



**Photograph 2:**  
Willowy monardella  
(*Monardella viminea*)  
within the Non-Miramar  
Alternative BRSA.



**Photograph 3:**  
Willowy monardella  
within the West of  
Aqueduct Road  
Alternative Route  
Segment BRSA.



**Photograph 4:**  
Decumbent goldenbush  
(*Isocoma menziesii* var.  
*decumbens*) within the  
Non-Miramar Alternative  
BRSA.



**Photograph 5:**  
Dry long-spined  
spineflower (*Chorizanthe  
polygonoides* var.  
*longispina*) within the  
West of Aqueduct Road  
Alternative Route  
Segment BRSA.



**Photograph 6:**  
Nuttall's scrub oak  
(*Quercus dumosa*) and  
Orcutt's brodiaea  
(*Brodiaea orcuttii*) within  
the West of Aqueduct  
Road Route Segment  
Alternative BRSA.



**Photograph 7:**  
Western dichondra  
(*Dichondra occidentalis*)  
within the West of  
Aqueduct Road Route  
Segment Alternative  
BRSA.



**Photograph 8:**  
San Diego barrel cactus  
(*Ferocactus viridescens*)  
within the Spring Canyon  
Firebreak Route Segment  
Alternative BRSA.



**Photograph 9:**  
San Diego barrel cactus  
within the Non-Miramar  
Alternative BRSA.



**Photograph 10:**  
San Diego goldenstar  
(*Bloomeria clevelandii*)  
within the Spring Canyon  
Firebreak Route Segment  
Alternative BRSA.



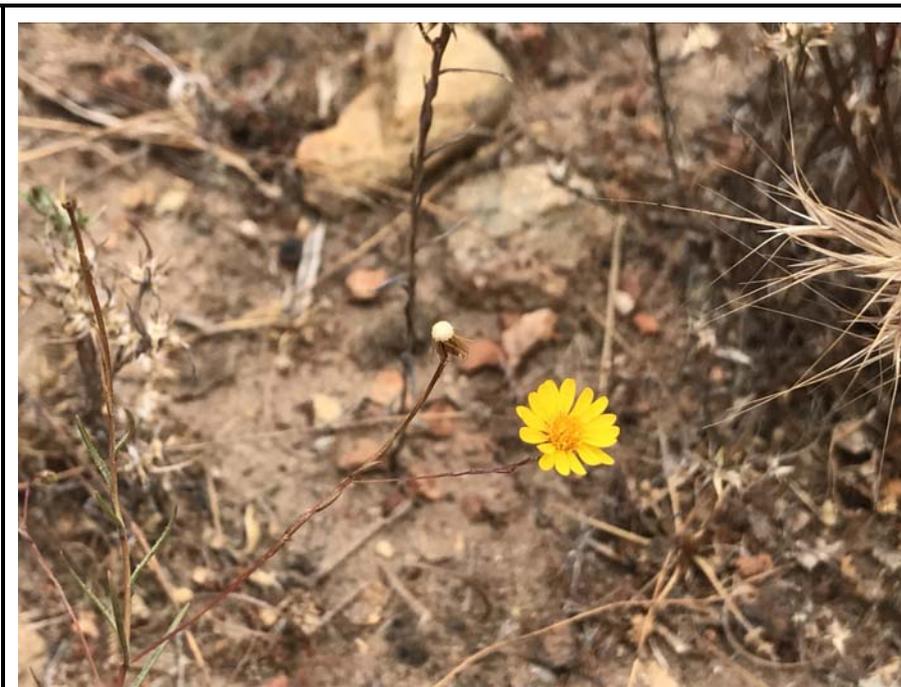
**Photograph 11:**  
Variegated dudleya  
(*Dudleya variegata*)  
within the Spring Canyon  
Firebreak Route Segment.  
Alternative BRSA.



**Photograph 12:**  
Ashy spike-moss  
(*Selaginella cinerascens*)  
within the Non-Miramar  
Alternative BRSA.



**Photograph 13:**  
Planted Engelmann oak  
(*Quercus engelmannii*) in  
Goodan Ranch within the  
Non-Miramar Alternative  
BRSA.



**Photograph 14:**  
Golden-rayed pentachaeta  
(*Pentachaeta aurea* ssp.  
*aurea*) within the Spring  
Canyon Firebreak  
Alternative BRSA.



**Photograph 15:**  
Graceful tarplant  
(*Holocarpa virgata* ssp.  
*elongata*) within the Non-  
Miramar Alternative  
BRSA.



**Photograph 16:**  
San Diego County  
viguiera (*Bahioopsis*  
[*Viguiera*] *laciniata*) on  
the south side of Scripps  
Poway Parkway within  
the Non-Miramar  
Alternative BRSA.



**Photograph 17:**  
Southwestern spiny rush  
(*Juncus acutus* ssp.  
*leopoldii*) within the  
Minor Design  
Refinements Lake  
Hodges East Yard BRSA.



**Photograph 18:**  
California black walnut  
(*Juglans californica*)  
within the Non-Miramar  
Alternative BRSA.