

**ATTACHMENT G: ARROYO TOAD SURVEY REPORT**



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**SAN DIEGO GAS & ELECTRIC COMPANY AND SOUTHERN CALIFORNIA GAS COMPANY'S  
PIPELINE SAFETY & RELIABILITY PROJECT  
ARROYO TOAD PROTOCOL SURVEY REPORT**

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SEPTEMBER 2015

PREPARED FOR:



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## 1 – INTRODUCTION

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company—herein after referred to as the Applicants—are proposing the Pipeline Safety & Reliability Project (Proposed Project), which involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E’s existing Rainbow Metering Station to the pipeline’s terminus on Marine Corps Air Station (MCAS) Miramar.

Insignia Environmental (Insignia) and Borchers Environmental Management conducted a protocol-level arroyo toad (*Anaxyrus [=Bufo] californicus*) survey for the Proposed Project in accordance with the United States (U.S.) Fish and Wildlife Service (USFWS) survey protocol for arroyo toad (USFWS 1999). Insignia assessed the potential for arroyo toad to occur within the Biological Resources Survey Area (BRSA), which includes all Proposed Project components plus an approximately 150-foot buffer on each side of these components. In total, the BRSA covers approximately 2,264 acres. Based on Insignia’s initial habitat assessment and vegetation mapping within the BRSA, Borchers Environmental Management conducted arroyo toad habitat assessments within 152.7 acres of riparian and/or wetland habitat in April 2015. Borchers Environmental Management determined that approximately 105.3 acres did not provide sufficient habitat (e.g., sandy substrate, low-gradient stream flow, upland sandy or gravel terrace, or appropriate hydrological regime) for arroyo toad, resulting in a total of approximately 47.4 acres that were included in the protocol-level surveys. Six surveys were conducted in accordance with the protocol from April through June 2015. No arroyo toads (i.e., eggs, tadpoles, metamorphs, or adults) were observed.

This report summarizes the field methods and results of the protocol-level surveys for arroyo toad. Additional surveys in specific areas that had arroyo toad habitat are recommended during non-drought years prior to construction of the Proposed Project.

## 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, as well as permanent aboveground equipment that will be appurtenant to the pipeline. This permanent aboveground equipment includes the following:

- approximately 10 new aboveground mainline valves (MLV) spaced a maximum of five miles apart;
- one pressure-limiting station (i.e., the Rainbow Pressure-Limiting Station);
- three cross-tie facilities (i.e., Line 1600, Line 1601, and Line 2010);
- internal inspection launching and receiving equipment;
- cathodic protection system units with an estimated three rectifiers and three deep-well anode beds at three of the proposed MLVs; and
- an intrusion detection and leak monitoring system.

Construction is scheduled to begin in the first quarter of 2018 and is expected to take 12 to 18 months to complete.<sup>1</sup> The Applicants are required to comply with General Order 112-E in constructing a natural gas transmission pipeline and is choosing to seek a CPCN from the CPUC for the Proposed Project. Federal authorizations will also be required because the Proposed Project route includes land under the jurisdiction of the Department of the Navy/U.S. Marine Corps (USMC). In addition to the CPCN and the authorizations on MCAS Miramar, the Applicants will obtain all required permits for the Proposed Project from federal, state, and local agencies prior to construction.

It is anticipated that the Department of the Navy will serve as the lead federal agency for the Proposed Project under the National Environmental Policy Act because the Proposed Project will require a new easement for rights-of-way (ROWs) through MCAS Miramar. Additionally, if the Department of the Navy determines that the authorization for the construction and operation of the Proposed Project “may affect” species listed under the federal Endangered Species Act (FESA), the lead federal agency will be expected to engage in Section 7 consultation with the USFWS regarding the effects to listed species.

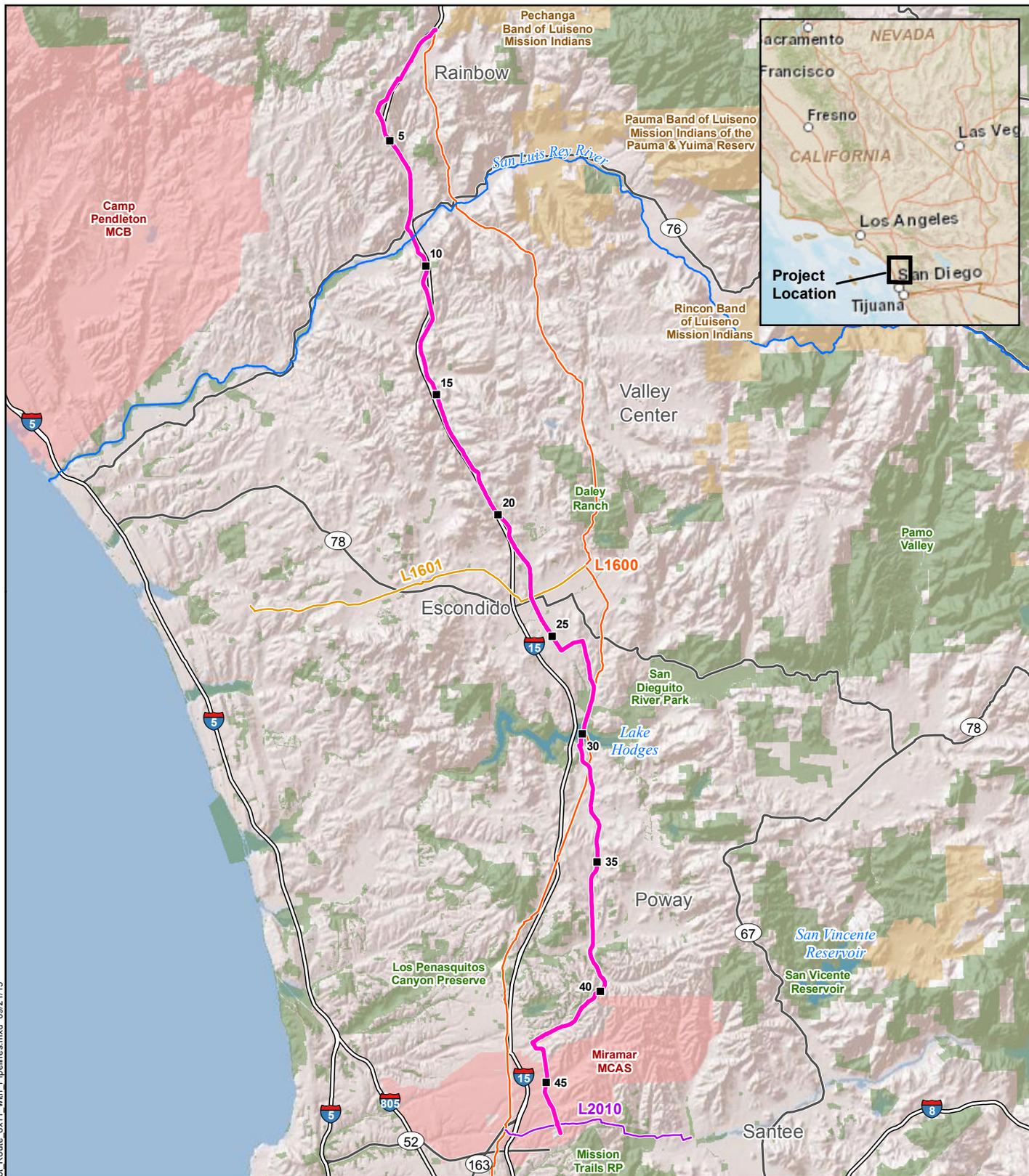
## 2.1 PROJECT LOCATION AND SETTING

The Proposed Project is located in San Diego County, California, and crosses the cities of San Diego, Escondido, and Poway; unincorporated communities of San Diego County; and federal land. As depicted in Figure 1: Project Overview Map, the potential route begins at SDG&E’s existing Rainbow Metering Station in the unincorporated community of Rainbow and terminates just north of State Route (SR-) 52 within MCAS Miramar. Within MCAS Miramar, the route parallels an unpaved aqueduct road for approximately 2.6 miles. The Proposed Project will tie into the existing Line 2010 at its southern terminus.

The Proposed Project will be installed primarily within existing roadways and road shoulders. Approximately 41 miles (87 percent) of the Proposed Project will be installed in urban areas within existing roadways and road shoulders, and the remaining approximately six miles (approximately 13 percent) of the Proposed Project will be installed cross-country. The pipeline will be installed approximately 42 inches below the ground surface using conventional trenching methods. The pipeline alignment will cross several major roads, including Interstate (I-) 15, and a number of water features, including Rainbow Creek, the San Luis Rey River, Moosa Creek, San Dieguito River/Lake Hodges, Escondido Creek, Poway Creek, Beeler Creek, Carroll Canyon Creek, and Rose Creek. At the crossings of the San Luis Rey River and Lake Hodges, horizontal directional drilling and horizontal boring methods will be implemented to minimize impacts to riparian habitat and water quality. Horizontal boring may be used to install the pipeline beneath other waterbodies, which will allow the pipeline to be installed without disturbing the surface of the area being crossed.

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<sup>1</sup> The construction start date is based on receiving a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC) by 2017 and the issuance of other required permits by late 2017 or early 2018.

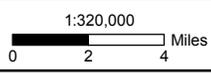


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**Figure 1: Project Overview Map**

**Pipeline Safety & Reliability Project**

- |                          |                            |                            |
|--------------------------|----------------------------|----------------------------|
| ■ Milepost               | — Interstate               | ■ Parks                    |
| — Proposed Project Route | — Major Road/State Highway | ■ Military                 |
| — Line 1601              |                            | ■ Bureau of Indian Affairs |
| — Line 1600              |                            |                            |
| — Line 2010              |                            |                            |





## **3 – REGULATORY FRAMEWORK**

### **3.0 FEDERAL ENDANGERED SPECIES ACT OF 1973**

Because the arroyo toad is federally listed as endangered, the Proposed Project will need to comply with the FESA in order to address any potential impacts to this species. The FESA protects plants and wildlife that are listed as endangered or threatened by the USFWS and the National Oceanic and Atmospheric Administration’s (NOAA’s) National Marine Fisheries Service. The FESA prohibits take of endangered wildlife without USFWS authorization, where “take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (16 U.S. Code §§ 1532(19), 1538).

Under Section 7 of the FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed species (including plants) or its critical habitat. Through consultation and the issuance of a Biological Opinion, the USFWS may issue an incidental take statement, allowing take of the species that is incidental to another authorized activity, provided that the action will not jeopardize the continued existence of the species.

## **4 – METHODOLOGY**

### **4.0 BACKGROUND RESEARCH**

Background data on the distribution and abundance of arroyo toad within the BRSA were obtained through a literature review of publicly available spatial data in ArcGIS, including the California Natural Diversity Database (CNDDDB) (CDFW 2015)—through which a search was conducted for the five miles<sup>2</sup> surrounding the Proposed Project, as well as special-status species listed as occurring within MCAS Miramar (USMC 2014). Reference materials were also utilized, such as wildlife occurrence databases and local guides.

In addition, the USFWS Critical Habitat Portal (USFWS 2015) was searched to determine if arroyo toad critical habitat was designated within the BRSA. The USFWS Critical Habitat Portal provides geographic information system data showing the location of all final designated critical habitat in San Diego County.

### **4.1 HABITAT ASSESSMENT**

A Borchers Environmental Management biologist with in-depth experience with arroyo toad biology and survey techniques conducted an initial habitat assessment on approximately 152.7 acres of wetland and riparian communities within the BRSA that could support the arroyo toad.

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<sup>2</sup> The use of a five-mile buffer is intended to capture all known occurrences within the vicinity and surrounding areas of the Proposed Project. A larger buffer typically includes many species that will not actually occur within the Proposed Project area, and a smaller buffer may omit species with larger geographic ranges from the potential to occur lists.

Habitat suitability was determined based on the presence of primary constituent elements (USFWS 2005), including the following:

- sandy or gravel substrate;
- adjacent, open, sandy, or gravel terraces;
- braided channels;
- a hydrological regime that provides extended periods of surface water to complete the breeding cycle;
- low-gradient stream flow sections;
- sparsely vegetated sand or gravel terraces;
- a flowing regime that allows for scouring and sand deposition;
- few or no non-native wildlife species (e.g. crustaceans, game fish, and bullfrogs);
- few or no dense stands of non-native plants (giant reed [*Arundo donax*]); and
- the lack of artificial barriers that prevent toad movement or flooding.

The biologist determined that approximately 105.3 acres assessed do not provide suitable habitat for the arroyo toad. Although the habitat assessment and focused surveys are intended to detect breeding habitat, areas excluded from surveys also do not likely support arroyo toad non-breeding activities (e.g., foraging or dispersal). For example, some drainages contained either a rocky, rip-rap, or concrete channel bottom; were severely incised with no terraces; were isolated in urban areas between underground storm water systems; or did not contain channels and supported only marsh habitat. These areas are shown in Photographs 1 through 4 of Attachment B: Arroyo Toad Survey Photographs.

The San Dieguito River / Lake Hodges portion of the BRSA did not exhibit a noticeable channel because this waterbody is a currently dry, completely vegetated lake bed with altered hydrology caused by the presence of a downstream dam. The San Dieguito River / Lake Hodges portion of the BRSA had no visible channel or sandy substrate, instead consisting of thick, perennial marsh vegetation, which precludes the presence of arroyo toad. A natural hydrological regime and sand deposition are essential to support arroyo toad populations. As a result of the habitat assessment, surveys for this species were conducted at 11 separate survey sites comprising approximately 47.4 acres of suitable habitat.

Sites that were selected for protocol surveys are within the Santa Margarita, San Luis Rey, San Dieguito, and Los Peñasquitos watersheds. All four of these watersheds are known to support arroyo toad populations, contain designated critical habitat, or were identified as supporting good-quality arroyo toad habitat (USFWS 2005, USGS 2005). Each of the 11 survey sites are described in detail in the following section.

## 4.2 PROTOCOL SURVEYS

Surveys for the arroyo toad were conducted in accordance with the USFWS protocol, and were conducted as follows:

- At least six surveys were conducted during the breeding season, which generally occurs from March through July, with at least seven days between surveys.
- At least one survey was conducted per month during April, May, and June.

- Surveys included both daytime and nighttime components conducted within the same 24-hour period.

Surveys performed in accordance with USFWS survey guidelines do not require a recovery permit under Section 10(a)(1)(A) of the FESA.

A total of 11 survey sites were surveyed on six separate occasions between April 8 and June 25, 2015, as detailed in Table 1: Arroyo Toad Protocol Survey Schedule. Survey sites were grouped by geographic location, and the surveys included a daytime and nighttime component per the survey protocol. Survey Sites 1 through 6 are situated between the community of Rainbow and Gopher Canyon Road, and are included in survey group “a.” Survey Sites 7 through 11 are located between Gopher Canyon Road and the southern portion of the City of Poway, and are included in survey group “b.” Table 1: Arroyo Toad Protocol Survey Schedule includes a complete schedule for each survey by geographic area. Survey areas are shown on Attachment A: 2015 Arroyo Toad Survey Sites. Photographs of each survey site are shown in Attachment B: Arroyo Toad Survey Photographs.

### 4.3 SURVEY LIMITATIONS

Arroyo toad surveys were conducted within the BRSA during drought conditions. Between October 1, 2014 and April 26, 2015, the area experienced approximately 66 percent of the normal rainfall, according to the San Diego Lindberg Field station (NOAA 2015), and temperatures were four to eight degrees above normal from January to April 2015 (U.S. Climate Data 2015). The USFWS (2014) identifies drought as a high threat to this species due to the possibility that it reduces foraging and breeding success and alters the processes that create and maintain suitable breeding habitat. The USFWS cautions that negative surveys during a year of severe weather, including drought, can be inconclusive. Additional surveys will be conducted within specific habitat areas, as discussed in Section 5.2 Protocol Surveys, during normal or above-normal rainfall years to conclusively determine presence/absence of arroyo toad within the BRSA.

## 5 – RESULTS

### 5.0 CNDDDB OCCURRENCE DATA

Two CNDDDB occurrences of arroyo toad have been documented within 0.25 mile of the BRSA and are associated with the San Luis Rey River. Within five miles of the BRSA, six occurrences of arroyo toad have been documented in the CNDDDB. Of these six occurrences, three are upstream of the BRSA along the San Luis Rey River, one is in a tributary to the San Luis Rey River downstream of the BRSA, one is located along Pala Creek, east of the BRSA, and one is located along a tributary to the San Dieguito River north of Lake Hodges. All CNDDDB occurrences within five miles are shown on Figure A-2: CNDDDB Occurrences for Special-Status Wildlife Species in the Biological Resources Technical Report (Insignia Environmental 2015).

**Table 1: Arroyo Toad Protocol Survey Schedule**

<b>Biologists</b>	<b>Survey Type/#</b>	<b>Geographic Area</b>	<b>Dates</b>	<b>Weather/Visibility</b>
Andrew Borchner and John Lovio	Habitat Assessment	San Diego County line to SR-78	April 2, 2015	Mostly sunny, 65 to 74 degrees Fahrenheit (°F), 1- to 4-mile-per-hour (mph) wind
Andrew Borchner and John Lovio	Habitat Assessment	SR-78 to the southern portion of the City of Poway	April 3, 2015	Mostly sunny, 60 to 72°F, 1- to 4-mph wind
Andrew Borchner and Eric Nicholson	Survey 1a	Community of Rainbow to Gopher Canyon	April 9, 2015	Clear, 76 to 58°F, 4- to 12-mph wind
Andrew Borchner and Eric Nicholson	Survey 1b	Gopher Canyon to the southern portion of the City of Poway	April 10, 2015	Clear, 73 to 62°F, 4- to 12-mph wind
Andrew Borchner and K. Kilpatrick	Survey 2a	Community of Rainbow to Gopher Canyon	April 23, 2015	Overcast, 67 to 61°F, up to 3-mph wind
Andrew Borchner, Kevin Kilpatrick, and Rachel Borchner	Survey 2b	Gopher Canyon to the southern portion of the City of Poway	April 24, 2015	Mostly clear, 67 to 61°F, up to 2-mph wind
Andrew Borchner and Rachel Borchner	Survey 3a	Community of Rainbow to Gopher Canyon	May 8, 2015	Partly cloudy, 70 to 56°F, up to 4-mph wind
Andrew Borchner and Rachel Borchner	Survey 3b	Gopher Canyon to the southern portion of the City of Poway	May 10, 2015	Clear, 73 to 62°F, no wind
Andrew Borchner and Rachel Borchner	Survey 4a	Gopher Canyon to the southern portion of the City of Poway	May 18, 2015	Partly cloudy, 70 to 59°F, up to 5-mph wind
Andrew Borchner and Rachel Borchner	Survey 4b	Community of Rainbow to Gopher Canyon	May 19, 2015	Clear, 74 to 57°F, up to 8-mph wind
Andrew Borchner and Rachel Borchner	Survey 5a	Gopher Canyon to the southern portion of the City of Poway	June 10, 2015	Overcast, 71 to 64°F, up to 4-mph wind
Andrew Borchner and Rachel Borchner	Survey 5b	Community of Rainbow to Gopher Canyon	June 11, 2015	Overcast, 76 to 67°F, up to 8-mph wind

<b>Biologists</b>	<b>Survey Type/#</b>	<b>Geographic Area</b>	<b>Dates</b>	<b>Weather/Visibility</b>
Andrew Borchert and Rachel Borchert	Survey 6a	Community of Rainbow to Gopher Canyon	June 23, 2015	Clear, 84 to 68°F, up to 4-mph wind
Andrew Borchert and Rachel Borchert	Survey 6b	Gopher Canyon to the southern portion of the City of Poway	June 24, 2015	Clear, 85 to 65°F, up to 10-mph wind

## 5.1 CRITICAL HABITAT

The USFWS has designated critical habitat for the arroyo toad within 61.2 acres of the BRSA. All of the critical habitat for arroyo toad within the BRSA is located along the San Luis Rey River. Additional critical habitat within 0.5 mile of the BRSA has been designated east of the BRSA along the San Dieguito River/Lake Hodges. As mentioned in Section 4.1 Habitat Assessment, the portion of the San Dieguito River/Lake Hodges within the BRSA did not exhibit suitable habitat for arroyo toad due to the presence of thick, perennial vegetation, and the lack of sandy substrate associated with a stream channel. Critical habitat areas for arroyo toad are shown on Figure A-7: Designated Critical Habitat of the Biological Resources Technical Report (Insignia Environmental 2015).

## 5.2 PROTOCOL SURVEYS

No arroyo toad individuals or their sign (e.g., vocalizations, breeding calls, egg deposition sites etc.) were observed during protocol surveys for this species. Amphibians detected during the surveys included western toad (*Anaxyrus boreas*), American bullfrog (*Lithobates catesbeianus*), and Baja California treefrog (*Pseudacris hypochondriaca hypochondriaca*). Observations for each site are detailed in the following subsections.

### 5.2.0 Survey Site 1 (Rainbow Creek)

#### Survey Site Description

Survey Site 1 is located south of the community of Rainbow and includes a sandy channel with adjacent soft soil terraces, as show in Photographs 5 and 6 of Attachment B: Arroyo Toad Survey Photographs. This channel drains agricultural areas and nurseries, and undeveloped upland slopes to the south and east into Sandia Creek approximately five miles to the west. Sandia Creek is a direct tributary into the Santa Margarita River. Survey Site 1 consists of braided channels that supported surface flow during every survey. Water flowed from east to west underneath Old Highway 395 through large box culverts and a corrugated steel culvert. The channel margins consisted of vegetated patches of emergent wetland and mule fat (*Baccharis salicifolia*) scrub. Some riparian trees, including mature western sycamore (*Platanus racemosa*) and coast live oak (*Quercus agrifolia*), occur in the greater floodplain east of Old Highway 395.

#### Survey Results

Survey Site 1 sustained unnatural surface flow, and is in proximity to urban areas and nurseries, resulting in the presence of many non-native plants and wildlife. For example, mosquito fish (*Gambusia affinis*), freshwater crayfish (*Procambarus* sp.), and American bullfrog were all observed within the channel. An American bullfrog tadpole within Survey Site 1 is shown in Photograph 7 of Attachment B: Arroyo Toad Survey Photographs. The presence of certain wildlife species, such as crayfish and bullfrogs, reduces the potential for arroyo toad to be breed in this drainage because these species predate on arroyo toad eggs, larvae, and juveniles. The channel also supported Baja California treefrog tadpoles and adults, as shown in Photograph 8 of Attachment B: Arroyo Toad Survey Photographs. No other amphibians were detected.

Although the drainage had some elements required for arroyo toad breeding it is at the top of the watershed and appears to be supported by an unnatural hydrological regime. This site has no documented CNDDDB occurrences of arroyo toad and no critical habitat has been designated this far upstream. No further surveys are recommended.

### **5.2.1 Survey Site 2 (San Luis Rey River)**

#### **Survey Site Description**

Survey Site 2 is located within the San Luis Rey River between I-15 and Old Highway 395. The wide, sandy, and braided channel is densely vegetated with southern cottonwood willow riparian forest, as shown in Photograph 9 of Attachment B: Arroyo Toad Survey Photographs. With the exception of one small pond that measures less than 20 feet in circumference, no surface water was observed within Survey Site 2 during any of the surveys. The lack of surface water is likely due to the drought and the man-made impoundments east of I-15. Evidence of surface flow was observed after rain events between surveys, especially west of the survey site underneath Old Highway 395, as shown in Photograph 10 of Attachment B: Arroyo Toad Survey Photographs. The floodplain was very densely vegetated and does not appear to have flooded in several years.

#### **Survey Results**

Two western toads were observed foraging on the gravel access road to the north and above the channel on the sixth survey, as shown in Photograph 11 of Attachment B: Arroyo Toad Survey Photographs. No other amphibians were detected.

The San Luis Rey River is known to support arroyo toad, including a population approximately 1.1 miles upstream that was observed in 2005 by Andrew Borchert during unrelated surveys. The survey site supports high-quality arroyo toad habitat and will be resurveyed during a normal or better-than-normal rainfall year to definitively determine the species' presence or absence.

### **5.2.2 Survey Site 3 (Champagne Lakes RV Resort)**

#### **Survey Site Description**

Survey Site 3 is mostly located on and adjacent to the Champagne Lakes RV Resort and includes a small (less than six feet wide), sandy, braided channel. The drainage consisted of surface flow on and off during the six surveys. Water that flowed east to west and north to south was likely created by upstream agriculture and pond releases. Artificial fishing ponds occur upstream on the Champagne Lakes RV Resort grounds. Flow through this site eventually travels southwest into a direct tributary to the San Luis Rey River. The floodplain is somewhat contained with a gradual slope above unvegetated soft soil and sandy terraces, as shown in Photograph 12 of Attachment B: Arroyo Toad Survey Photographs. Coast live oak trees occur above the terraces on both sides of the channel. The lack of streamside vegetation and understory is likely due to mechanical removal by humans, which biologists witnessed within the resort during the surveys. Survey Site 3 also includes a small tributary on the east side of Old Highway 395 that flows underneath the highway and into the resort drainage. This drainage appeared more ephemeral in nature, but also supported some willow (*Salix* spp.) trees and mule fat.

## Survey Results

Baja California treefrog tadpoles and adults were observed in the pools in the channel, especially upstream near the road culverts. No other amphibians were detected. Although the drainage had some elements required for arroyo toad breeding, it appeared to be created, maintained, and supported by an unnatural hydrological regime. This site has no documented CNDDDB occurrences of arroyo toad, and no critical habitat has been designated at this location. As a result, it is not likely this site supports arroyo toad. No further surveys are recommended.

### 5.2.3 Survey Site 4 (Camino Del Rey North)

#### Survey Site Description

Survey Site 4 is located south of the Champagne Lakes RV Resort and north of Camino Del Rey. This section of the channel flows north to south, and is fed by the drainage that flows through the Champagne Lakes RV Resort to the northeast (i.e., Survey Site 3). This site consists of a sandy channel bottom that is mostly densely vegetated with mule fat scrub and scattered willow trees, as shown in Photograph 13 of Attachment B: Arroyo Toad Survey Photographs. The terraces consist of a partially gravel substrate, but are somewhat confined by I-15 to the west or Old Highway 395 to the east. The channel eventually flows into concrete box culverts under Camino Del Rey to the south. The culverts continue under I-15 and into a tributary to the San Luis Rey River. Although no surface water was observed during surveys, biologists observed evidence of recent flow caused by a rain event between surveys.

#### Survey Results

No amphibians were detected during the surveys. This channel is at the top of the watershed and is supported mostly by urban and agricultural runoff. The channel structure is generally too confined and controlled to be appropriate for arroyo toad. Furthermore, this site has no documented CNDDDB occurrences of arroyo toad, and no critical habitat has been designated at this location. No further surveys are recommended.

### 5.2.4 Survey Site 5 (Camino Del Rey South)

#### Survey Site Description

Survey Site 5 consists of a portion of Moosa Creek located south of Camino Del Rey. As shown in Photograph 14 of Attachment B: Arroyo Toad Survey Photographs, Survey Site 5 has a sandy and sometimes rocky, braided channel. The channel margins support mule fat scrub and scattered willow trees. This channel flows south to north, and drains a relatively large area that includes Gopher Canyon, as well as residential, agricultural, and undeveloped areas to the south and east. The floodplain of Moosa Creek at Survey Site 5 is somewhat confined by I-15 to the west and Old Highway 395 to the east. There is also a man-made impoundment of Moosa Creek within the campground that occurs upstream between Survey Site 5 and Survey Site 6. Moosa Creek eventually flows north into concrete box culverts under Camino Del Rey. The culverts continue under I-15 and into a tributary to the San Luis Rey River. Although no surface water was observed during surveys, biologists observed evidence of recent flow caused by a rain event between surveys.

## Survey Results

No amphibians were detected at Survey Site 5 during the surveys. Due to the confinement of the channel and the upstream impoundment, it is not likely that this drainage could support arroyo toad. This site has not been designated as critical habitat, and no CNDDDB occurrences of arroyo toad have been made at this site. No further surveys are recommended.

### 5.2.5 Survey Site 6 (Gopher Canyon)

#### Survey Site Description

Survey Site 6 consists of a portion of Moosa Creek located between Gopher Canyon Road to the south and the campground impoundment to the north. Survey Site 6 eventually flows into Survey Site 5. This segment of Moosa Creek drains a relatively large area that includes Gopher Canyon, as well as residential, agricultural, and undeveloped areas to the east. This segment is characterized by braided, sandy channel with dense riparian vegetation, including willow and oak trees, as shown in Photograph 15 of Attachment B: Arroyo Toad Survey Photographs. The hydrological regime is unnatural due to upstream impoundments in the golf course, and other flood control systems associated with the residential and agricultural developments. This channel did consist of surface flow for the first three surveys, but was dry for the remaining three surveys. Soft soil and sand terraces occur east of Old Highway 395. However, the terraces are densely covered with vegetation and are unlikely to be scoured again due to the flood control systems and impoundments upstream.

#### Survey Results

Baja California treefrog adults and tadpoles were observed at this location. No other amphibians were detected. It is not likely this channel could support arroyo toad due to an unnatural hydrological regime and lack of an open floodplain. This site has not been designated as critical habitat, and no CNDDDB occurrences of arroyo toad have been made at this site. No further surveys are recommended.

### 5.2.6 Survey Site 7 (Sandy Hill Road)

#### Survey Site Description

Survey Site 7 is located adjacent to an undeveloped field between two large ranches near Sandy Hill Road. This site is downstream from the Welk Resort and upstream from Gopher Canyon, and drains north into Survey Site 6. The drainage is characterized by a wide (up to 15 feet) sandy channel that supports patches of riparian vegetation and oak woodland, as shown in Photograph 16 of Attachment B: Arroyo Toad Survey Photographs. Although the terrace areas are mostly compacted soil, some soft soil, gravel, and sand do occur. The floodplain is much wider south of Survey Site 7 before reaching the Welk Resort. No surface water was ever observed during the surveys. This channel drains a large area that includes the Welk Resort and surrounding undeveloped hillsides to the south. Natural flooding is at least partially regulated by the impoundments on the Welk Resort golf course that are upstream of the channel. This channel has portions that are undeveloped and undisturbed, especially when compared to most of the other drainages in the area.

## Survey Results

Western toads were observed on several occasions foraging on both sides of the channel in the adjacent fields and gravel roads, as shown in Photograph 17 of Attachment B: Arroyo Toad Survey Photographs. No other amphibians were detected. Although this drainage is now isolated from a larger stream system, it likely represents what the drainage may have historically looked like in the area. There is a wide channel that appears to flood on occasion, and there is evidence of sand deposition. The presence of arroyo toad cannot be ruled out completely, and as a result, there is low potential for arroyo toad to occur within Survey Site 7. Surveys will be conducted during a normal or better-than-normal rainfall year to definitively determine the species' presence or absence.

### 5.2.7 Survey Site 8 (Welk Resort)

#### Survey Site Description

Survey Site 8 is located on the Welk Resort between the golf course and Old Highway 395. This drainage is characterized by a sandy channel bottom with gradually sloping banks vegetated with mule fat, coast live oak, and eucalyptus trees (*Eucalyptus* spp.), as shown in Photograph 18 of Attachment B: Arroyo Toad Survey Photographs. This site drains portions of the Welk Resort, and residential areas and undeveloped slopes to the east and south. The drainage is confined by the Welk Resort to the east and Old Highway 395 to the west. Although no surface water was observed during surveys, biologists observed evidence of recent flow caused by a rain event between surveys. This site drains into Survey Site 7 to the north.

#### Survey Results

No amphibians were detected. This drainage was likely created during the construction of the Welk Resort or Old Highway 395. Due to its confinement, lack of a terraced floodplain, and controlled flow, it does not likely support arroyo toad. This site has not been designated as critical habitat, and no CNDDB occurrences of arroyo toad have been made at this site. No further surveys are recommended.

### 5.2.8 Survey Site 9 (Bear Valley Creek)

#### Survey Site Description

Survey Site 9 is located in the southern portion of the City of Escondido that is adjacent to Bear Valley Road. The drainage contains braided sandy channels and scattered pools that are highly degraded, as shown in Photographs 19 and 20 of Attachment B: Arroyo Toad Survey Photographs. The site is bound by Bear Valley Road and residential development, resulting in several flood control systems, debris and trash, and dense patches of non-native vegetation and non-native wildlife (e.g., crayfish), as shown in Photograph 21 of Attachment B: Arroyo Toad Survey Photographs. The presence of certain wildlife species, such as crayfish, reduces the potential for arroyo toad to be breed in this drainage because these species predate on arroyo toad eggs, larvae, and juveniles. Surface flow and polluted pools (i.e., those with debris, oil, or cut vegetation within them) were observed in several locations throughout the surveys. The drainage is supported entirely by urban runoff, which eventually flows downstream into Kit Carson Park, and then into the San Dieguito River floodplain to the south.

## Survey Results

Baja California treefrogs were detected in several locations. No other amphibians were detected. Due to its unnatural hydrological regime, urban confinement, and highly disturbed nature, it is unlikely this site could support arroyo toad. This site has not been designated as critical habitat, and no CNDDDB occurrences of arroyo toad have been made at this site. No further surveys are recommended.

### 5.2.9 Survey Site 10 (Kit Carson)

#### Survey Site Description

Survey Site 10 is located in Kit Carson Park, downstream from Survey Site 9. This drainage is characterized by a sandy and soft soil channel bottom and is surrounded by dense riparian vegetation, as shown in Photograph 22 of Attachment B: Arroyo Toad Survey Photographs. The vegetation includes dense stands of willow trees with an understory dominated by emergent wetland, poison oak (*Toxicodendron diversilobum*), and non-native plants. Surface flow and small pools were observed in several locations. Flood control systems occur both upstream and downstream. This site drains mostly urban runoff south into the San Dieguito River floodplain.

#### Survey Results

Baja California treefrogs were observed. No other amphibians were detected. Small pools also supported non-native crayfish and mosquito fish. The presence of certain wildlife species, such as crayfish, reduces the potential for arroyo toad to be breed in this drainage because these species predate on arroyo toad eggs, larvae, and juveniles. It is also unlikely that this site supports arroyo toad because of its unnatural hydrological regime, lack of open terraces, and highly disturbed nature. This site has not been designated as critical habitat, and no CNDDDB occurrences of arroyo toad have been made at this site. No further surveys are recommended.

### 5.2.10 Survey Site 11 (Beeler Creek)

#### Survey Site Description

Survey Site 11 is within Beeler Creek, which is located in the southern portion of the City of Poway and within Beeler Canyon. The drainage is characterized as a rocky and soft soil channel with a wide floodplain that includes rocky and gravelly terraces, as shown in Photographs 23 and 24 of Attachment B: Arroyo Toad Survey Photographs. The drainage supports dense stands of freshwater marsh and southern willow scrub within and adjacent to the channel. The channel flows northwest into underground concrete box culverts at the intersection of Scripps Poway Parkway and Pomerado Road. Beeler Creek drains undeveloped, residential, and commercial areas and eventually flows into Poway Creek to the north. Poway Creek is a tributary to Peñasquitos Creek. Surface flow within Beeler Creek was present throughout all six surveys. This channel drains a large area—including Beeler Canyon—north of the survey site, making it possible that the presence of water was at least partially natural. Due to the lack of non-native vegetation and the structure of the native riparian vegetation, it appears the site was once restored and is likely still maintained.

## Survey Results

The site supported a large population of Baja California treefrogs, especially in the wide vegetated area adjacent to the concrete box culverts. Photograph 25 of Attachment B: Arroyo Toad Survey Photographs shows a Baja California treefrog observed within Survey Site 11. No other amphibians were detected. Pools upstream from the survey site also supported crayfish. Historically, arroyo toads have not been documented within Beeler Creek, according to the CNDDDB. Although the site supports a semi-natural hydrological regime, the area does not receive high sand deposition. In general, the channel and floodplain are very rocky, and the terraces contain rocks and hard soil lacking appropriate habitat for arroyo toad. No further surveys are recommended.

## 6 – DISCUSSION AND CONCLUSION

With the exception of the Survey Site 2 (San Luis Rey River) and Survey Site 11 (Beeler Creek), the survey sites occur in drainage systems that are highly affected by their urban surroundings. Most drainages consist of impoundments and other flood control systems upstream and downstream, preventing natural flooding, scouring, and sand deposition. A natural hydrological regime and sand deposition are essential to support arroyo toad populations, especially in smaller drainages higher in the watersheds. The presence of flood control systems also prevents the movement of arroyo toads upstream and downstream, making recovery of this species in areas where it historically occurred but no longer, nearly impossible.

There are two sites where additional surveys will be conducted during a year of normal or better-than-normal rainfall—Survey Site 2 (San Luis Rey River) and Survey Site 7 (Sandy Hill Road)—to verify that the negative survey results are not related to the drought conditions. Survey Site 2 occurs in the San Luis Rey River, which is known to support arroyo toad. This site has appropriate habitat and occurs approximately 1.1 miles downstream from a historically known population.

Survey Site 7 represents a much lower-quality potential habitat for arroyo toad than the San Luis Rey River. However, out of all other sites surveyed, it had the widest sandy channel bottom, the most accessible bench areas, and was one of the least disturbed. There are no historical records of arroyo toad in this drainage system, but the site does provide potential habitat.

For all other survey sites, no additional arroyo toad surveys are recommended. These sites are generally highly disturbed and/or do not support appropriate arroyo toad habitat.

## 7 – REFERENCES

CDFW. 2015. California Natural Diversity Database Maps and Data. Online. <https://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>. Site visited July 10, 2015.

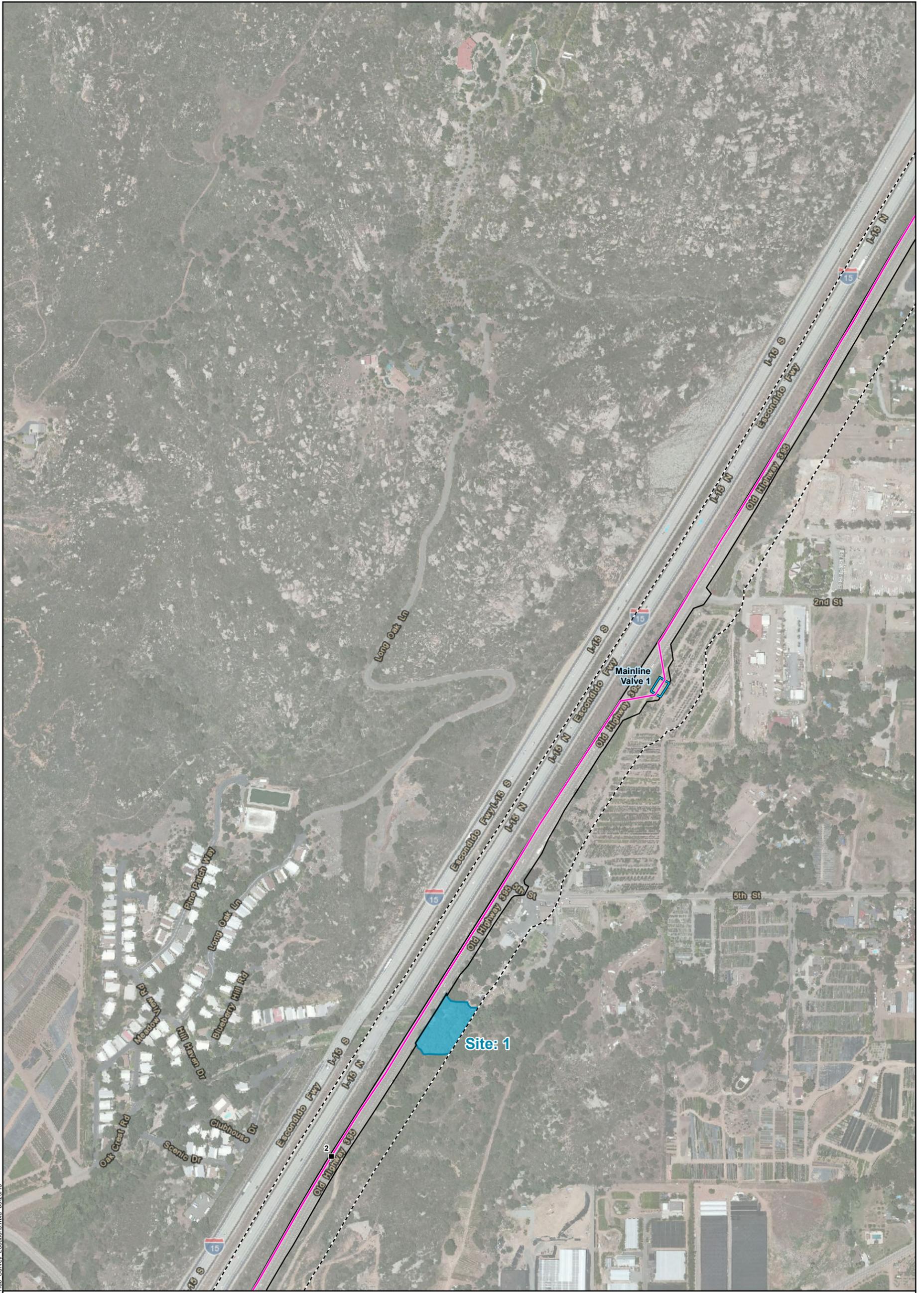
Insignia Environmental. 2015. San Diego Gas & Electric Company and Southern California Gas Company's Pipeline Safety & Reliability Project Draft Biological Resources Technical Report.

- NOAA. 2015. National Weather Service Forecast Office Seasonal Rainfall. Online. [http://www.wrh.noaa.gov/sgx/display\\_text.php?product=LAXWRKPCP&title=Seasonal%20Rainfall](http://www.wrh.noaa.gov/sgx/display_text.php?product=LAXWRKPCP&title=Seasonal%20Rainfall). Site visited April 27, 2015.
- U.S. Climate Data. 2015. Weather history for San Diego. Online. <http://www.usclimatedata.com/climate/san-diego/california/united-states/usca0982/2015/4>. Site visited April 27, 2015.
- USFWS. 1999. Arroyo Toad (*Bufo californicus*) Survey Protocol. Online. <http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/AroyoToad.1999.protocol.pdf>. Site visited February 25, 2015.
- USFWS. 2005. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Arroyo Toad (*Bufo californicus*); Final Rule. Federal Register 70: 19562-19633.
- USFWS. 2014. Arroyo Toad (*Anaxyrus californicus*) Species Report. Online. <http://www.fws.gov/ventura/docs/species/at/Arroyo%20Toad%20Final%20Species%20Report.pdf>. Site visited June 18, 2015.
- USFWS. 2015. Critical Habitat Portal. Online. <http://ecos.fws.gov/crithab/>. Site visited May 2015.
- USGS. 2005. Distribution and Status of the Arroyo Toad (*Bufo californicus*) and Western Pond Turtle (*Emys marmorata*) in the San Diego MSCP and Surrounding Areas.
- USMC. 2014. Integrated Natural Resources Management Plan. Online. <http://www.miramar-ems.marines.mil/Divisions/NaturalResourcesDivision/NaturalResources.aspx>. Site visited February 21, 2015.



**ATTACHMENT A: 2015 ARROYO TOAD SURVEY SITES**





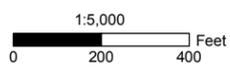
Attachment A: 2015 Arroyo Toad Survey Sites Map 1 of 9

Pipeline Safety & Reliability Project

- |  |   |  |   |
|--|---|--|---|
| <ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> </ul> | <p><b>Permanent Impact</b></p> <ul style="list-style-type: none"> <li>□ Aboveground Facility</li> </ul> | <p><b>Temporary Impact</b></p> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>□ Horizontal Directional Drill Workspace</li> <li>□ Laydown Area</li> <li>□ Workspace</li> </ul> | <ul style="list-style-type: none"> <li>□ MCAS Miramar</li> <li>--- Biological Resource Survey Area</li> <li>□ ARTO Survey Site</li> </ul> |
|--|---|--|---|

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



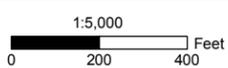


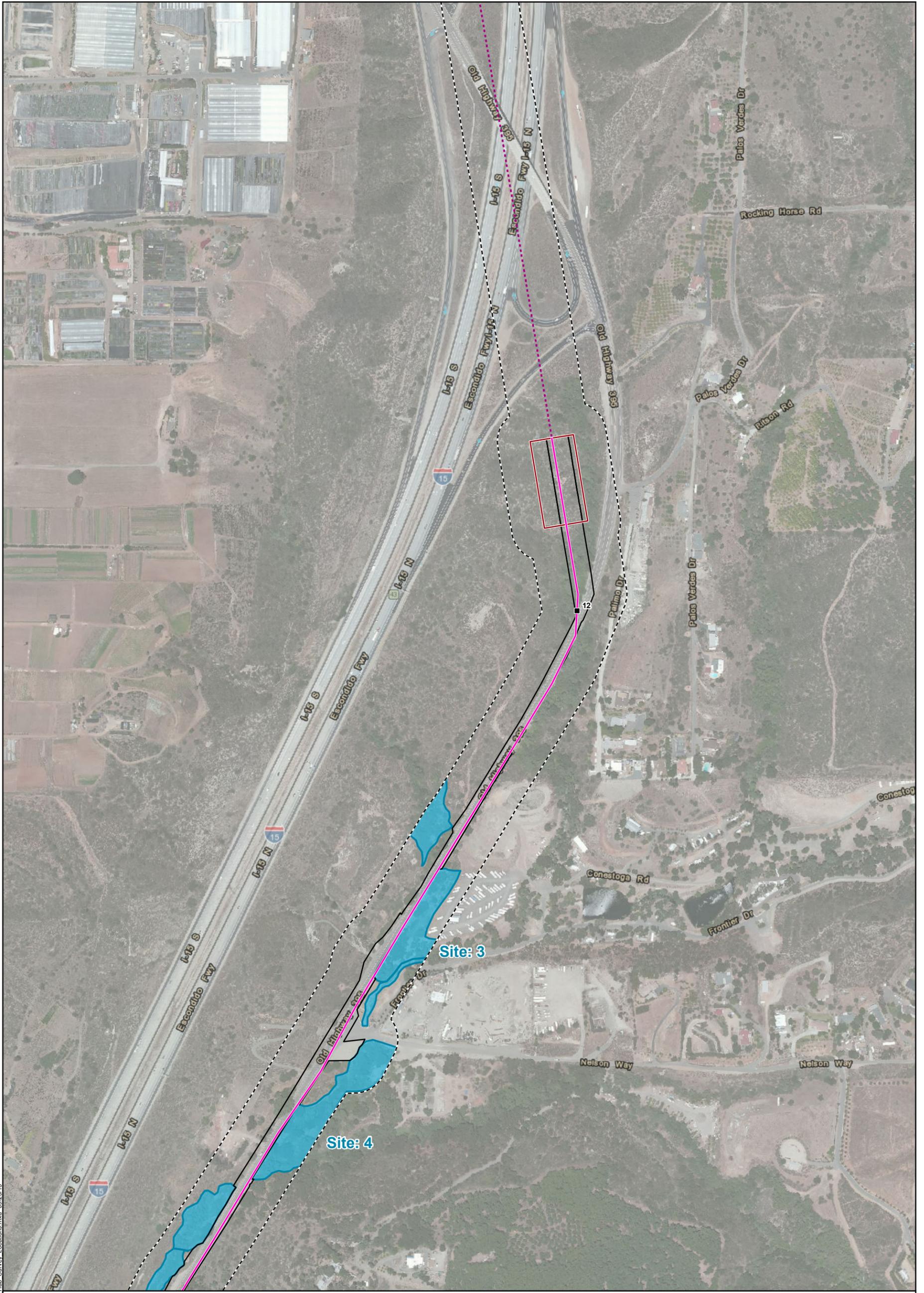
Attachment A: 2015 Arroyo Toad Survey Sites Map 2 of 9

- |                                    |  |                         |                                   |
|------------------------------------|--|-------------------------|-----------------------------------|
| ■ Milepost                         | <b>Permanent Impact</b>                  | <b>Temporary Impact</b> | MCAS Miramar                      |
| — Proposed Project Route           | ▭ Aboveground Facility                   | ▭ Bore Pit              | ▭ Biological Resource Survey Area |
| ⋯ Proposed Trenchless Construction | ▭ Horizontal Directional Drill Workspace | ▭ Laydown Area          | ▭ ARTO Survey Site                |
| — Cross-Tie Connector Line         | ▭ Workspace                              |                         |                                   |

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys





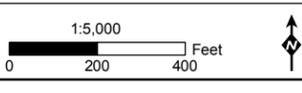
Attachment A: 2015 Arroyo Toad Survey Sites Map 3 of 9

Pipeline Safety & Reliability Project

■ Milepost	<b>Permanent Impact</b>	<b>Temporary Impact</b>	■ MCAS Miramar
— Proposed Project Route	▭ Aboveground Facility	■ Bore Pit	--- Biological Resource Survey Area
--- Proposed Trenchless Construction	▭ Horizontal Directional Drill Workspace	▭ Laydown Area	▭ ARTO Survey Site
— Cross-Tie Connector Line	▭ Workspace		

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

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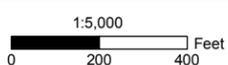
Attachment A: 2015 Arroyo Toad Survey Sites Map 4 of 9

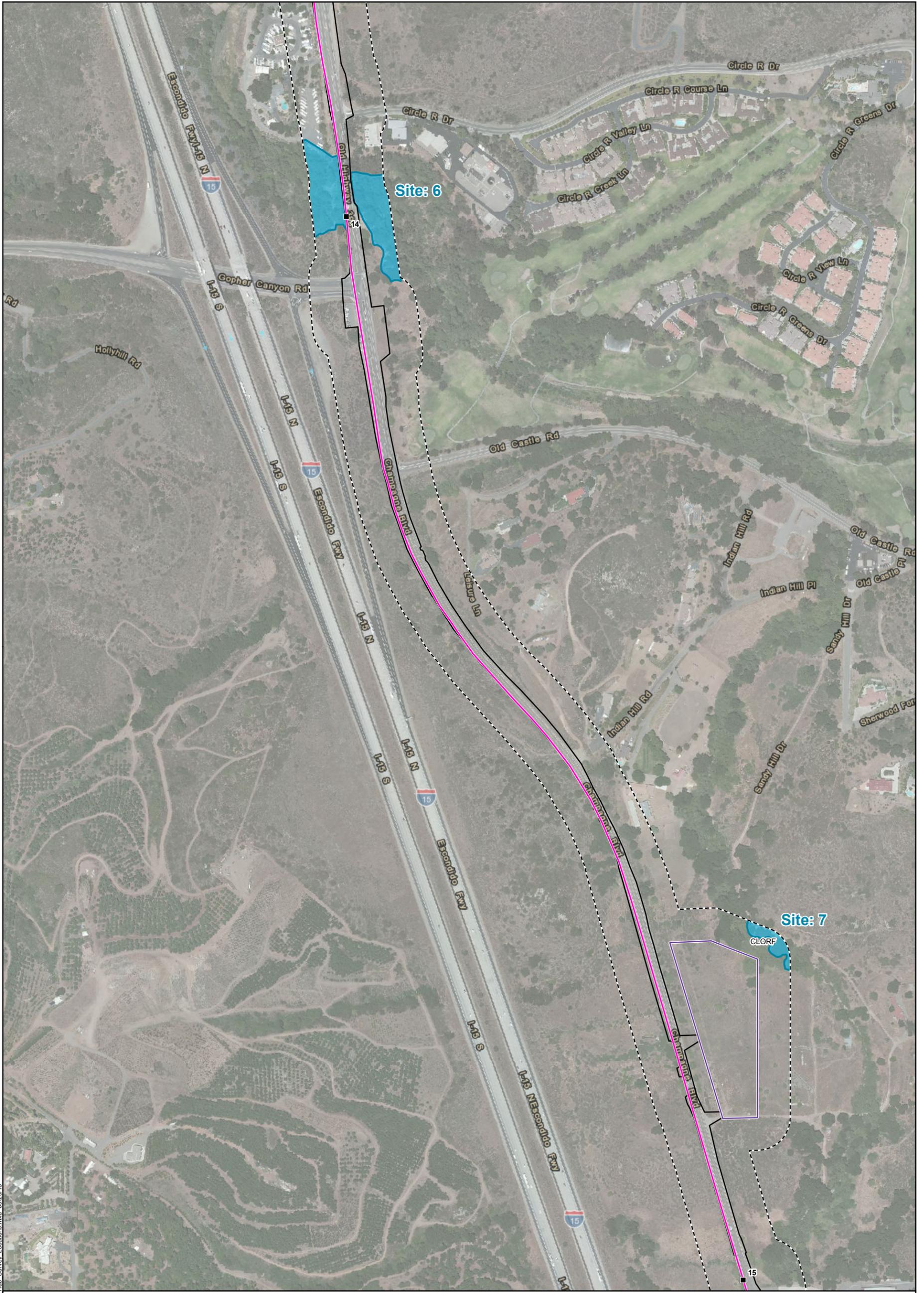
Pipeline Safety & Reliability Project

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| ■ Milepost                           | <b>Permanent Impact</b>                  | <b>Temporary Impact</b> | MCAS Miramar                      |
| — Proposed Project Route             | ▭ Aboveground Facility                   | ■ Bore Pit              | ▭ Biological Resource Survey Area |
| --- Proposed Trenchless Construction | ▭ Horizontal Directional Drill Workspace | ▭ Laydown Area          | ▭ ARTO Survey Site                |
| — Cross-Tie Connector Line           | ▭ Workspace                              |                         |                                   |

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

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Attachment A: 2015 Arroyo Toad Survey Sites Map 5 of 9

■ Milepost	Permanent Impact	Temporary Impact	MCAS Miramar
— Proposed Project Route	▭ Aboveground Facility	▭ Bore Pit	▭ Biological Resource Survey Area
— Proposed Trenchless Construction	▭ Horizontal Directional Drill Workspace	▭ Laydown Area	▭ ARTO Survey Site
— Cross-Tie Connector Line	▭ Workspace		

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



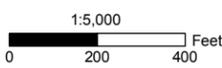


Attachment A: 2015 Arroyo Toad Survey Sites Map 6 of 9

<ul style="list-style-type: none"> <li>■ Milepost</li> <li>— Proposed Project Route</li> <li>--- Proposed Trenchless Construction</li> <li>— Cross-Tie Connector Line</li> </ul>	<b>Permanent Impact</b> <ul style="list-style-type: none"> <li>□ Aboveground Facility</li> </ul>	<b>Temporary Impact</b> <ul style="list-style-type: none"> <li>■ Bore Pit</li> <li>□ Horizontal Directional Drill Workspace</li> <li>□ Laydown Area</li> <li>□ Workspace</li> </ul>	<ul style="list-style-type: none"> <li>□ MCAS Miramar</li> <li>--- Biological Resource Survey Area</li> <li>□ ARTO Survey Site</li> </ul>
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Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



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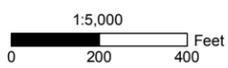


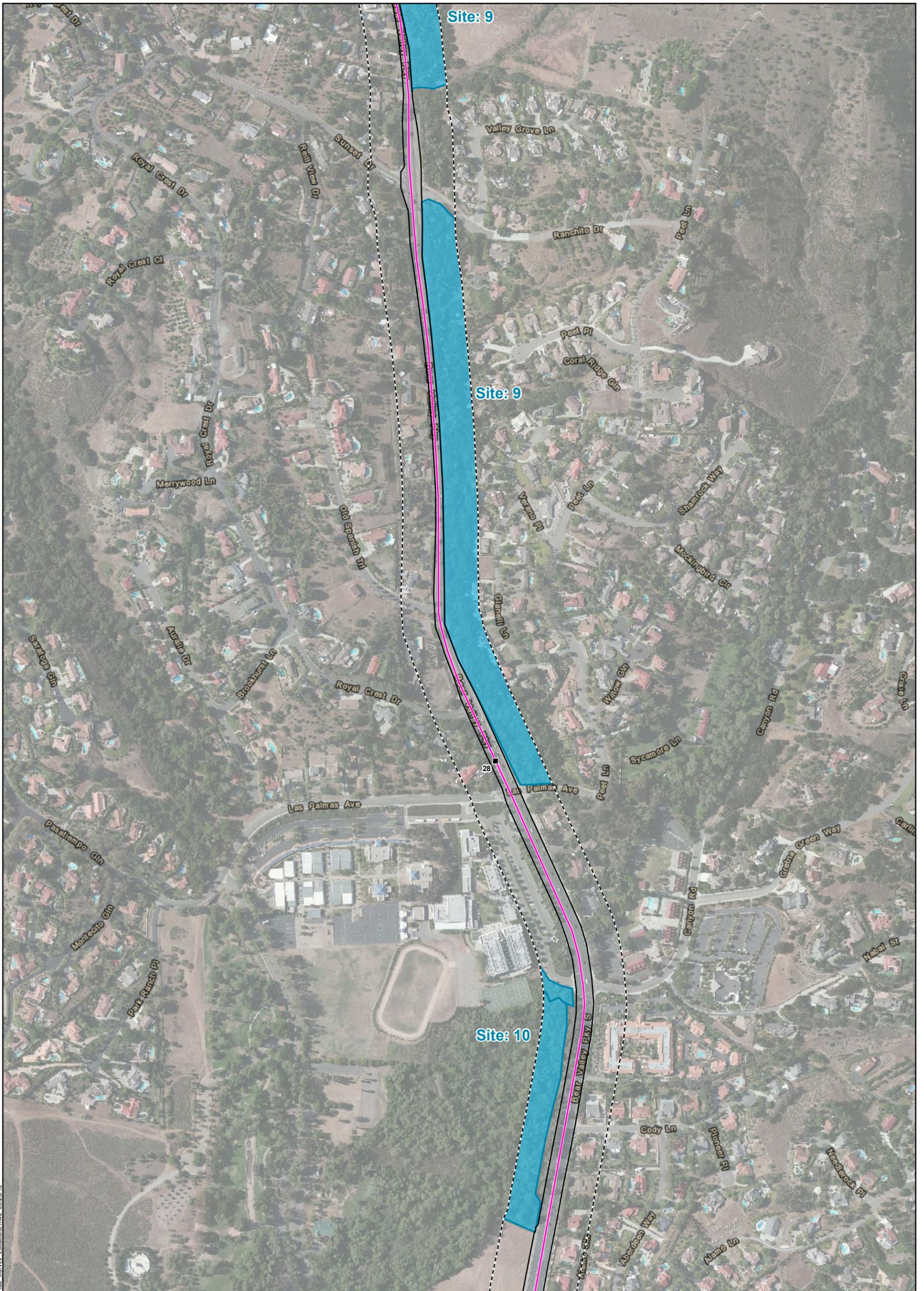
Attachment A: 2015 Arroyo Toad Survey Sites Map 7 of 9

- |                                    |  |                  |                                   |
|------------------------------------|--|------------------|-----------------------------------|
| ■ Milepost                         | Permanent Impact                         | Temporary Impact | MCAS Miramar                      |
| — Proposed Project Route           | ▭ Aboveground Facility                   | ▭ Bore Pit       | ▭ Biological Resource Survey Area |
| ⋯ Proposed Trenchless Construction | ▭ Horizontal Directional Drill Workspace | ▭ Laydown Area   | ▭ ARTO Survey Site                |
| — Cross-Tie Connector Line         | ▭ Workspace                              |                  |                                   |

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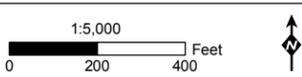


Attachment A: 2015 Arroyo Toad Survey Sites Map 8 of 9

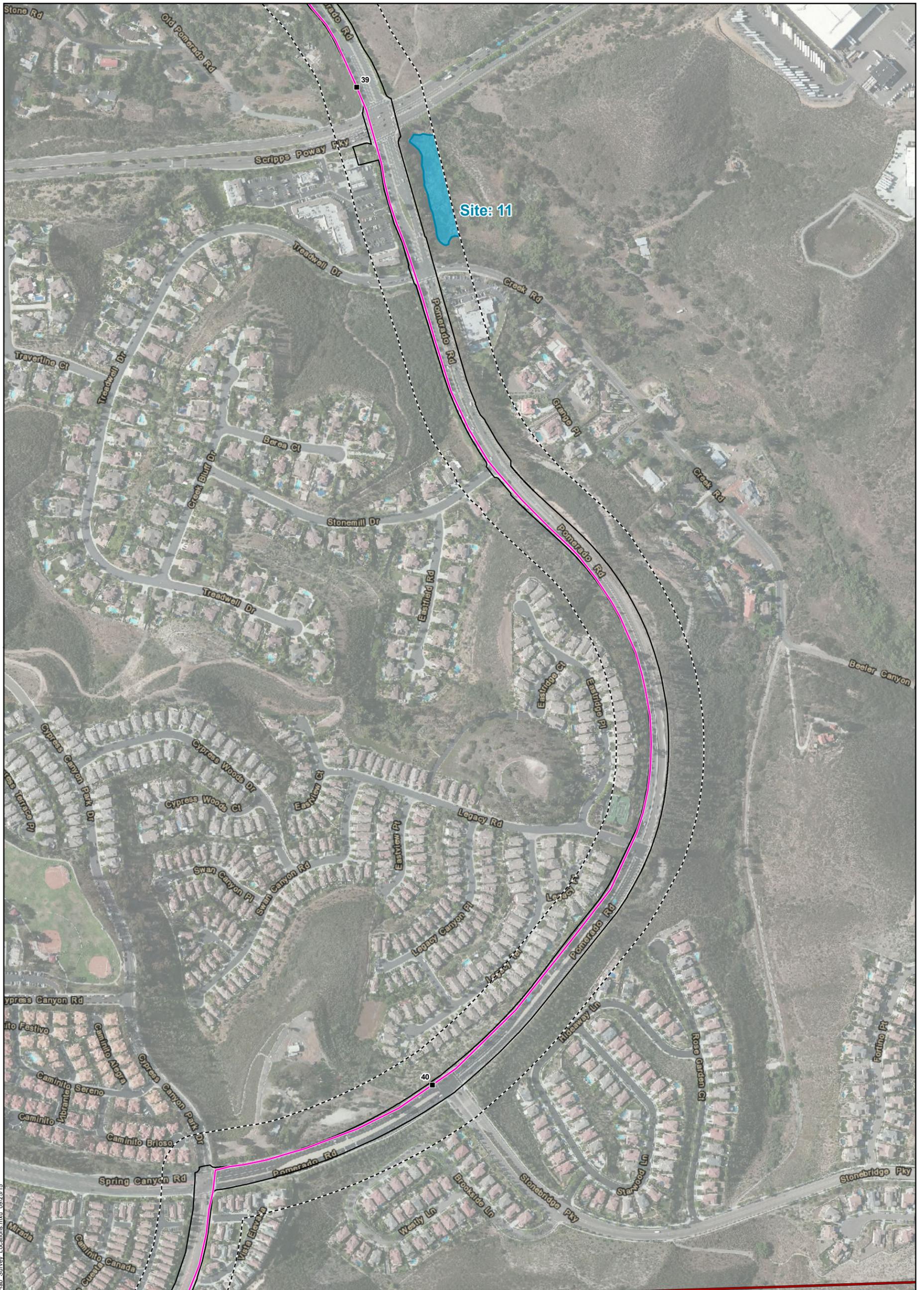
■ Milepost	<b>Permanent Impact</b>	<b>Temporary Impact</b>	MCAS Miramar
— Proposed Project Route	▭ Aboveground Facility	▭ Bore Pit	▭ Biological Resource Survey Area
— Proposed Trenchless Construction	▭ Horizontal Directional Drill Workspace	▭ Laydown Area	▭ ARTO Survey Site
— Cross-Tie Connector Line	▭ Workspace		

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

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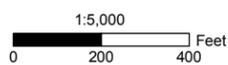


Attachment A: 2015 Arroyo Toad Survey Sites Map 9 of 9

- |                                    |  |                  |                                   |
|------------------------------------|--|------------------|-----------------------------------|
| ■ Milepost                         | Permanent Impact                         | Temporary Impact | MCAS Miramar                      |
| — Proposed Project Route           | ▭ Aboveground Facility                   | ▭ Bore Pit       | ▭ Biological Resource Survey Area |
| ⋯ Proposed Trenchless Construction | ▭ Horizontal Directional Drill Workspace | ▭ Laydown Area   | ▭ ARTO Survey Site                |
| — Cross-Tie Connector Line         | ▭ Workspace                              |                  |                                   |

Note: Survey route not shown due to large map scale. Meandering transects were walked within suitable habitat during protocol surveys.

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**ATTACHMENT B: ARROYO TOAD SURVEY PHOTOGRAPHS**



**ATTACHMENT B: ARROYO TOAD SURVEY PHOTOGRAPHS**



**Photograph 1:**  
Excluded channel with rip-rap channel bottom west of Interstate (I-) 15 between the community of Rainbow and the San Luis Rey River. View south.



**Photograph 2:**  
Excluded marsh with no drainage channel in the Lake Hodges area. View east.



**Photograph 3:**  
Excluded concrete channel between the San Luis Rey River and Gopher Canyon. View east.



**Photograph 4:**  
Excluded rocky channel between the San Luis Rey River and Gopher Canyon. View south.



**Photograph 5:**  
Survey Site 1 east of Old  
Highway 395. View east.



**Photograph 6:**  
Survey Site 1 west of Old  
Highway 395. View  
west.



**Photograph 7:**  
American bullfrog  
(*Lithobates catesbeianus*)  
tadpole observed in  
Survey Site 1.



**Photograph 8:**  
Baja California treefrog  
(*Pseudacris  
hypochondriaca  
hypochondriaca*) tadpole  
observed in Survey Site  
1.



**Photograph 9:**  
Survey Site 2 in the San Luis Rey River west of I-15. View east.



**Photograph 10:**  
West of Survey Site 2 in the San Luis Rey River under Old Highway 395. View south.



**Photograph 11:**  
Western toad (*Anaxyrus boreas*) observed in Survey Site 2 in the San Luis Rey River.



**Photograph 12:**  
Survey Site 3 next to Champagne Lakes RV Resort east of Old Highway 395. View east.



**Photograph 13:**  
Survey Site 4 south of  
Champagne Lakes RV  
Resort and north of  
Camino Del Rey. View  
southeast.



**Photograph 14:**  
Survey Site 5 south of  
Camino Del Rey. View  
south.



**Photograph 15:**  
Survey Site 6 east of Old  
Highway 395 near  
Gopher Canyon Road.  
View north.



**Photograph 16:**  
Survey Site 7 west of  
Sandy Hill Road. View  
southwest.



**Photograph 17:**  
Western toad observed in  
Survey Site 7.



**Photograph 18:**  
Survey Site 8 west of the  
Welk Resort. View  
north.



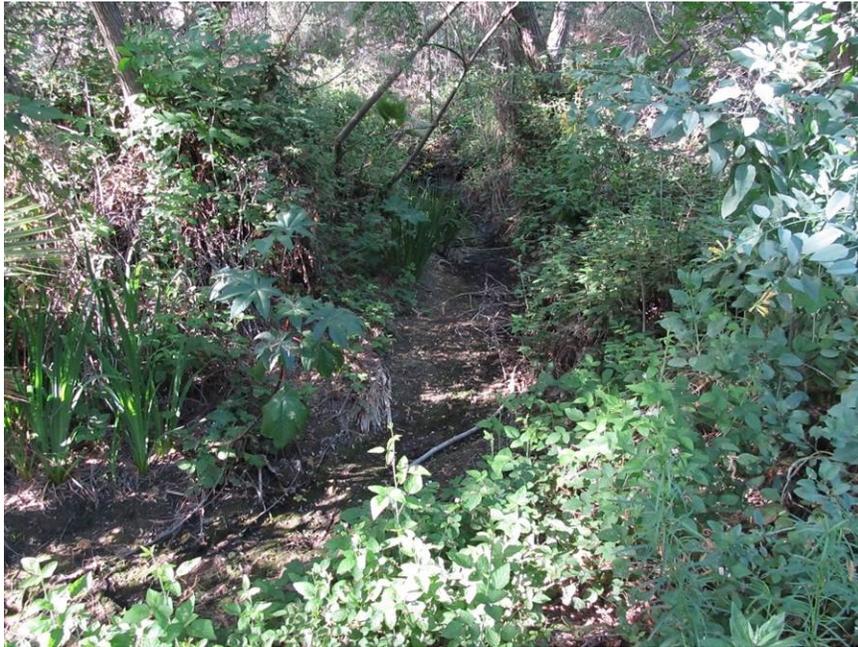
**Photograph 19:**  
Survey Site 9 in Bear  
Valley Creek. View  
south.



**Photograph 20:**  
Survey Site 9 in Bear  
Valley Creek. View east.



**Photograph 21:**  
Freshwater crayfish  
(*Procambarus* sp.)  
observed in Survey Site  
9.



**Photograph 22:**  
Survey Site 10 in Kit  
Carson Park. View east.



**Photograph 23:**  
Survey Site 11 in Beeler  
Canyon. View south.



**Photograph 24:**  
Survey Site 11 in Beeler  
Canyon. View south.



**Photograph 25:**  
Baja California treefrog  
observed in Survey Site  
11.