BIOLOGICAL ASSESSMENT ADDENDUM SUNPOWER/PG&E CARRIZO-MIDWAY RECONDUCTOR PROJECT SAN LUIS OBISPO AND KERN COUNTY, CA

PREPARED FOR:

Pacific Gas & Electric Company G
San Francisco, CA G

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1. Introduction and Background

This document serves as an addendum to the biological assessment (BA) for the SunPower California Valley Solar Ranch Project, the interrelated PG&E Carrizo-Midway 230kV Reconductoring Project, and the Quarry Expansion Project, as proposed by the Department of Energy (DOE). The BA was submitted by the DOE to the United States Fish and Wildlife Service (USFWS) on December 1, 2010.

This addendum does not represent material changes to the project description for the proposed action, action area, or other conclusions of the BA, but introduces new information indicating that the federally listed as threatened California tiger salamander (*Ambystoma californiense*) may be present within the action area. This species was not addressed in the BA but could be present in the action area, based on findings of recent surveys conducted on April 1, 2011. Specifically, several work locations along the Pacific Gas & Electric Company (PG&E) Carrizo-Midway 230kV transmission line, described below, are the subject of this new information.

2. Project Description and Action Area

The proposed action and project description remain unchanged by this addendum and are described in the original BA. Generally, this includes reconductoring approximately 35 miles of the PG&E Morro Bay–Midway double-circuit 230 kV transmission line. This work would occur between a new 230 kV PG&E switching station (Caliente Switching Station) and the existing Midway Substation in Kern County.

The action area is also unchanged from the BA and includes all areas in which federally listed species would be directly and indirectly affected by the proposed action. The action area includes all work areas for construction activities associated with the reconductoring work as described on page 3-1 of the BA. The action area also includes the work areas associated with the Caliente Switching Station and associated distribution lines (see page 3-2 of the BA). The footprint of the Sun Power solar facilities is also included in the action area (see page 1-2 of the BA).

3. California Tiger Salamander

Status and Distribution

The central population of California tiger salamander is listed as threatened under the federal Endangered Species Act (ESA). Distinct population segments in Santa Barbara and Sonoma Counties are federally listed as endangered. Critical habitat was designated on August 23, 2005, but the

project area does not fall within any designated critical habitat. All distinct populations are state-listed as threatened.

In the Central Valley and Sierra Nevada foothills, California tiger salamanders generally occur from Yolo to Kern counties at elevations of up to 2,000 feet (or 610 meters)(U.S. Fish and Wildlife Service 2009).

Habitat

The California tiger salamander is a lowland species restricted to annual grasslands and foothill oak savanna regions where its breeding habitat occurs. Breeding habitat consists of temporary ponds or pools, some permanent waters, and rarely slower portions of streams. Permanent aquatic sites are unlikely to be used for breeding unless they lack predators. California tiger salamanders also require dry-season refuge sites in suitable upland habitats in the vicinity of breeding sites. California ground squirrel burrows provide important dry-season refuge sites for adults and juveniles. Other types of small mammal burrows, logs, and shrink-swell cracks also are utilized for dry-season refuge G (Jennings and Hayes 1994).

Adult California tiger salamanders move from subterranean burrow sites to breeding pools during November–February after warm winter and spring rains. Eggs are laid in January–February, at the height of the rainy season. Nine to 12 weeks are needed to complete development through metamorphosis. During dry weather, these salamanders take refuge in ground squirrel burrows, crevices in the soil, or other burrows. California tiger salamanders are known to travel large distances from breeding ponds into upland habitats. One study found that 20–25% of individuals captured at one pond were recaptured at ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001). In addition to traveling long distances during migration to or from ponds, tiger salamanders may reside in burrows that are a far distance from ponds. Dry-season refuge sites within approximately 1 mile of suitable breeding habitat are likely a necessary requirement since this species is absent from sites with seemingly suitable breeding habitat where surrounding upland habitats are lacking in small mammal burrows (Jennings and Hayes 1994).

Threats

The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities including urban and agricultural development, land conversion, automobiles, and damage by off-road vehicles during the species migration.

A typical salamander breeding population in a pond can drop to less than twenty breeding adults and/or recruiting juveniles in some years, making these local populations prone to extinction. California tiger salamanders therefore require large contiguous areas of vernal pools (vernal pool complexes or comparable aquatic breeding habitat) containing multiple breeding ponds to ensure recolonization of individual ponds.

A strong negative association between bullfrogs and California tiger salamanders has been documented. Although bullfrogs are unable to establish permanent breeding populations in vernal pools, immature frogs dispersed from permanent water bodies within two miles take up residence and prey on adult or larval salamanders in these areas during the rainy season. Louisiana swamp crayfish, mosquito fish, green sunfish and other introduced fishes also prey on adult or larval salamanders.

Reduction of ground squirrel populations widespread rodent control programs throughout the tiger salamander range may reduce availability of burrows and adversely affect the California tiger salamanders ability to locate underground refugia habitat. Use of pesticides, such as methoprene, in mosquito abatement may have an indirect adverse effect on the California tiger salamander by reducing the availability of prey (U.S. Fish and Wildlife Service 2009).

Various nonnative subspecies of the tiger salamander within the *Ambystoma tigrinum* complex have been imported into California for use as fish bait. The introduced salamanders may out-compete the California tiger salamanders, or interbreed with them to create hybrids that may be less adapted to the California climate or are not reproductively viable past the first or second generations (U.S. Fish and Wildlife Service 2009).

Presence in the Action Area

The closest known California tiger salamander occurrence is approximately 19 miles northwest of the project area (California Natural Diversity Database 2011) and the southern extent of the range of the Central Valley population of California tiger salamander is approximately 15 miles northwest of the project area (California Department of Fish and Game 2011). Because of the locations of the known occurrences, the California tiger salamander was not expected to occur in or within 1.24 miles of the action area.

On January 25, 2011, California Department of Fish and Game (CDFG) biologist, David Hacker, requested that larval surveys be conducted within the pond that occurs near the work areas at Tower 071 and Tower 073 (the pond is listed as pond 8 in Table 1 and its location is shown in Figure 1)**.** The first survey was conducted on April 1, 2011, and possible salamander eggs and an embryo were observed. Photographs of the embryo were taken and sent to Mark Jennings and Brad Shaffer. Both Mr. Jennings and Mr. Shaffer were of the opinion that the embryo photographed is that of a tiger salamander. No tiger salamander larvae were observed during a second survey conducted on April 22, 2011. A third survey will be conducted in early May 2011. However, based on the identification by Mr. Jennings and Mr. Shaffer, the presence of California tiger salamanders in the action area is assumed.

In total, there are eleven ponds (Table 1)within 1.24-miles of the Carrizo-Midway 230kV line and associated work areas (Figures 1 through 4). Four ponds occur within 1.24 miles of the work areas at 071 and 073 (Figure 1), including Pond 8, which occurs at approximately 1,600 feet in elevation. Three ponds are within 1.24 miles of Landing Zone 048 (Figure 2). These ponds are above 3,500 feet in elevation and upland habitat is California juniper woodland. Three ponds are within 1.24 miles from Tension Pull Site 065 (Figure 3). These ponds are above 3,000 feet in elevation and upland habitat is oak woodland and California juniper woodland. One pond is located 0.35 mile from Tension Pull Site 090 (Figure 4). Upland habitat near this pond and at TP 090 is in the grassland/saltbush scrub habitat interface. If presence of California tiger salamanders is ultimately confirmed at the pond near the work areas at 071 and 073, it is possible that other aquatic sites and upland areas within 1.24-miles to the project work areas at LZ 048, TP 065 and TP 090 could support California tiger salamanders; presence at one site may indicate that CTS are established in the area.

Table 1. Work Areas Within 1.24 Miles of Ponds

Pond ID	Elevation (ft) of Pond	Distance from Work Area (mi)	Work Area ID	Work Area Type	Work Area Size (Acres)
1, 2, 3	3,471; 3,657; 3,584	0.69, 0.65, 0.43	48	Landing Zone	2.07
2, 3	3,657; 3,584	1.10, 1.02	48	Access Road Improvement	0.09
3	3,584	1.21	50	Access Road Improvement	0.16
3	3,584	1.19	50	Tension Pull Site (OPGW Site)	2.07
4, 5, 6	3,310; 3,272; 3,242	0.27, 0.40, 0.47	65	Access Road Improvement	0.3
4, 5, 6	3,310; 3,272; 3,242	0.77, 1.13, 1.21	65	Tension Pull Site (OPGW Site)	2.07
7, 8, 9, 10	1,609; 1,604; 1,617, 1,660	0.06, 0.60, 0.68, 0.96	71	Access Road Improvement	0.69
7, 8, 9, 10	1,609; 1,604; 1,617; 1,660	0.38, 0.13, 0.25, 0.51	73	Landing Zone	2.07
7, 8, 9, 10	1,609; 1,604; 1,617; 1,660	0.2, 0.23, 0.34, 0.57	73	Tension Pull Site	1.03
7, 8, 9, 10	1,609; 1,604; 1,617; 1,660	0.3, 0.66, 0.75, 1.04	71	Tension Pull Site (OPGW Site)	2.07
10	1,660	1.15	80	OPGW Slice Box	0.06
11	980	0.32	90	Tension Pull Site (OPGW Site)	2.07
				Total Work Area	14.75

4. Conservation Measures

General conservation measures, as described in the BA, will be incorporated into the project design and will be implemented to avoid or minimize the action's impacts on biological resources.

The following species-specific conservation measures are proposed to minimize or eliminate potential adverse effects to California tiger salamander associated with direct or indirect effects of the proposed action. The measures pertaining to exclusion zones, monitoring, and erosion control measures are consistent with those included in the San Joaquin Valley O&M Habitat Conservation Plan for covered listed amphibians and reptiles.

- At least 15 days prior to the onset of activities, the applicant or project proponent shall submit the name(s) and credentials of biologists to USFWS who would conduct activities specified in the following measures.
- During project activities, all trash that may attract predators shall be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
- All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any riparian habitat or water body, or visquene plastic with adequate secondary containment will be used to fuel stationary equipment within 100 feet.

- Project sites shall be revegetated with an appropriate assemblage of native riparian and upland vegetation suitable for the area, at the direction of a qualified botanist.
- All excavated material shall be stored at a minimum of 150 feet from any culvert, wash, pond vernal pool or stream crossing.
- Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure that tiger salamander do not get trapped. Plastic monofilament netting shall not be used.
- The proposed action will not affect any suitable aquatic habitat.
- Construction activities in suitable California tiger salamander upland habitat will be restricted to the dry season, April 15 through October 31, if possible. If construction activities must occur within suitable tiger salamander habitat during the wet season due to the project schedule, when the species may be migrating overland to suitable breeding habitat, the perimeter of pull sites, staging areas, and/or landing zones will be fenced with exclusion fencing by October 15. Installation of exclusion fencing will occur under the supervision of a qualified biologist. The exclusion fencing will remain in place for the duration of construction and will be monitored during SWPPP inspections and by the biological monitors. Where access is necessary, gates will be installed with the exclusion fence.
- As necessary, erosion control measures will be implemented in these areas to prevent any soil or other materials from entering any nearby aquatic habitat. Erosion control measures will be installed adjacent to suitable aquatic habitat to prevent soil from eroding or falling into these areas.
- Locations of erosion control measures will be specified in the SWPPP. Erosion control measures will be furnished, constructed, maintained, and later removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer.
- The biological monitor and construction foreman will be responsible for checking the exclusion fencing around the work areas daily to ensure that they are intact and upright. This will be especially critical during rain events, when flowing water can easily dislodge the fencing. Any necessary repairs will be immediately addressed. The biological monitor will document the results of the daily monitoring visits on construction monitoring log sheets.
- Surface-disturbing activities will be designed to minimize or eliminate effects to rodent burrows that may provide suitable aestivation habitat. Areas with a high concentration of burrows will be avoided by surface-disturbing activities to the maximum extent practicable. In addition, when a concentration of burrows is present in a project site, the area will be staked or flagged to ensure that work crews are aware of their location and to facilitate avoidance of the area.
- A preconstruction survey will be conducted each day immediately preceding construction activity that occurs in designated tiger salamander suitable upland habitat between October 31st and April 15th, or in advance of any activity that may result in take of this species. Parked vehicles will be inspected each morning before they are moved. In work sites that occur within 300 feet of suitable aquatic habitat, the survey area will include a 150-foot buffer around the work area. The survey will include a careful inspection of all potential hiding spots, such as large downed woody debris, the perimeter of ponds, wetlands, and

riparian areas. Any tiger salamanders found will be captured and held for a minimum amount of time necessary in order to relocate the animal to a suitable burrow a minimum of 300 feet outside of the work area.

- Nets or bare hands may be used to capture tiger salamanders. An approved biologist will not use soaps, oils, creams, lotions, insect repellents, or solvents of any sort on their hands within 2 hours before handling tiger salamanders. Latex gloves will not be used. To avoid transferring diseases or pathogens between aquatic habitats during the course of surveys or handling, the biologists will follow the Declining Amphibian Task Force's "Code of Practice." While in captivity, individuals will be kept in a cool, moist, aerated environment such as a bucket containing a damp sponge. Containers used for holding or transporting these species will be sanitized and will not contain any standing water.
- No construction activities in sensitive habitat areas will occur during rain events of greater than 0.25 inch within a 24-hour period. No construction activities will be conducted in areas where tiger salamanders may occur if there is a greater than 70% chance of rain based on the National Oceanic and Atmospheric Administration's National Weather Service forecast or within 48 hours following a rain event greater than 0.25 inch, unless approved by the monitor.
- Any California tiger salamander upland habitat temporarily affected by project-related activities will be restored to pre-project conditions. Site-specific restoration measures and success criteria will be outlined in the Restoration Plan, which will be part of the overall Habitat Mitigation Plan developed for the project. A monitoring report will be due to USFWS and CDFG annually that will include photo-documentation with pre- and post-project photos, and other information as specified in the Habitat Mitigation Plan.

5. Compensation and Conservation Strategy

Although PG&E will avoid and minimize effects to California tiger salamander to the extent practicable, some temporary effects to suitable upland habitat are likely to result from the proposed action. The primary goal of the proposed project's conservation strategy is to ensure that the proposed project has no net adverse effect to populations of California tiger salamanders that could potentially be affected by the proposed action. This goal will be accomplished through adherence to the following activities.

- Preactivity surveys will verify the suitable habitat assumptions made in this biological G assessment addendum at each of the work areas. G
- Post-construction surveys will be conducted to determine the actual area of disturbances at each of the work areas.
- In the event that California tiger salamanders are confirmed present at, or adjacent to, work site(s), and compensatory mitigation is deemed necessary by USFWS and/or CDFG, compensation will be based on these post-construction acreages. All temporary losses of suitable habitat will be mitigated at a 3:1 ratio. PG&E will fund the acquisition, enhancement, and maintenance of habitat to conserve and promote the recovery of this species within the action area. Prior to the initiation of the proposed project activities, PG&E will provide an irrevocable letter of credit, in a form approved by USFWS and CDFG to ensure funding for the

performance of all required mitigation, including site preparation, revegetation, restoration, and enhancement activities, maintenance activities (e.g., mulching, weeding, and watering), monitoring and reporting activities, and long-term management.

As appropriate, PG&E would pursue compensatory mitigation through purchase of credits from the nearest USFWS/CDFG approved California tiger salamander mitigation bank or, by other approved means, if there are no USFWS- or CDFG-approved California tiger salamander banks with service areas that overlap the action area. Other compensatory means could include purchase of high-quality lands, establishment of conservation easements, or purchase of conservation easements from willing sellers.

6. Effects Analysis

Direct Effects

Planned construction activities in staging areas, pull sites, and temporary access roads are anticipated to temporarily affect 14.75 acres of potentially suitable upland habitat. Construction activities will not directly affect suitable aquatic habitat.

Conservation measures described in Section 4 will be implemented to avoid and minimize G temporary and permanent effects to California tiger salamanders. G

Indirect Effects

Some projects may result in conditions (e.g., extending the period of inundation of aquatic habitat) that are beneficial for exotic predators such as bullfrogs and predatory fish. Introduced predators negatively affected California tiger salamanders through predation and competition (Jennings and Hayes 1994). Introduced predators were not observed in the pond that was surveyed. The proposed action would not result in creation of new habitat for exotic predators, a change in the connectivity with existing habitat for exotic predators, changing the length of inundation, or any other modifications of habitat such that the habitat would become more favorable for exotic predators.

Critical Habitat

The nearest designated critical habitat for California tiger salamander is the area described as CTS_CC_6, located approximately 15 miles north of the western end of the project area. No designated critical habitat for California tiger salamander is located in or adjacent to the action area. The project will not affect any designated critical habitat for California tiger salamander.

Cumulative Effects

The proposed Carrizo-Midway 230 kV Power Line Reconductoring Project, in combination with other projects in the area and other activities that could affect California tiger salamanders, could contribute to cumulative effects on suitable upland habitat. The geographic extent for the analysis of cumulative impacts related to biological resources includes the Carrizo Plain, regions of western Kern County, and eastern San Luis Obispo County. The areas included in this cumulative analysis contain suitable and occupied habitat aquatic and upland habitat for California tiger salamanders.

Each of these locations may also support core, critical, or unique populations essential to recovery and long-term survival of these species.

The continued incremental loss of habitat to smaller-scale land conversion, such as surface mining, is difficult to quantify and yet may be substantial. It is apparent that a significant portion of the remaining occupied habitat for California tiger salamanders in this region is on private land located in the Temblor Range where the primary land use is cattle grazing, which is compatible to sustained California tiger salamander populations. Small scale incompatible land uses may result in undetermined cumulative effects.

7. Conclusion and Determination for California Tiger Salamander

The Carrizo-Midway 230 kV Reconductoring Project will result in the temporary impacts to suitable upland habitat for California tiger salamanders. Through project design and implementation of conservation measures, the project will avoid or minimize effects to this species as discussed above. Furthermore, with implementation of conservation measures, the project would not contribute to cumulative impacts to this species.

PG&E has designed its project to avoid the population of California tiger salamander. The proposed action may affect but is not likely to adversely affect California tiger salamanders. PG&E will avoid and minimize direct and indirect effects to California tiger salamanders through implementation of conservation measures described in this addendum.

8. Printed References

California Department of Fish and Game. 2011. California Wildlife Habitat Relationships System, Electronic Version 8.2. California Department of Fish and Game in cooperation with California Interagency Wildlife Task Group, Sacramento, CA. Available: http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx

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Trenham, P.C., W. D. Koenig, and H. B. Shaffer. 2001. Spatially Autocorrelated Demography and Interpond Dispersal in the Salamander (Ambystoma californiense). Ecology 82:3,519-3,530.

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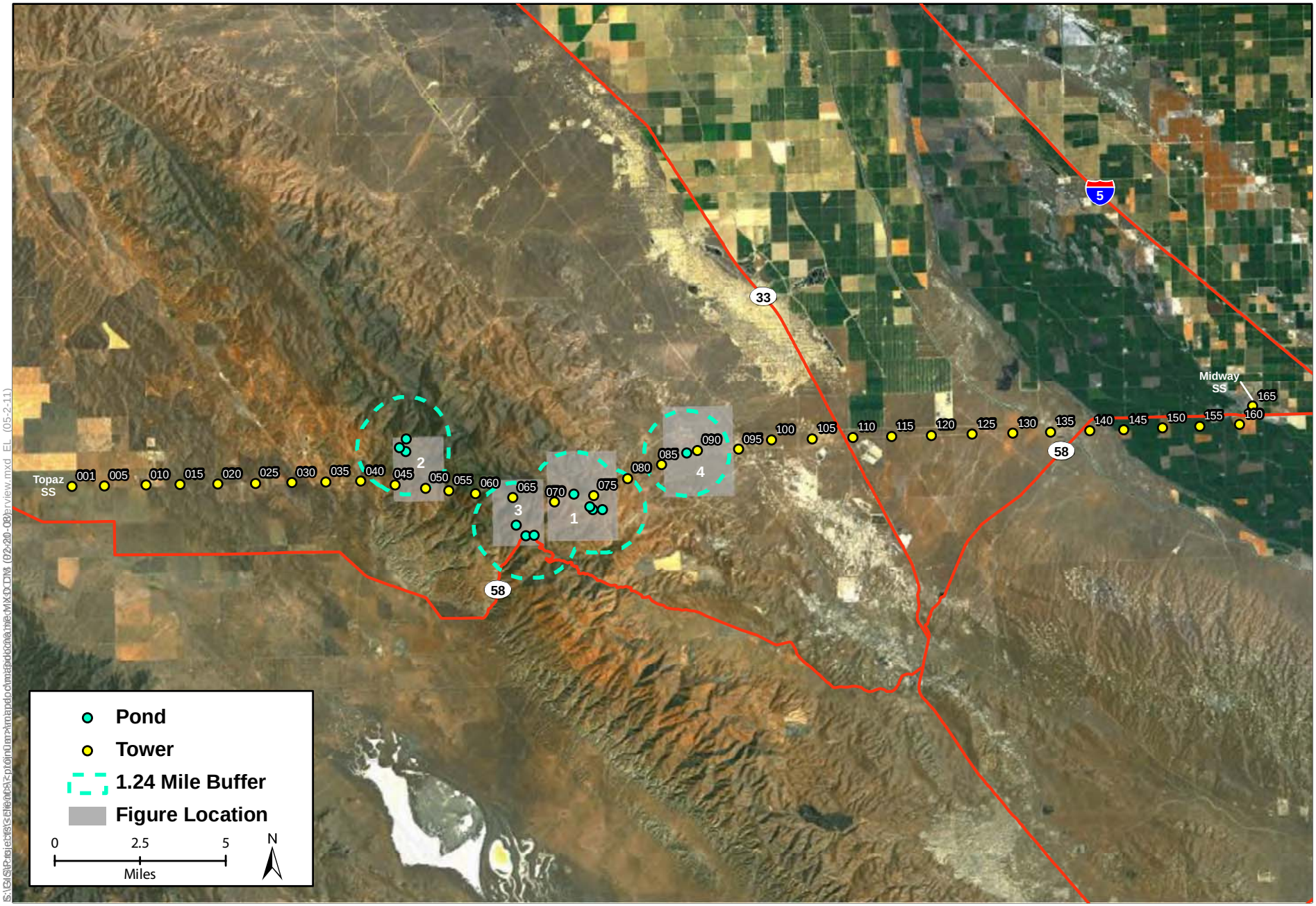

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Overview
Ponds Within 1.24 Miles of Carrizo Work Areas

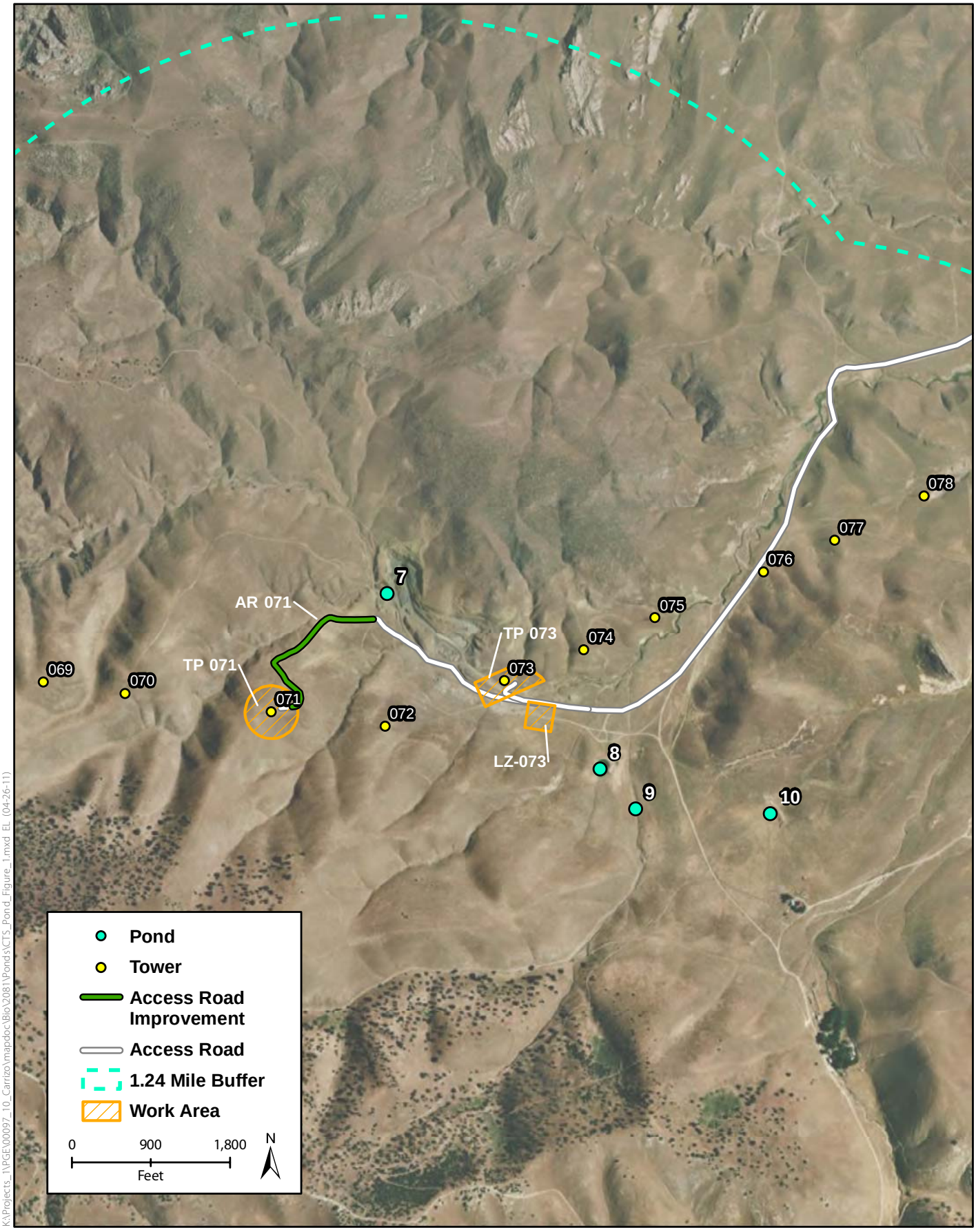

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Figure 1 of 4
Ponds Within 1.24 Miles of Carrizo Work Areas

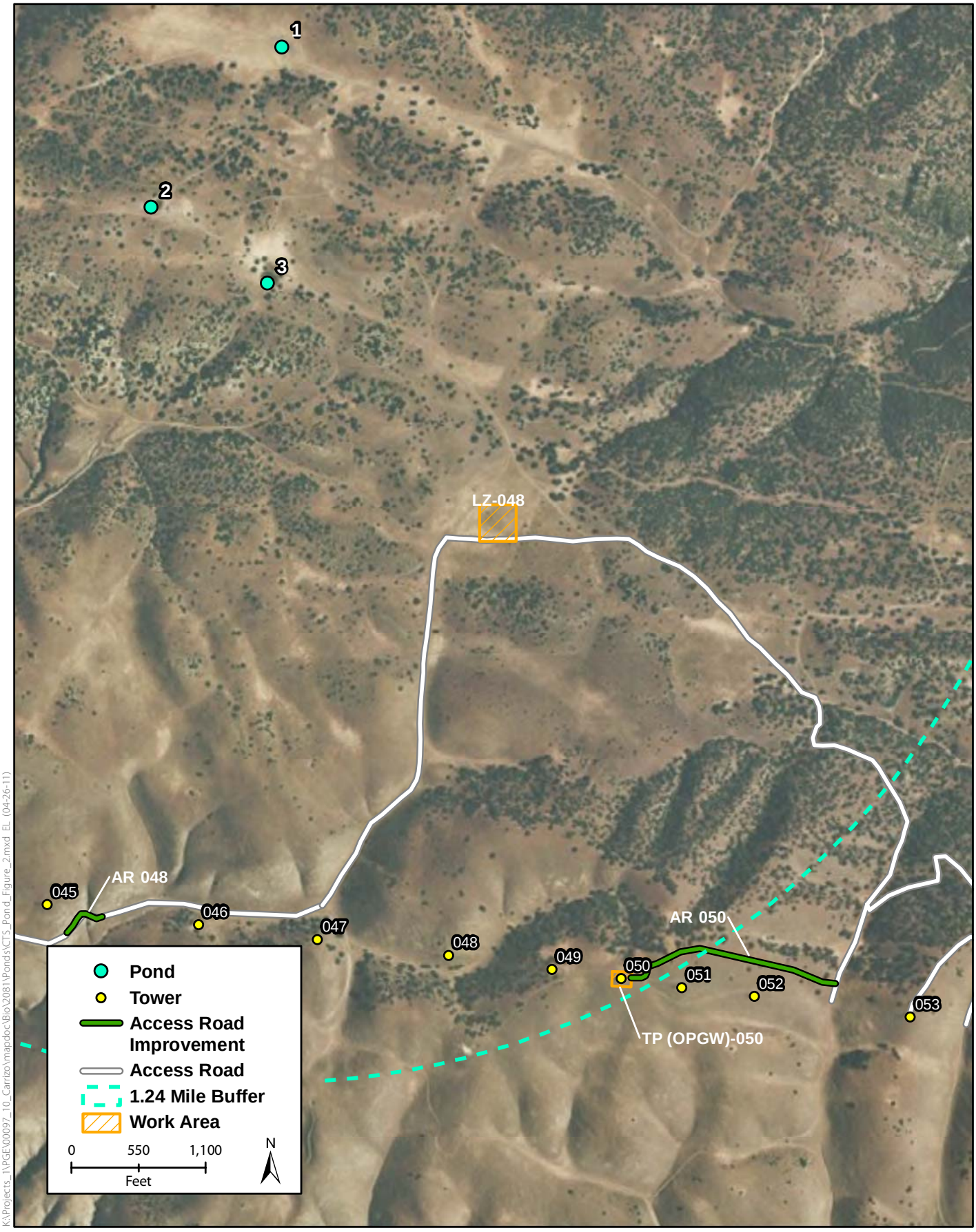

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Figure 2 of 4
Ponds Within 1.24 Miles of Carrizo Work Areas

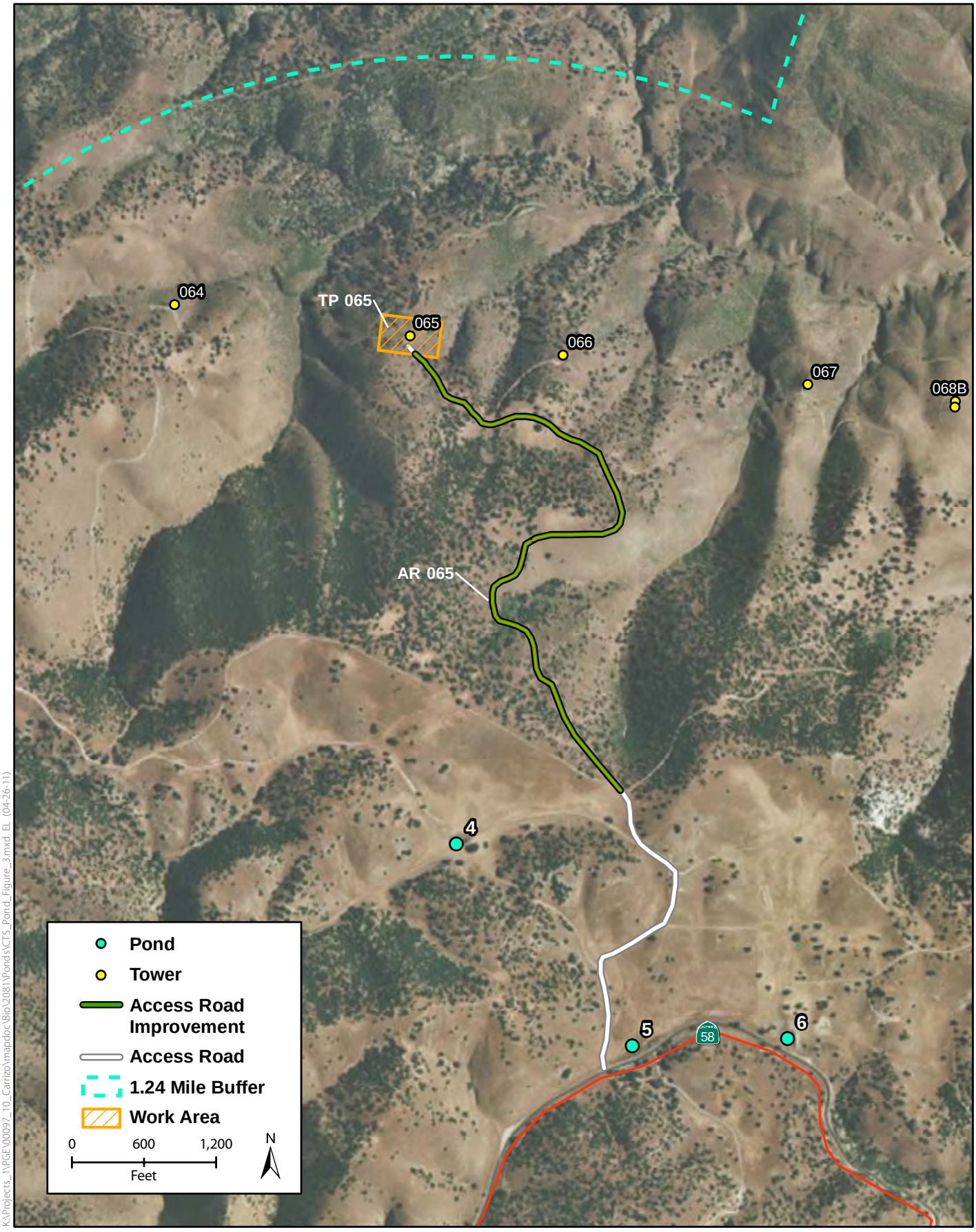

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Figure 3 of 4
Ponds Within 1.24 Miles of Carrizo Work Areas

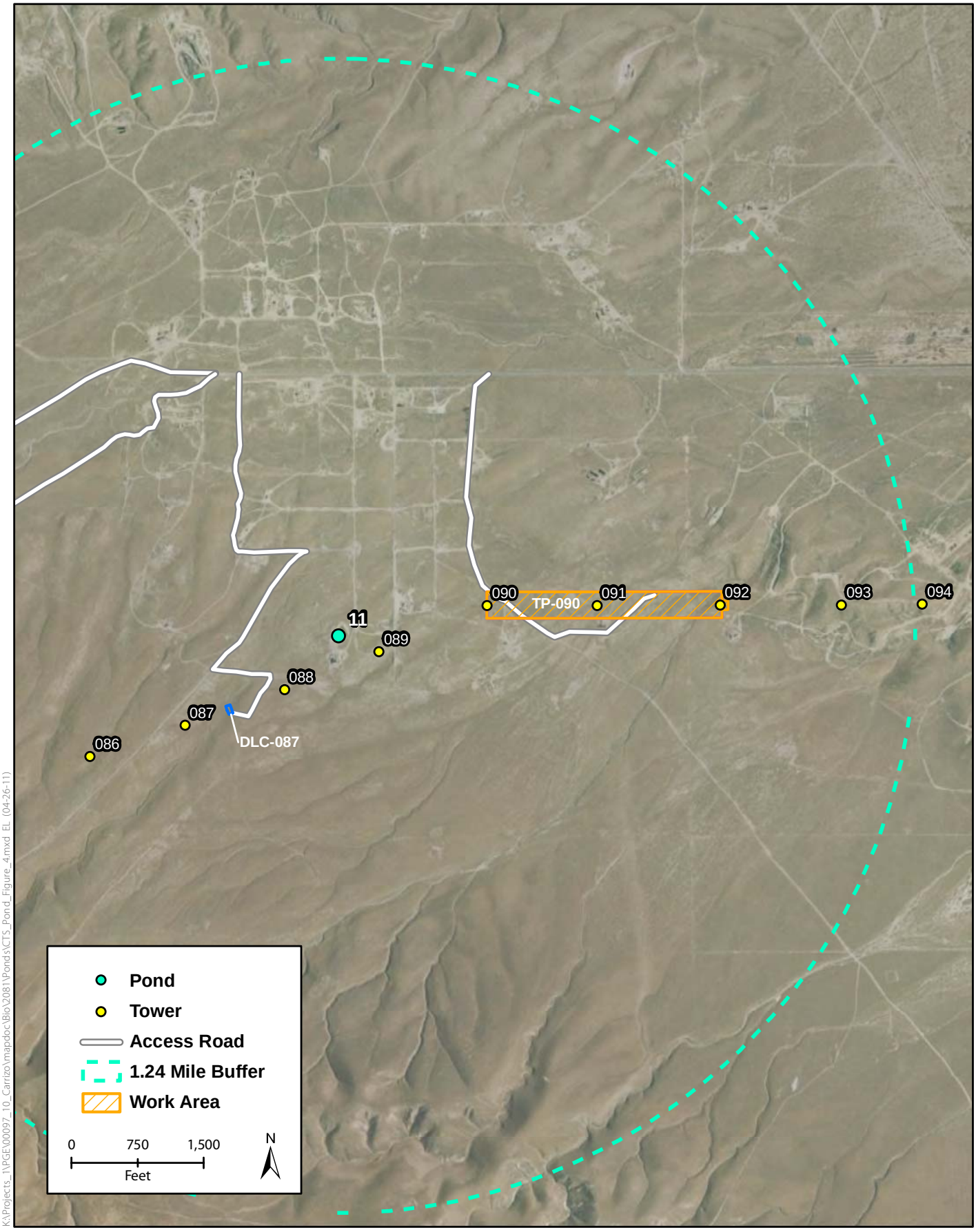

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Figure 4 of 4
Ponds Within 1.24 Miles of Carrizo Work Areas