

CEQA  
Draft Initial Study and Proposed  
Mitigated Negative Declaration

CA FLAP MAD 26(1)  
Avenue 26 and Road 29 Rehabilitation Project



Madera County, California

Madera County Public Works Department  
Capital Improvement Projects Division  
200 W. 4<sup>th</sup> Street, Suite 3100  
Madera, CA 93637



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Madera, California

*Prepared for:*

Madera County Public Works Department  
Engineering Services Division  
200 W. 4<sup>th</sup> Street, Suite 3100  
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August 2019



## 1.0 MITIGATED NEGATIVE DECLARATION

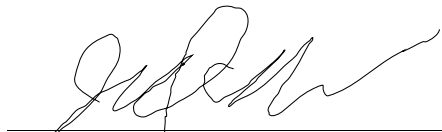
**Project Title:** CA FLAP MAD 26(1) Avenue 26 and Road 29 Rehabilitation Project

**Project Location:** The CA FLAP MAD 26(1) Avenue 26 and Road 29 Rehabilitation Project (“project”) is located in north-central Madera County, California east of the city of Chowchilla and extends from Avenue 26 to Road 29 just south of the Eastman Lake Recreational Area (“project alignment”).

**Project Description:** The Federal Highways Administration Central Federal Lands Division (FHWA), in cooperation with Madera County Public Works Department (MCPWD), proposes to improve approximately 11 miles of Avenue 26 and 5.4 miles of Road 29. Improvements shall include pulverization and replacement of existing asphalt two-lane roadway with new aggregate base and asphalt pavement to establish two travel lanes with standard shoulders. The roadway shall be re-graded to establish the new pavement safety edge with slopes. Centerline striping shall be replaced by 6” striping at edge lines for increased visibility. Pavement markings, and signage shall also be evaluated and replaced to bring the facility up to current safety standards. Culverts shall be evaluated for extensions or replacements as needed and culvert headwalls shall be located away from the edge of the facility. Bridge terminal sections shall be evaluated for improvement to meet current standards and safety guidelines and mailbox posts shall be replaced with crashworthy posts along the immediate facility.

**Findings:** It is hereby determined that, based on the information contained in the attached Initial Study, the project would not have a significant adverse effect on the environment.

Mitigation measures necessary to avoid the potentially significant effects on the environment are included in the attached Initial Study, which is hereby incorporated and fully made part of this Mitigated Negative Declaration. FHWA and MCPWD have hereby agreed to implement each of the identified mitigation measures, which would be adopted as part of the Mitigation Monitoring and Reporting Program.

  
\_\_\_\_\_  
Joshua Kirk, Assistant Resident Engineer  
Madera County Public Works, Engineering Services

08/27/2019

\_\_\_\_\_  
Date

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- F: Biological Assessment, Focused Plant Survey Report
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## **2.0 INITIAL STUDY**

### **Project Title**

CA FLAP MAD 26(1) Avenue 26 and Avenue 29 Rehabilitation Project

### **Lead Agency Name and Address**

Madera County Public Works Department  
200 W. 4<sup>th</sup> Street, 3<sup>rd</sup> Floor  
Madera, CA 93637  
Attn: Engineering Services Division

### **Contact Person and Phone Number**

Joshua Kirk– Assistant Engineer  
Madera County Public Works Department  
200 W. 4<sup>th</sup> Street, Suite 3100  
Madera, CA 93637  
Attn: Engineering Services Division  
(559) 675-7811

### **Project Sponsor Name and Address**

Department of Transportation Federal Highways Administration  
12300 W. Dakota Avenue, Suite 280  
Lakewood, CO 80228  
Attn: Lisa Hemesath  
(720) 360-3473

## **2.1 Purpose of Initial Study**

An Initial Study (IS) is a preliminary analysis, which is prepared to determine the relative environmental impacts associated with a project. It is designed as a measuring mechanism to determine if a project will have a significant adverse effect on the environment, thereby triggering the need to prepare a full Environmental Impact Report (EIR). It also functions as an evidentiary document containing information in support of conclusions that the project will not have a significant environmental impact or that the impacts can be mitigated to a “Less Than Significant” or “No Impact” level. If there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, the lead agency shall prepare a Negative Declaration (ND). If the IS identifies potentially significant effects, but;

- (1) revisions in the project plans or proposals would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
- (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment, then a Mitigated Negative Declaration (MND) shall be prepared.

This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the CA FLAP MAD 26(1) Avenue 26 and Road 29 Rehabilitation Project may have a significant effect upon the environment. Based upon the findings and mitigation measures contained within this report, a Mitigated Negative Declaration (MND) has been prepared.

## **3.0. PROJECT LOCATION AND SETTING**

### **3.1 Project Location**

The project is located in north-central Madera County, California (Figure 1) east of the city of Chowchilla and extends from Avenue 26 to Road 29 just south of the Eastman Lake Recreational Area (Figure 2). Avenue 26 runs west to east through rural farm and rangeland and terminates at Road 29 (“project alignment”). Road 29 runs south to north and terminates at the Eastman Lake Recreational Area at the base of the Sierra Nevada foothills. The project alignment begins at Avenue 26 approximately 2 miles east of the SR 99 off-ramp in Chowchilla and runs 11 miles to the east where Avenue 26 terminates. The project then continues north on Road 29 for approximately 5.4 miles where it ties into the Eastman Lake Recreation Area roadway improvements already completed. Two major reservoirs lie within a 10-mile radius of the project’s vicinity, including Hensley Lake to the east and Eastman Lake to the north. The reservoirs are 8 miles and 3 miles, respectively, from the project limits.

### **3.2 Existing Site Uses**

Road 29 is currently the only access to Eastman Lake Recreation Area. This primary access allows the public to utilize the recreation area for camping, boating, hiking, and fishing activities. Avenue 26 provides a direct route from State Route 99 in the City of Chowchilla to the reservoir as well as providing a direct route to SR 99 from easterly foothill communities such as Raymond, Knowles, Coarsegold and Oakhurst. These two road facilities are important arterial public travel ways and are heavily utilized by these aforementioned communities.

### **3.3 Surrounding Land Uses**

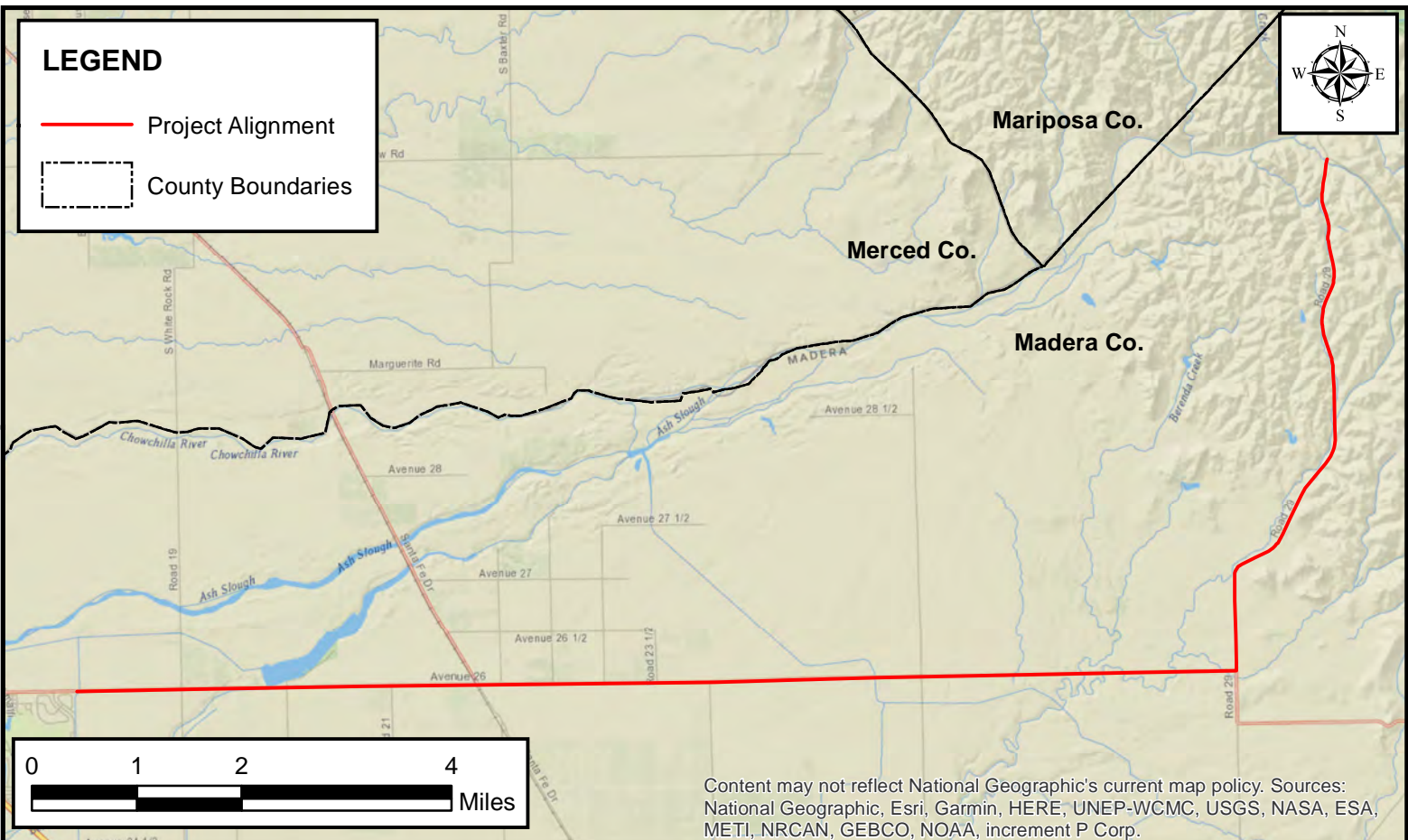
Lands directly adjacent to the project consist primarily of agricultural lands including orchards and various row crops, rangeland, and scattered residences associated with these lands. Range and grasslands are primarily along Road 29 and are heavily grazed. The MCPWD right of way (ROW), within which the project is located, is heavily disturbed by the traveling public, adjacent landowners, agricultural activities and annual road maintenance.

### **3.4 General Planning and Zoning Designations**

The project is within the existing Madera County ROW and undergoes annual maintenance activity as needed to maintain the existing facility. No changes to general planning or zone designations are required.

## LEGEND

- Project Alignment
- County Boundaries



**Live Oak Associates, Inc.**

**CA FLAP MAD 26(1)  
Ave. 26 / Rd. 29 Rehabilitation Project  
Vicinity Map**



Date

01/30/2019

Project #

2291-02

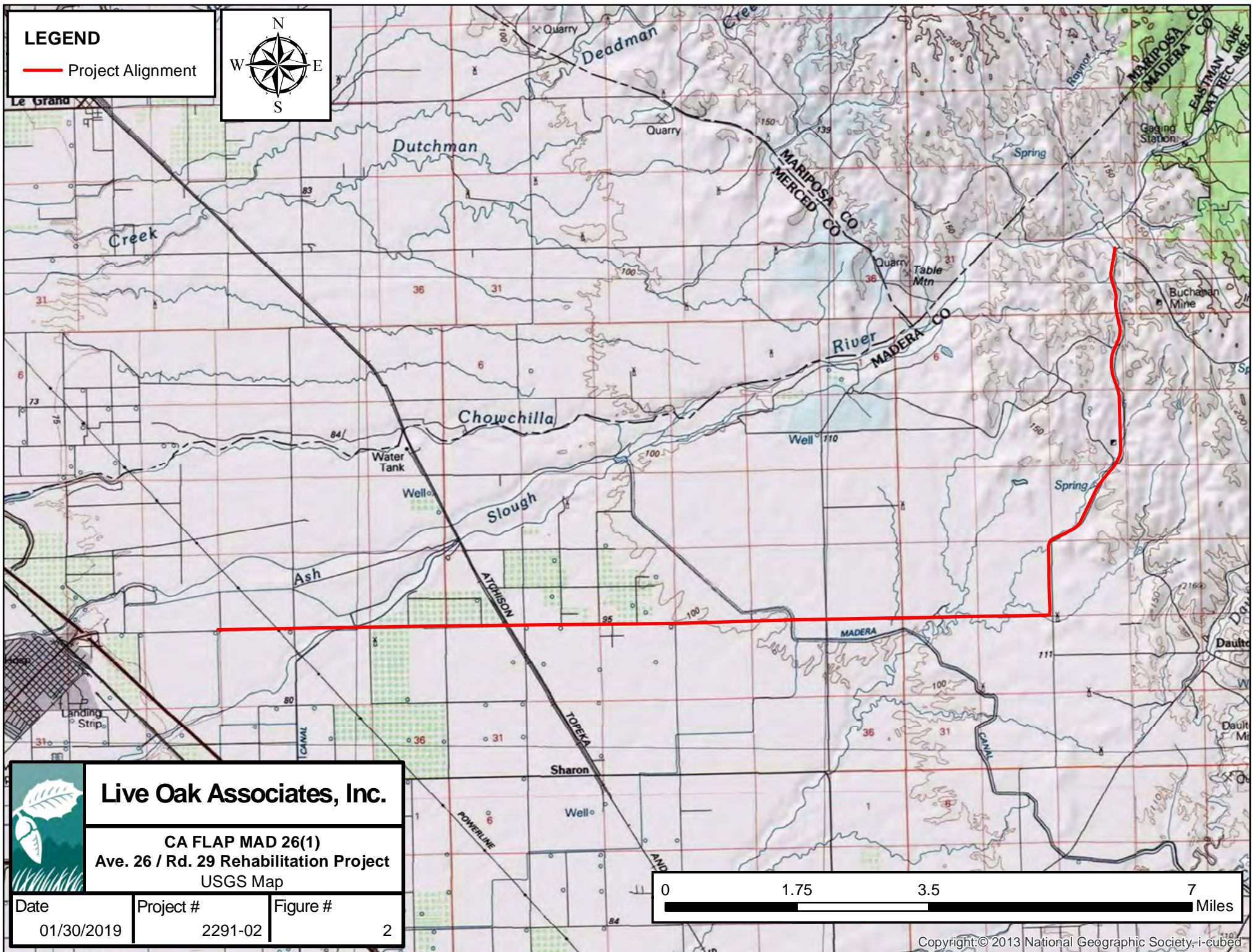
Figure #

1



# LEGEND

— Project Alignment



## **4.0 PROJECT DESCRIPTION**

### **4.1 Project Overview**

MCPWD, in cooperation with the FHWA, proposes to improve the travel way of approximately 11 miles of Avenue 26 and 5.4 miles of Road 29. These County maintained roads provide access to Eastman Lake Recreation Area from the City of Chowchilla and State Highway 99. This corridor serves as the primary access to the recreation area for camping, boating, hiking and fishing activities. Eastman Lake Reservoir is a U.S. Army Corps of Engineers operational facility.

The project proposes to pulverize and replace the existing asphalt two-lane roadway with new aggregate base and asphalt pavement. The existing lane widths vary due to deterioration; therefore the proposed action will re-establish two distinct travel lanes with shoulders and various total paved widths between 24 and 26 feet for approximately 16.4 miles of road. Existing asphaltic-concrete pavement will also be pulverized, aggregate base will be added and the roadway will be re-graded, compacted and paved to current road and safety standards. The road profile shall be widened and potentially raised in order to accommodate the new travel widths, pavement safety edge and road shoulders at various areas while matching existing structures and access points. Gravel tie-ins may be utilized to match existing access points such as driveways, farming crossroads and pull off locations.

Existing centerline striping will be replaced and 6" striping will be added to the edge lines for increased visibility. Raised pavement markings shall be installed as well as replacement of and new signage to meet current standards where applicable. Bridge terminal sections shall be evaluated for improvements and headwalls shall be relocated away from the edge of road. Culverts shall be replaced or extended to meet current Federal Lands Highway standards.

### **4.2 Project Background**

Avenue 26 and Road 29 are rural roadways with variable lane width and minimal to no paved shoulder (0-2 feet approximate). Both roads are in need of improvements to achieve current maintenance and safety standards. Existing road shoulders and facility do not provide adequate access for maintenance activities nor is there adequate emergency pull off shoulder for the traveling public. The roadway has rough and uneven surfaces and reduced lane width from a continually deteriorating facility. Due to limited access to service the roadway, culverts, bridges and headwalls often require the facility to be shutdown with traffic delays in order to implement routine maintenance activities.



### 4.3 Project Objectives

The main objective for the project is to bring the facility up to current traffic safety conditions and standards, allow adequate access for maintenance activities, and provide an improved, smooth travel surface.

### 4.4 Approvals

The Madera County Public Works Department is the Lead Agency for the project, pursuant to the State Guidelines for implementation of the California Environmental Quality Act [CEQA], section 15050.

This document will be used by the Agency to take the following actions:

- Adoption of the Mitigated Negative Declaration under the requirements of the California Environmental Quality Act (CEQA)
- Adoption of a Mitigation Monitoring and Reporting Plan that incorporates the mitigation identified in this document. [MMRP]

**Table 1. Permits/Approvals Required**

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers	Section 404 Nationwide Permit (NWP) for temporary construction access within wetlands and waters of the U.S.	NWP Application is being prepared for submission; consultation with federal agency has been initiated.
U.S. Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species Incidental Take Permit for California Tiger Salamander	Formal Consultation has been initiated and is being completed through submittal of a Biological Assessment by the FHWA.
California Department of Fish and Wildlife	Section 2081 (b) permit for Threatened and Endangered Species	Applications to be submitted.
State Historic Preservation Officer	Section 106 Finding of No Adverse Effect with Standard Conditions of Finding of Adverse Effect and Memorandum of Agreement.	Formal Consultation has been completed by FHWA.
State Water Resource Control Board	NPDES Permit for Discharges of Storm Water Runoff Associated with Construction Activity <i>and</i> 401 Water Quality Certification for discharge into waters of the State	Applications to be submitted.

## 5.0 ENVIRONMENTAL FACTORS AND DETERMINATION

### Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

	Aesthetics		Agriculture and Forest Resources	X	Air Quality
X	Biological Resources	X	Cultural Resources	X	Geology/Soils
	Greenhouse Gasses		Hazards and Hazardous Materials	X	Hydrology/Water Quality
	Land Use/Planning		Mineral Resources	X	Noise
	Population/Housing		Public Services		Recreation
	Transportation/Traffic		Utilities/Service Systems		Mandatory Findings of Significance

### Determination

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in and earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in and earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

08/27/2019

Joshua Kirk, Assistant Engineer

Date

Madera County Public Works Department, Engineering Services

## 5.1 Evaluation Instructions

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information, sources a lead agency, cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is

- substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
  - 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
  - 9) The explanation of each issue should identify:
    - a) the significance criteria or threshold, if any, used to evaluate each question; and
    - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

## 5.2 Evaluation of Environmental Impacts

In each area of potential impact listed in this section, there are one or more questions, which assess the degree of potential environmental effect. A response is provided to each question using one of the four impact evaluation criteria described below. A discussion of the response is also included.

- *Potentially Significant Impact.* This response is appropriate when there is substantial evidence that an effect is significant. If there are one or more “Potentially Significant Impact” entries, upon completion of the Initial Study, and EIR is required.
- *Less than Significant With Mitigation Incorporated.* This response applies when the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
- *Less than Significant Impact.* A less than significant impact is one, which is deemed to have little or no adverse effect on the environment. Mitigation measures are, therefore, not necessary, although they may be recommended to further reduce a minor impact.
- *No Impact.* These issues were either identified as having no impact on the environment, or they are not relevant to the project.

## 6.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

This section of the Initial Study incorporates the most current Appendix “G” Environmental Checklist Form, contained in the CEQA Guidelines. Impact questions and responses are included in both tabular and narrative formats for each of the 18 environmental topic areas.

### AESTHETICS

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

### Environmental Setting

The project is located in Madera County, along Avenue 26 and Road 29 between the town of Chowchilla and Eastman Lake Recreational Area. There are no scenic designations within these areas. The surrounding lands of the project vary from agricultural farmland to rolling hill graze and pasture lands. The project would be constructed within the existing road prism and would not increase capacity. Surrounding views while traveling along the road facility would remain unchanged.

### RESPONSES TO CHECKLIST QUESTIONS

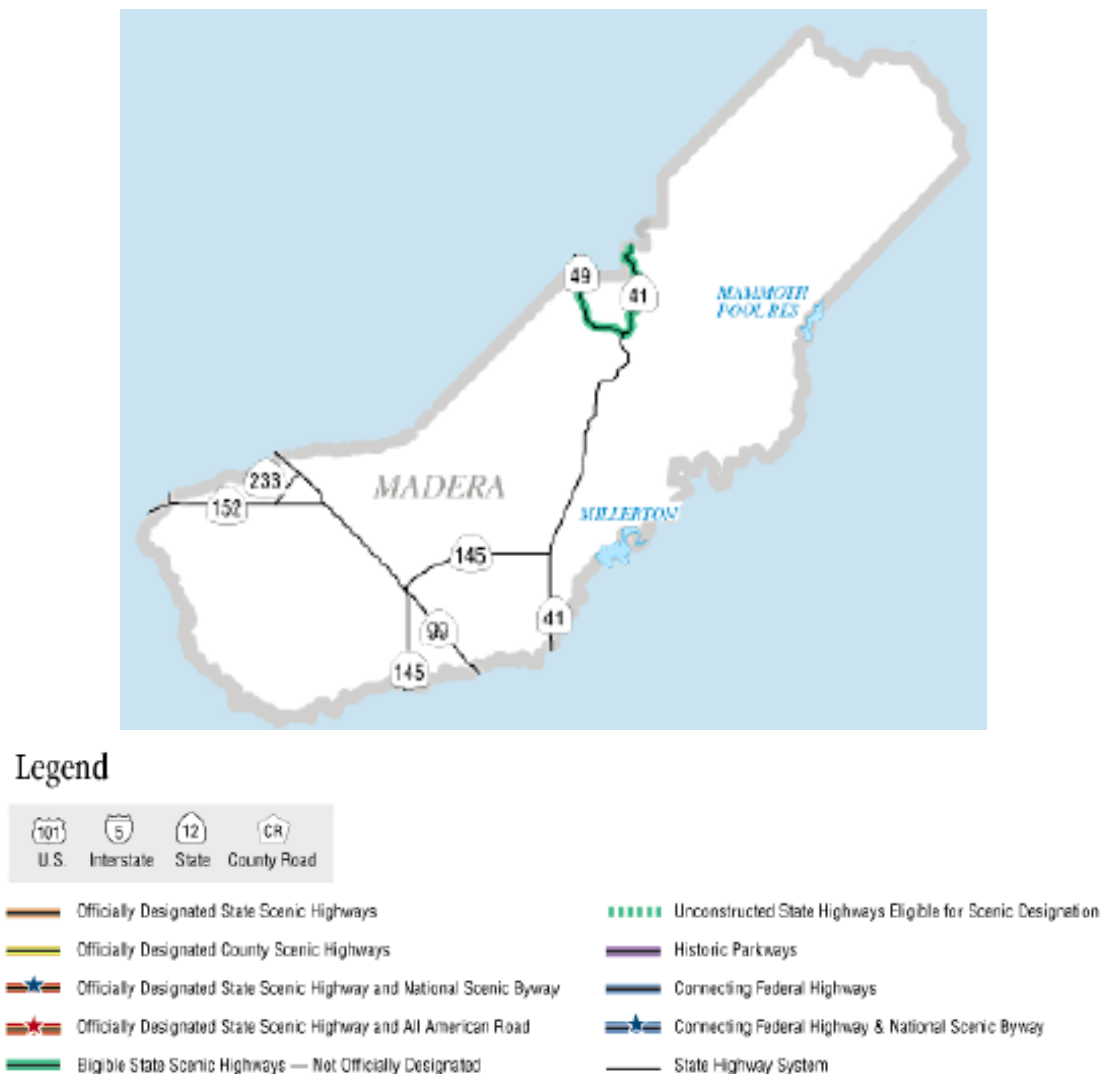
**Response a): No Impact.** The project improvements are not lane or capacity increasing. Slight changes in the profile of the road surface will be confined to the existing road prism. The majority of the project alignment is within agricultural farmland with heavily disturbed road shoulder while a smaller portion is within rolling hills consistent with grazed rangeland. No scenic vistas or unique natural features occur within the project area nor does the project visually block surrounding areas. There are a limited number of trees within the right of way (ROW), which will remain undisturbed following project activities. The project does not include unique visual features and is not highly visible from the surrounding area; implementation of the project would have no impacts to scenic vistas.



**Response b): No Impact.** A scenic highway is generally defined by Caltrans as a public highway that traverses an area of outstanding scenic quality, containing striking views, flora, geology, or other unique natural attributes. A highway may be designated scenic depending upon how much the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view.

The status of a state scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway (Figure 3).

Figure 3. Scenic Highway Designation Map



There are no designated State Scenic Highways in Madera County. Only one highway section in Madera County is listed as an “Eligible State Scenic Highway.” This section

begins where State Route (SR) 49 enters Madera County from Mariposa County north of the town of Oakhurst, follows SR 49 south to its intersection with SR 41 in Oakhurst, and follows SR 41 north and northeast into Yosemite National Park. SR 41 and 49 are not within proximity to the project.

As described above under Response a), there are no scenic resources located within the project area. Additionally, the project is not visible from a designated State Scenic Highway; therefore there are no impacts to scenic highways.

**Response c): No Impact.** As described previously, there are no visual resources associated with the project. The project would be visually compatible with the existing uses and would not degrade the existing visual quality of the site or the surrounding area. Therefore no impacts to visual character will occur.

**Response d): Less than Significant Impact.** Daytime glare can occur when sunlight strikes reflective surfaces such as vehicle windshields, windows and shiny reflective building materials. The existing travel way currently includes striping, signage and reflectors for driver safety but is limited. New striping, reflectors and signage would be added to the road surface and shoulder upon completion of the improvements. These additions would be upgrades from the existing facility, but would not be considered a significant increase in glare, as they are reflective only for travelers along the facility to assist drivers in identifying the travel way. The project will have a less than significant impact regarding this resource.

## AGRICULTURE AND FOREST RESOURCES

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 1222 (g)) or timberland (as defined in Public Resources Code section 4526)?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?				X

### Environmental Setting

The surrounding lands of the project vary from heavy agricultural farmland to rolling hill graze and pasture lands. The San Joaquin Valley is known as the most productive agricultural region in the world, cultivating more than 250 crops (U.C. Davis 2017). While some of the project would be constructed within agricultural lands, construction activities would occur within the existing road prism and would not increase capacity or impact surrounding agricultural lands.

### RESPONSES TO CHECKLIST QUESTIONS

**Response a): No Impact.** The project is currently within the Madera County Public Works Road ROW. There are no Prime or Unique Farmlands, or Farmlands of Statewide Importance located within the ROW. Prime and Unique Farmland occur directly adjacent to the project, however, no conversion of land or land acquisition is necessary. Activities proposed shall have no impact on farmlands or agricultural activities.

**Response b): No Impact.** The project alignment is not under a Williamson Act Contract. As such, the Project would not conflict with any agricultural zoning. There is no impact to this resource.

**Response c) and d): No Impact.** The project alignment is currently developed with roadway, culverts and road shoulders associated with the project. There are no forestlands or forest resources and the project is not zoned for forestlands. There will be no impacts to these resources.

**Response e): No Impact.** Paving and grinding operations, replacement of culverts, culvert improvements, shoulder backing and widening to bring the public paved roadway up to current safety standards are proposed. The project would not result in any construction activities or physical environmental changes beyond the immediate boundaries of improvement areas identified (Appendix A, Project Plans). There are no forest or agricultural lands or resources located within the project alignment. There will be no impacts due to conversion of these resources.

## AIR QUALITY

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?				X

## Environmental Setting

Regional climate and topography play a large role in the ambient air pollution concentration that affects the San Joaquin Valley Air Basin (SJVAB), which lies within the central portion of the San Joaquin Valley. Airflow patterns within the SJVAB can generally be characterized by one of four directional types: northwesterly up-valley, marine winds from the San Francisco Bay Area, down-valley and foothill drainage (down sloping) winds, and northerly (non-marine) winds resulting from the exiting of a low pressure system. During the summer, down-sloping winds are predominate because of high-pressure systems to the east, and during the winter, northerly and southerly winds predominate because of the entrance and exit of low-pressure systems (WRCC, 2009).

The SJVAB is approximately 300 miles long and shaped like an oblong bowl, allowing air pollutants, such as ozone precursors (oxides of nitrogen [NOX] and reactive organic gas [ROG]) and particulate matter less than 2.5 micrometers in diameter (PM2.5) to be retained. Air quality within the SJVAB is among the poorest in the state. On average, the SJVAB experiences 35 to 40 days where it exceeds the federal health-based standards for ground-level ozone and more than 100 days where it exceeds the California ozone standard. While levels of PM2.5 exceed the federal standard 50 days annually, the state standard is lower, and the Valley exceeds this limit an average of 70 to 100 days per year.

## *RESPONSES TO CHECKLIST QUESTIONS*

**Response a): Less than Significant Impact.** The San Joaquin Valley is designated as a federal-level Nonattainment/Extreme area for the 8-hour ozone standard, State Nonattainment area for PM<sub>10</sub>, and in Federal and State Nonattainment for the PM<sub>2.5</sub> standards. The area is unclassified or in attainment for both the Federal and State ambient air quality standards for carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, hydrogen sulfide, sulfates, visibility reducing particles, and vinyl chloride.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has adopted a number of plans that intend to reach attainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. The 2007 Ozone Plan calls for a 75 percent reduction in ozone-forming oxides of nitrogen emissions (precursors to ozone). Reactive organic gases (ROG) emissions (ozone precursors) shall be reduced by 25 percent. The Extreme Ozone Attainment Demonstration Plan intends to bring the region into compliance with the 1-hour and 8-hour ozone standards.

Existing General Plan designations for the Madera County Area are consistent with the applicable assumptions used in the development of the Air Quality Management Plans (AQMP) that aim towards attainment of the air quality levels identified. For all pollutants, mitigated reductions range from at least 17% to over 40% from General Plan levels. The project is not capacity increasing; additionally, the project is consistent with the Madera County General Plan use and development, which includes significant emission reductions over land use and population projections and while temporary emissions from construction activities are expected, they are temporary in nature and included within current Plans previously discussed. For this reason, the project will have a less than significant impact and will not conflict with applicable air quality plans.

**Response b): Less than Significant with Mitigation Incorporation.** Construction activities would result in temporary short-term emissions associated with vehicle trips from construction workers, operation of construction equipment, and the dust generated during construction activities. These temporary and short-term emissions would generate additional ozone precursors [Reactive Organic Gases (ROG) and Nitrous Oxides (NO<sub>x</sub>)] as well as PM<sub>10</sub> and PM<sub>2.5</sub>, which may exacerbate the Air Basin's existing non-attainment status for these criteria pollutants.

Current requirements in place from the SJVAPCD, as enforced, will effectively mitigate potential impacts but are listed in **mitigation measures AQ-1 & AQ-2** below. Incorporation of these measures shall bring the project impacts to a less than significant level.

**Response c): Less than Significant Impact.** A cumulative impact is defined as two or more individual effects which, when considered together, are either significant or "cumulatively considerable," meaning they add considerably to a significant environmental impact. A cumulative impact is considered over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. A project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact.

The project is within the San Joaquin Valley Air Basin and is designated nonattainment for ROG and NOx (Ozone precursors), PM<sub>10</sub> and PM<sub>2.5</sub>.

The project has incorporated SJVAPCD construction mitigation measures previously discussed, including measures that are intended to minimize temporary construction emissions from equipment combustion and fugitive dust. The project is not capacity increasing and would not contribute to cumulative impacts on air quality. There is a less than significant impact regarding this topic.

**Response d and e): Less than Significant Impact.** Implementation of the project would not expose sensitive receptors to substantial pollutant concentrations or objectionable odors. There are few scattered residences within the immediate vicinity of the project and construction activities will progress along the ROW limiting time of exposure from construction equipment. Construction staff may be subject to temporary air pollution concentrations and odor (diesel exhaust, etc.) typically associated with construction activities. However, any air pollution or odors generated by construction activities would be minor and temporary in duration. The project will have a less than significant impact with respect to sensitive receptors and objectionable odors.

#### *Mitigation Measures Air Quality*

**AQ-1:** The Agency, or the contractor(s) hired to complete construction of the project, shall implement the following specific mitigation to ensure adequate dust control during construction activities. Compliance with the mitigation measures should minimize the potential for violations of Regulation VIII, Fugitive Dust Emissions.

##### **Clearing and Grubbing/Earth Moving**

- Water shall be applied by means of truck(s), hoses and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions.
- Haul vehicles transporting soil into or out of the property shall be covered. A water truck shall be onsite at all times. Water shall be applied to disturbed areas a minimum of 2 times per day during the dry season or as needed to limit dust emissions.
- Speed limits on unpaved roads and within the dirt surface work area shall be limited to 5 mph where applicable.
- A sign visible to the public shall be installed posting the contact number for person responsible for handling dust complaints. Corrective actions shall be addressed within 24 hours of receipt of complaint.
- Contact information for the Project Manager shall be posted for all other nuisance complaints, comments or questions regarding the project.

##### **Disturbed Soil Surface Areas:**

- All disturbed soil surface areas that are visibly dry and subject to disturbance from the project, the public, or wind events, shall be watered to minimize dust emissions.



**Track-out to Paved Roads:**

- Existing Public Paved Roadways that have visible signs of track-out shall be cleaned up at the end of the day or immediately if a rain event is forecasted or begins during the workday. If track-out exceeds 50 feet in length, it must be cleaned up immediately.

**Disturbed Roadways – Unpaved:**

- Should visible dust emissions be observed during operation on unpaved roadways, the roadway shall be watered to minimize dust emissions.
- A water truck shall be onsite at all times. Water shall be applied to disturbed areas as needed to control dust emissions.
- On-site vehicles shall limit speeds to minimize emissions from unpaved roads.
- Haul roads shall be wetted to provide a visible crust at the end of the workday to control wind erosion as required.

**Ingress/Egress within the Construction Area:**

- Vehicles entering or exiting the construction area shall travel at a speed, which minimizes dust emissions.

**Personnel Vehicles:**

- Construction workers and staged equipment shall park in designated parking areas (where applicable) to help reduce dust emissions.

**Bulk Material Storage Piles:**

- Storage piles that are susceptible to wind erosion shall be wetted to provide a visible crust, secured with tarps or plastic, or covered with other materials to reduce dust emissions.

**AQ-2:** The following mitigation shall be implemented to reduce and mitigate combustion emissions from heavy-duty construction equipment:

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to the extent feasible, the use of diesel construction equipment meeting the latest CARB certification standards for off-road heavy-duty diesel engines.
- Electrify equipment where feasible
- Use gasoline-powered equipment in lieu of diesel-powered equipment, where feasible.
- Use alternatively fueled construction equipment where feasible during construction such as propane, biodiesel, compressed natural gas, and liquefied natural gas.

## BIOLOGICAL RESOURCES

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved, local, regional, or state habitat conservation plan?		X		

## **Environmental Setting**

The project is located within the San Joaquin Valley Sub-region of the Great Central Valley. The climate is characterized by long, hot summers and moderately cold winters (Barbour and Billings, 1988) with an average precipitation of 12 inches (WRCC, 2018). Topography within the study area consists of flat terrain to gradually rolling hills with mixed uses from agricultural farmland to graze and pasture lands as it approaches the Eastman Lake Reservoir. Elevations range from approximately 250 feet to 600 feet above mean sea level (MSL). Berenda Slough and Madera Canal intersect the Project Study Area approximately 3 and 9 miles east of the town of Chowchilla, respectively.

## **Methodology**

Sources consulted for information related to the project and its environmental setting include but are not limited to: preliminary engineered project plans, maps, aerial photography, online databases and field review. The project Impact Area (PIA) is the area in which construction activities and ground disturbances are proposed these areas include both temporary and permanent impacts as discussed in later sections of this document. The Project Study Area (PSA) is identified to include the PIA and a 200-foot buffer (Appendix D, Vegetative Communities Map). Reconnaissance-level biological surveys of the PSA were conducted to determine potential for the PSA to support special status species as well as other sensitive resources. Focused surveys for wetlands, vernal pools and associated plant species were conducted within blooming periods for the target species as allowable during survey windows. Surveys were conducted between October 2016 and July 2019 for biological resources.

The checklist responses incorporate findings for biological resources, which are summarized from survey findings. Additional information obtained from a Biological Assessment prepared by HDR and Associates and a focused botanical survey for special status plants are referenced in Appendix F.

## **Vegetative Communities and Habitat Types**

Vegetative communities that occur within the PSA are both upland and aquatic and can be found in Appendix D. There is a mixture of highly disturbed developed and natural vegetative communities that include agricultural lands, ruderal/disturbed and annual grassland. Aquatic habitat types that occur within the PSA include: Berenda Slough, Madera Canal, unnamed ephemeral drainages, roadside ditches, ponds and open water, freshwater marsh, riparian, seasonal wetlands and vernal pools. Wildlife corridors likely occur within the PSA. These communities and habitats are discussed below. Representative photographs of the PSA are provided in survey documents and assessments within Appendix F.

**Agricultural Lands** consist of annual cropland and orchards. All native vegetation within these areas has been removed. Weed management is regularly conducted through spraying, disking and grading. These lands are artificially irrigated.

**Annual Grassland** habitat in the PSA is characterized by a matrix of nonnative annual grasses, nonnative herbaceous and ruderal species. Dominant vegetation observed within these areas include but are not limited to: ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), barley (*Hordeum marinum*), and ryegrass (*Lolium multiflorum*). Common nonnative herbaceous species include dove weed (*Croton setiger*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), wild and black mustard (*Brassica spp.*) and wild radish (*Raphanus sativa*).

**Developed/Bare Ground** is comprised of areas of intensive use, with much of the land constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Within this cover type, developed areas are typically comprised of paved roadways, man-made structures, un-vegetated adjacent lands, or landscaped with a variety of ornamental plants. The developed/bare ground cover type occurs throughout the PSA and is associated with paved roads, dirt access roads, unpaved road shoulders, outbuildings, residences and appurtenances.

**Freshwater Marsh** is characterized by erect, rooted herbaceous hydrophytes generally dominated by cattails (*Typha spp.*) and bulrushes (*Schoenoplectus spp.*). This habitat is flooded frequently so that the roots of vegetation are saturated or submerged in water. Vegetation is generally about 6 feet in height and may vary from small clumps of vegetation to large areas. Within the PSA, this community is dominated by narrow-leaf cattail (*Typha angustifolia*) and is most prominent in Berenda Slough.

**Intermittent Channels** typically have flowing water during portions of the year when soil saturation occurs and groundwater combined with rainfall runoff provide water for stream flows. During dry months, these features typically do not have flowing water.

**Open Water** includes irrigation canals and drainage ditches constructed for water management for adjacent agriculture and managed wetlands. Several of these convey water diverted from or discharged into natural watercourses.

**Riparian** habitat occurs along the Berenda Slough corridor and is marginal and isolated within two drainages adjacent to Road 29. Riparian habitat in the PSA consists of Fremont cottonwood (*Populus fremontii*) and willows (*Salix spp.*) understory is limited.

**Seasonal Wetlands** are topographically low-lying areas where water remains present for a portion of the year. Species found within these areas include curly dock (*Rumex crispus*), cocklebur (*Xanthium sp.*), willow herb (*Epilobium sp.*) and rush (*Juncus sp.*).

**Swales** are defined as linear drainage features that fall somewhere between ephemeral channel and wetland. The swales in the action area are dominated by barley (*Hordeum ssp.*) and appear to convey water between wetlands during high water events. The dominance of a predominant upland plant species suggests the hydroperiod of these features is not long enough to support hydrophytic vegetation.

**Vernal Pool** areas are seasonally inundated as a result of the accumulation of surface water and rainwater in depression areas. Several vernal pools are scattered throughout the grassland portions of the PSA and are dominated by low-growing hydrophytic vegetation with seasonal hydrology. Species observed during surveys include barley, spike rush (*Eleocharis* spp.), Carter's buttercup (*Ranunculus bonariensis*), watercress (*Nasturtium officinale*), coyote thistle (*Eryngium* sp.), and fiddle dock (*Rumex pulcher*). The vegetation communities map provided in Appendix D only capture the large vernal pools within the PSA.

## **Wildlife Corridors**

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, b) preserve a species distribution potential, and c) retain diversity among many wildlife populations. Therefore resource agencies consider wildlife corridors to be a sensitive resource.

Available data on wildlife corridors and linkages was accessed via the CDFW (2017) BIOS 5 Viewer. Data reviewed included the following BIOS layers: Wildlife Linkages – San Joaquin Valley [ds417], Wildlife Corridors – San Joaquin Valley [ds 423], Essential Connectivity Areas [ds620], Natural Landscape Blocks [ds621], and Missing Linkages in California [ds420]. The proposed action intersects both a wildlife corridor identified in the San Joaquin Valley [ds 423] dataset and the Essential Connectivity Areas [ds 620] layers. However, construction and disturbances will be restricted to the existing ROW and roadbed; and does not include improvements such as installation of new concrete barriers, no net change in migratory passage along the existing roadway.

## **Aquatic Habitats**

Aquatic resources were delineated during survey work by HDR. Within the PSA, 33 aquatic resource features were identified and 2.9 acres of resources were deemed jurisdictional. Proposed culvert and/or drainage improvements are anticipated to have less than 0.02 acres permanent and less than 0.01 temporary impacts. Impact summaries are in Table 2 but are approximate. Final temporary and permanent impacts shall be determined within the permitting processes with the applicable governing agencies.

The National Wetlands Inventory was queried and maps showing wetlands and other waters can be found in Appendix B.

**Table 2. Summary of Wetlands/Other Waters of the U.S. and Impacts**

Feature Type	Acreage within Survey Area (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Impact Description
Open Water	0.11	0	0	None
Riparian Wetlands	0.6	0	0	None
Freshwater Marsh	0.25	0	0	None
Intermittent Channel	0.28	0.005	0.004	Permanent impact will result from installation of end sections and headwalls at culverts in order to prevent additional scour
Swale	0.07	0.003	0.00006	Permanent impact will result from installation of rip rap at one outlet location to prevent additional scour
Seasonal Wetland	0.16	0	0.002	Permanent impact will result from installation of a new longer culvert to prevent scour and erosion
Vernal Pool	1.03	0.004	0.0002	Permanent impact will result from culvert and headwall replacement
Total Acreage	2.9	0.011	0.006	
<b>*Impact estimates are approximate and shall be finalized through the permitting process with the applicable governing agencies</b>				

### **Special-Status Species**

Special-status species are those that meet the definitions of rare or endangered plants or animals under CEQA, including species that are:

- Listed as endangered or threatened under the federal Endangered Species Act (FESA) (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the California Endangered Species Act (CESA) (or proposed for listing);
- Designated as endangered or rare pursuant to California Fish and Game Code (§1901);
- Designated as fully protected pursuant to California Fish and Game Code (§3511, §4700, or §5050); or
- Designated as species of special concern by the CDFW.

Although not required for the CEQA review process, species identified that do not hold a

special-status ranking, are considered in this analysis if they are covered under the USFWS (2005b) Recovery Plan for vernal pool habitat and associated species.

Table 3 provides a summary of regionally occurring special-status species based on the USFWS file data and CNDDB queries and active Recovery Plans. The summary provides a rationale as to whether the species has the potential to occur within the PIA based on the presence of each species or identification of associated habitat during the biological surveys. Special-status species without the potential to occur within the PIA are not discussed further.

Table 3. Special Status Species with Potential to Occur within the Project Area			
Species	Status	Habitat Characteristics	Potential for Occurrence
<b>Plants</b>			
<i>Castilleja campestris</i> var. <i>succulenta</i> Succulent owl's clover	FT SE 1B	Found in vernal pools (often acidic) and moist places from 50 to 750 m (164-2,461 ft). Blooms: April-May	Not expected to occur; habitat unsuitable within the project impact area (PIA). Focused plant surveys completed during blooming periods 2019 showed absence of species and habitat within the PIA. No impacts expected to occur to this species.
<i>Eryngium spinosepalum</i> Spiny-sepaled button-celery	1B.2	Found in Valley wetlands and vernal pools from 80 to 255 m (263 to 837 ft.) Blooms: April-May	Marginal habitat occurs within the PIA. Focused plant surveys completed during blooming periods 2019. Implementation of BR2 shall reduce impacts to less than significant level.
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	SE 1B.2	Annual herb found on clay soils in vernal pools and along the lake margins of marshes and swamps from 10 to 2,375 m (33 to 7,792 ft) Blooms: April-August	Not expected to occur; habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2019. No impacts expected to occur to this species.
<i>Navarretia myersii</i> ssp. <i>myersii</i> Pincushion navarretia	1B.1	Annual herb found in vernal pool habitats or wetlands from 65 to 1000 m. (210 to 3,300 ft.) Blooms: April-May	Not expected to occur; aquatic habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2019. No impacts expected to occur to this species.
<i>Navarretia nigeliiformis</i> ssp. <i>radians</i> Shining navarretia	1B.2	Annual herb found in vernal pool habitats or wetlands from 65 to 1000 m. (210 to 3,300 ft.) Blooms: April-July	Not expected to occur; aquatic habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2019. No impacts expected to occur to this species.
<i>Neostapfia calusana</i> Colusa grass	FT SE	Found in large, adobe vernal pools. Elevation: 16 ft to 656 ft. Blooms: May-Aug	Not expected to occur; habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2018 showed absence of species within the PIA. No impacts expected to occur to this species.
<i>Orcuttia inequalis</i> San Joaquin Valley Orcutt grass	FT SE 1B.1	Found in vernal pools from 10 to 750 m (33-2,477 ft.) Blooms: April-September	Not expected to occur; habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2018 showed absence of species within the PIA. No impacts expected to occur to this species.
<i>Orcuttia pilosa</i> Hairy Orcutt grass	FE SE	Found in vernal pools from 46 to 200 m (151-656 ft.) Blooms: May-September.	Not expected to occur; habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2018 showed absence of species within the PIA. No impacts expected to occur to this species.



**Table 3. Special Status Species with Potential to Occur within the Project Area (cont.)**

<b>Species</b>	<b>Status</b>	<b>Habitat Characteristics</b>	<b>Potential for Occurrence</b>
<b>Plants</b>			
<i>Tuctoria greenei</i> Greene's tuctoria	FE SR 1B.1	Found in vernal pools from 30 to 1070 m (98 to 3,531 ft.) Blooms: May-September.	Not expected to occur; habitat unsuitable within the PIA. Focused plant surveys completed during blooming periods 2019 showed absence of species within the PIA. No impacts expected to occur to this species.
<b>Invertebrates</b>			
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	Found in ephemeral wetland habitats and vernal pools within sandstone and alkaline soils, and alluvial fan terraces within annual grassland and pine forests from 10 to 1,700 m (33 to 5,577 ft.)	Vernal pools in and adjacent to PIA may provide suitable habitat for this species. Implementation of BR-9 shall mitigate impacts to this species to a less than significant level.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT	Dependent on host plant, elderberry ( <i>Sambucus</i> spp.), which generally grows in riparian woodlands between 0 and 762 m (0 to 2,500 ft.). Host plant must have at least 1-inch diameter stem for beetle to be present.	Not expected to occur; habitat not present within the PIA. No impacts expected to occur to this species.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	Found in a wide variety of ephemeral wetland habitats, typically vernal pools. Distributed throughout Central Valley and San Francisco Bay Area.	Vernal pools in and adjacent to PIA may provide suitable habitat for this species. Implementation of BR-9 shall mitigate impacts to this species to a less than significant level.
<b>Amphibians</b>			
<i>Ambystoma californiense</i> California tiger salamander	FT ST	Found in vernal pools, ephemeral wetlands, and seasonal ponds, including stock ponds, in grassland and oak savannah plant communities from 3 to 1,054 m (10 to 3,458 ft.) Breeds: November to June (wet season)	Suitable aestivation habitat and limited aquatic habitat occurs within the PIA. Implementation of mitigation measure BR-3 shall keep the project impact to a less than significant level.
<i>Spea hammondi</i> western spadefoot	SSC	Found in and around shallow temporary pools formed from heavy winter rains during the breeding season. Otherwise spends time in burrows from 0 to 1,363 m (0 to 4,460 ft.) within sandy or gravelly soils in mixed woodland, grassland, river floodplain, alkali flats, foothills and mountains. Requires breeding pools that do not contain bullfrogs.	Suitable habitat occurs within the PIA. Implementation of mitigation measure BR-3 shall keep project impacts to a less than significant level.
<b>Reptiles</b>			
<i>Actinemys marmorata</i> western pond turtle	SSC	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools along intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes with little vegetation or sandy banks. Found from 0 to 1,430 m (0 to 4690 ft.)	Marginal nesting habitat occurs within the PIA. Implementation of mitigation measure BR-3 shall keep project impacts to a less than significant level. See discussion in following section.
<b>Birds</b>			
<i>Agelaius tricolor</i> Tricolored blackbird	CE SSC	Found nesting in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water. Feeds in grass and cropland habitats.	Suitable foraging habitat occurs in grasslands of the PIA, and a small area of suitable breeding habitat occurs immediately adjacent to the PIA. Implementation of mitigation measure BR-6 shall keep project impacts to a less than significant level. See discussion in following section.

**Table 3. Special Status Species with Potential to Occur within the Project Area (cont.)**

<i>Species</i>	<i>Status</i>	<i>Habitat Characteristics</i>	<i>Potential for Occurrence</i>
<b>Birds (continued)</b>			
<i>Athene cunicularia</i> burrowing owl	SSC	Found in open grassland, prairie, farmland, and airfields where flat open ground occurs, sometimes found in urban areas such as vacant lots, industrial parks or golf courses.	Marginal nesting habitat occurs within the PIA and is within areas where ground squirrels are present. Suitable foraging habitat occurs within the project study area (PSA). Implementation of mitigation measures BR-4 shall keep project impacts to a less than significant level. See discussion in following section.
<i>Aquila chrysaetos</i> golden eagle	CFP	Foothills, mountain areas, desert; nests in large trees in open areas.	Not expected to occur within the PIA; however, suitable breeding and foraging habitat occur adjacent to the PIA. Implementation of mitigation measure BR-6 shall keep project impacts to a less than significant level. See discussion in following section.
<i>Buteo swainsoni</i> Swainson's hawk	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	Not expected to occur within the PIA; however, suitable breeding and foraging habitat occur adjacent to the PIA. Implementation of mitigation measure BR-5 shall keep project impacts to a less than significant level. See discussion in following section.
<i>Haliaeetus leucocephalus</i> bald eagle	CFP SE	Lakes, reservoirs, rivers; usually nest in large trees or snags near water	Not expected to occur within the PIA; however, nest trees are documented near Eastman Lake and Hensley Lake (1.3 mi NE of the north terminus and 7 mi SE of the eastern project limits, respectively). Implementation of mitigation measure BR-6 shall keep project impacts to a less than significant level.
<b>Mammals</b>			
<i>Taxidea taxus</i> American badger	SSC	Suitable habitat occurs in the drier open stages of most shrub, forest and herbaceous habitats with friable soils. Badgers are generally associated with treeless areas, prairies, parklands and desert areas. Cultivated lands have also been reported to provide limited useable habitat for this species.	Species known to occur within the PIA. Mitigation Measure BR-3 shall keep project impacts to a less than significant level.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE ST	Occur in desert-like habitats with sparse or absent shrub cover, sparse ground cover and short vegetative structure. Open areas with level sandy ground.	Suitable habitat occurs within project area. Closest known occurrence is approximately 7 miles north in Le Grand, CA. Mitigation Measure BR-7 shall keep project impacts to a less than significant level.

**Species Status Key:**

CE = Candidate Endangered under the California Endangered Species Act

CFP = Fully protected California Department of Fish and Wildlife

FE = Federally Listed as Endangered

FT = Federally Listed as Threatened

SE = State Listed as Endangered

SR = State Listed as Rare

ST = State Listed as Threatened

SSC = California Department of Fish and Wildlife Listed as Species of Special Concern

### **Special-Status Plants**

Spiny-Sepaled Button-Celery (*Eryngium spinosepalum*)

Federal Status: None

State Status: None

Other: CNPS 1B

Spiny-sepaled button-celery is an annual-perennial herb found in vernal pool habitat and occasionally outside wetlands within foothill and valley grasslands from 80 to 255 meters. Blooming period ranges from April to May. This plant species is known to occur within Madera County approximately 5 miles south-southeast of the PIA (Calflora 2018).

There is no critical habitat designated for spiny-sepaled button-celery. This species is a species of concern within the USFWS 2005b Recovery Plan (Plan) that ensures long-term conservation of species within the Plan. The Southern Sierra Foothills Vernal Pool Region for Madera County shows the project within the core area of the Plan. While no plants were observed during focused surveys, suitable habitat occurs within the PIA for spiny-sepaled button-celery.

### **Special-Status Wildlife**

**California Tiger Salamander (*Ambystoma californiense*, CTS)**

Federal Status: Threatened

State Status: Threatened

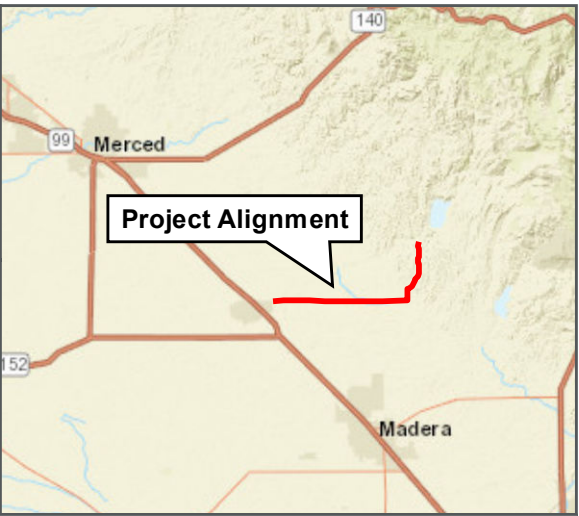
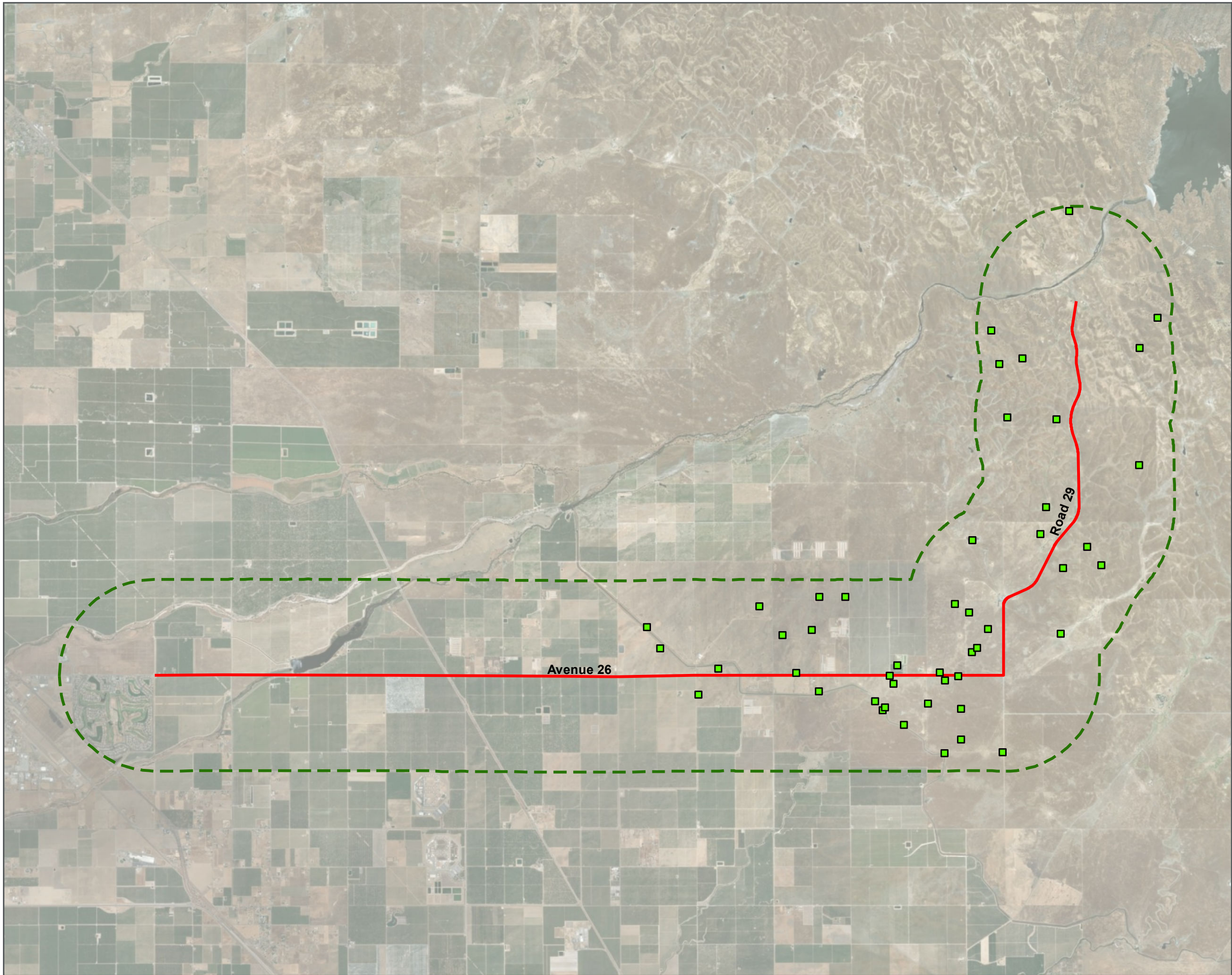
Other: None

CTS spend most of their lives in upland habitats that consist of grassland and oak savannah within burrows of small mammals. This species requires suitable aquatic habitat for breeding as well as upland habitat for aestivation. CTS consistently use burrows in open grassland and less commonly in oak woodland. Aquatic breeding habitat consists of perennial and seasonal ponds and vernal pools between 0 and 1,200 meters. This species has been observed up to 1.3 miles from breeding ponds and remain within upland burrows thorough summer and fall months emerging from burrows to feed and to migrate to breeding ponds when the rain season begins. Migrations from breeding ponds back to burrows occur between 1-8 weeks (Stebbins 2003). Metamorphosed juveniles leave the breeding sites in the late spring to early summer.




USFWS designated critical habitat for the Central Population of CTS on August 23, 2005 (50 CFR 17) (USFWS 2005a). The USFWS divided the current range of the Central California population into four geographic regions: Central Valley, Southern San Joaquin Valley, East Bay, and Central Coast. The Central Population excludes the CTS populations in Santa Barbara and Sonoma counties. A Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*) was written in June 2017 by the USFWS.

There are multiple occurrences of CTS within 4 miles of the PIA (Figure 4). No protocol level surveys were conducted for this species. This species has a potential to occur within the PSA.



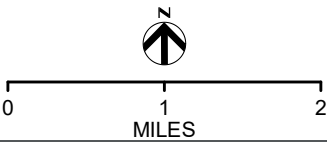


LEGEND

-  Potential California Tiger Salamander Breeding Pools
-  Road Centerline
-  1.24 mile Buffer

Map information was compiled from the best available sources.  
No warranty is made for its accuracy or completeness.

**FIGURE 4. POTENTIAL CALIFORNIA TIGER SALAMANDER BREEDING POOLS**





**Western Spadefoot Toad (*Spea hammondi*; WST)**

Federal Status: None

State Status: Species of Concern

Other: None

WST occurs throughout the Central Valley and adjacent foothills including the foothills of the Sierra Nevada. WST occur within valley and foothill grasslands, open chaparral, pine-oak woodland, alluvial fans, floodplains, washes, alkali flats and playas. The species also occurs within the South-Coastal Range from Santa Barbara County to Mexico. This species prefers sandy to gravelly soils with short grasses and enters water only to breed where it prefers temporary pools such as vernal pools, ephemeral channels containing pools. Breeding occurs from January to May and selected pools must be free of predators such as bullfrogs, crayfish and fishes. WST utilizes burrows previously excavated and/or digs burrows in which it aestivates for up to nine months at a time (Jennings and Hayes, 1994).

Seasonal wetlands within the PSA provide potential breeding habitat for WST. Burrows within nonnative annual grassland in surrounding areas provide potential aestivation habitat for WST. This species has a potential to occur within the PSA.

**Western Pond Turtle (*Actinemys marmorata*; WPT)**

Federal Status: None

State Status: Species of Concern

Other: None

WPT are found along ponds, marshes, rivers, streams, and irrigation ditches that typically have muddy or rocky bottom and aquatic vegetation, from 0 to 2,041 meters (Stebbins, 2003). They require basking sites including logs or mats of submergent vegetation. WPT nest in open, sunny areas with little vegetation. The nest sites average approximately 28 meters from aquatic habitat (Rathbun et al., 2002), but have been found up to 402 meters from water (Jennings and Hayes, 1994). WPT overwinter up to 50 meters from water (Rathbun et al., 2002) between December and January. WPT are active from February through mid-November. WPT lay eggs from April through August (Stebbins, 2003). WPT are known from Redding, throughout the Central Valley and adjacent foothills, south along the coast range from Point Conception into northern Baja California (Morey, 2000). There is no Recovery Plan or critical habitat designated for this species. The ponds within the PSA (outside of the PIA) provide potential habitat for WPT. The nonnative grassland habitat of the PSA provides upland habitat for nesting; however, within the PIA, these habitats would be considered marginal, as they are located immediately adjacent to the disturbed road shoulder and subjected to regular traffic-related disturbance. No WPT were observed during the biological surveys of the study area. This species has the potential to occur within the PSA.

**Vernal Pool Fairy Shrimp (*Branchinecta lynchi*; VPFS)**

Federal Status: Threatened

State Status: None

Other: None

VPFS occur in vernal pools of the Central Valley and Coast Ranges from 10 to 290 meters. They are most commonly found in small swales, earth slumps or basalt-flow depression basins with grassy or muddy bottoms in unplowed soils, and occasionally in clear depressions less than one meter in diameter in sandstone outcrops surrounded by foothill grasslands. VPFS occur in waters between 4.5 and 23°C. wotj ;pw tp ,pderate tpta; doss;ved sp;ods (48 to 481 parts per million (ppm)), and a pH between 6.3 and 8.5 (Syrdahl, 1993; Eriksen and Belk, 1999). When the vernal pools fill with rainwater, VPFS hatch from eggs (shell-covered dormant embryos) present in the soil from previous years of breeding. Eggs normally hatch when water less than 10° C fills vernal pools. VPFS reach maturity in approximately 18 days under conditions when daytime temperatures reach 20° C, but 41 days are more typical if water remains near 15° C (Gallagher, 1996; Helm, 1998). VPFS are covered as a federally listed animal species under the Recovery Plan (USFWS, 2005b). The study area is within the Southern Sierra Foothills Vernal Pool Region within the Madera core area of the Recovery Plan (USFWS, 2005b).

### **Vernal Pool Tadpole Shrimp (*Lepidurus packardii*; VPTS)**

Federal Status: Endangered

State Status: None

Other: None

Adult VPTS are much larger in body mass than adult fairy shrimp and may reach lengths of 1.5 inches. Unlike VPFS, VPTS are able to produce more than one generation in a single wet season. Rapid sexual maturity (in as little as three weeks) enables the VPTS to hatch, mature, and produce numerous drought resistant eggs quickly after rainwater fills the vernal pools. VPTS are found primarily in vernal pool habitats in the Central Valley from around Tulare County in the south to Shasta County in the north (Eriksen and Belk, 1999).

VPTS are covered as a federally listed animal species under the Recovery Plan (USFWS, 2005b). The study area is within the Southern Sierra Foothills Vernal Pool Region within the Madera core area of the Recovery Plan (USFWS, 2005b).

The seasonal wetlands within the study area provide potential habitat for VPTS. Although VPTS have the potential to inhabit seasonal wetlands, the seasonal wetlands in the PIA provide only marginal habitat.

### **Burrowing Owl (*Athene cunicularia*)**

Federal Status: None

State Status: Species of Concern

Other: None

Burrowing owl habitat consists of open grasslands, especially prairie, plains, savanna, and in open areas including vacant lots and spoils piles near human habitat. Nesting and roosting occurs in burrows dug by mammals (such as ground squirrels), but may also occur in pipes, culverts, and nest boxes. The lining of feathers, pellets, debris, and grass can identify occupied nests. Burrowing owls search for prey on the ground or on low

perches such as fence posts or dirt mounds. Burrowing owls are diurnal, crepuscular, and nocturnal, depending on time of year. Burrowing owls nest from March to August (CDFW, 2005). Burrowing owls occur in suitable habitat throughout California, except in northwestern coastal forests and on high mountains (CDFW, 2005). There is no Recovery Plan or designated critical habitat for this species. Burrowing owls or their nests were not observed within the PSA during biological surveys. However, the study area does provide suitable nesting and wintering habitat for this species. This species has the potential to winter and nest within the PSA.

**Tricolored Blackbird (*Agelaius tricolor*)**

Federal Status: None

State Status: Species of Concern

Other: None

Tricolored blackbirds nest in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water. This species feeds in grass and cropland habitats (Shuford and Gardali, 2008). Tricolored blackbirds are highly colonial nesters, requiring nesting areas large enough to support at least 50 pairs (Grinnell and Miller, 1944). There is no Recovery Plan or designated critical habitat for this species. Tricolored blackbird are known from the Central Valley and surrounding foothills, throughout coastal and some inland localities in southern California, and scattered sites in Oregon, western Nevada, central Washington, and western coastal Baja California (Beedy and Hamilton, 1999).

The PIA provides foraging habitat within the nonnative annual grassland and there is a small section within the Berenda Slough within the PSA that provides suitable nesting habitat. Tricolored blackbird was not observed during the biological surveys within the PSA. This species has the potential to forage within the PIA, however, impacts to foraging habitat are considered less than significant.

**Swainson's Hawk (*Buteo swainsoni*)**

Federal Status: None

State Status: Threatened

Other: None

Swainson's hawks arrive at their breeding grounds in the Central Valley in early March. They often nest peripherally to Valley riparian systems as well as utilizing lone trees or groves of trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees, ranging in height from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (CDFW, 2003). Breeding pairs construct nests shortly after arriving in their breeding territories. Eggs are laid from mid- to late-April, and are incubated into mid-May when young begin to hatch. Young remain near the nest and depend on the adults for approximately four weeks after fledging until they permanently leave the breeding territory. Nesting occurs from March 1 to August 15. Swainson's hawks feed primarily on small mammals, birds, and insects. Young are fed rodents, rabbits, and reptiles. When not breeding, however, this hawk is atypical because it is almost exclusively insectivorous (England et al. 1997). Typical foraging habitat includes annual grassland, alfalfa, and other dry farm crops that provide suitable habitat for small

mammals. Suitable foraging habitat nearby nesting sites is critical for fledgling success. Swainson's hawks breed in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding occurs in Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County (Polite, 2006).

There is no Recovery Plan or designated critical habitat for this species. The CDFW considers whether a proposed project will adversely affect suitable foraging habitat within a ten-mile radius of a Swainson's hawk nest that has been active within the last five years regardless of whether the nest was occupied in the same year that the lead agency establishes the environmental baseline.

The nearest documented nesting occurrence of this species occurred in 2012 approximately 4.8 miles southwest of the west project terminus. Trees within the PSA provide potential nesting habitat for this species. The PSA provides potential foraging habitat within the nonnative annual grassland.

**American Badger (*Taxidea taxus*)**

Federal Status: None

State Status: Species of Concern

Other: None

American badgers are found in dry, open habitats including grassland and open woodland. Suitable burrowing habitat requires dry, often sandy soil. Breeding occurs in summer and early fall, with young being born from March to April (CDFW, 2005). American badgers are known throughout California, except in the northern North Coast (Ahlborn, 2005). There is no Recovery Plan or designated critical habitat for this species. An American badger carcass was observed during biological survey on the road shoulder presumed killed by a vehicle. The nonnative annual grassland provides habitat for this species. However, no badger dens were observed within the PSA. This species may occur within the PIA.

**San Joaquin Kit Fox (*Vulpes macrotis mutica*; SJKF)**

Federal Status: Endangered

State Status: Threatened

Other: None

SJKF primarily inhabit grassland and scrubland communities. SJKF also inhabit oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities. Foraging habitat includes grassland, woodland, and open scrub. Suitable burrowing habitat includes an open, flat area with loose, generally sandy or loamy soils. SJKF are known from the San Joaquin Valley floor of Kern, Tulare, Kings, Fresno, Madera, San Benito, Merced, Stanislaus, San Joaquin, Alameda, and Contra Costa counties and the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains. SJKF also occur in the interior basins and ranges of Monterey, San Benito, San Luis Obispo, and Santa Clara counties and in the upper Cuyama River watershed in northern Ventura and Santa Barbara counties and southeastern San Luis Obispo County (Brown et



al., 2006).

No SJKF were observed during the biological surveys of the PSA. The PIA is unsuitable for this species within the existing road facility. The PSA has potential but marginal use for foraging and denning; however, this species is uncommon in the project vicinity. The nearest occurrence of SJKF is seven miles away within the Le Grand quadrangle.

### **Migratory Birds and Birds of Prey**

Migratory birds and other birds of prey, protected under the Migratory Bird Treaty Act (50 CFR 10), have the potential to nest within the PIAs ground vegetation within ruderal/disturbed and annual grassland habitats, and beneath the bridges that cross over the Berenda Slough and Madera Canal. Migratory birds and other birds of prey have the potential to nest within the surrounding areas adjacent to the PSA, in riparian trees and shrubs, orchard and residential trees, emergent wetland vegetation in Berenda Slough, and ground vegetation in multiple habitat types.

### ***RESPONSES TO CHECKLIST QUESTIONS***

**Response a): Less than Significant Impact With Mitigation.** Analyses of potential project impacts to biological resources have been based on reconnaissance level surveys and review of databases as previously discussed. PSA and/or surrounding vicinity have been found to have potential habitat for special-status species and nesting habitat for migratory bird species. In accordance with CEQA requirements, a 2081 permit shall be obtained for CTS and Section 7 consultation has been initiated in accordance with the Federally Endangered Species Act (FESA), a Biological Assessment has been prepared and submitted to the USFWS. Any potential impacts to endangered species shall be reduced to a *less than significant* level with incorporation of **mitigation measures BR-1 through BR-9**.

### **Special-Status Plants**

There is no designated critical habitat for federally listed plant species within the PIA. Focused plant surveys for special status plants were completed in 2018 and 2019. No special-status plants have been identified within the PSA.

### **Spiny-sepaled button celery**

Spiny-sepaled button celery is listed within the USFWS 2005b recovery plan for vernal pool habitats and associated species. While no plants were observed during focused surveys in 2018 & 2019, suitable habitat occurs for this species within the PIA. **Mitigation measure BR-2** shall ensure any impacts to this species are mitigated to a less than significant level.

### **Special-Status Wildlife**

#### **California Tiger Salamander**

CTS occur in the vicinity of the project. The project would permanently impact approximately 0.0804 acre of potential upland annual grassland habitat and 0.006 acre of aquatic habitat (See Map Appendix C). Construction activities could directly impact CTS through injury or mortality if construction equipment or ground disturbing activities

occur where CTS are found at that particular time of the year. Formal consultation with USFWS for take of CTS under Section 7 of the FESA shall be completed by the Federal Highway Administration (FHWA) prior to the issuance of federal permits and approvals for the project. In addition, a 2081, Incidental Take Permit shall be obtained from the CDFW for impacts to CTS prior to construction. With implementation of the measures identified for this species in **mitigation measure BR-3** including the purchase of preservation credits to off-set habitat conversion and the presence of a biological monitor during grading activities, impacts to CTS would be reduced to less than significant.

#### **Western Pond Turtle and American Badger**

WPT and the American badger have the potential to occur in the vicinity of the PIA. Construction activities within the nonnative annual grassland could impact upland movement for WPT and American badger. If badgers are denning in areas of annual grassland within the PIA, individual badgers could be injured or killed by project activities. As discussed, WPT are unlikely to nest within the PIA itself as the grassland habitats theoretically suitable for this species are located immediately adjacent to the road shoulder and are subjected to regular traffic-related disturbance. **Mitigation Measure BR-3** would satisfy the mitigation requirements for WPT and the American badger: preconstruction surveys and presence of a biological monitor during grading activities. With mitigation measures incorporated, impacts to WPT and the American badger would be reduced to less than significant.

#### **Western Spadefoot Toad**

WST has the potential to occur within the seasonal wetlands and the nonnative annual grassland within the PIA. Construction activities associated with the road improvements could impact aestivation within the nonnative annual grassland and breeding habitat within the seasonal wetlands. **Mitigation measure BR-3** identified for CTS would satisfy the mitigation requirements for WST: preconstruction surveys and presence of a biological monitor during grading activities. With mitigation measures incorporated, impacts to WST would be reduced to less than significant.

#### **Vernal Pool Branchiopods**

Federally listed VPFS and VPTS and other non-listed vernal pool branchiopods including midvalley fairy shrimp and California linderiella have the potential to occur within the proposed PIA. Approximately 0.0002 acres of potential habitat would be directly impacted as a result of the shoulder widening. With the implementation of the measures identified in **mitigation measure BR-3**, including the purchase of preservation credits required for impacts to CTS impacts to federally listed VPFS and VPTS would be reduced to less than significant.

#### **Burrowing Owl**

Burrowing owls have the potential to nest and to winter within the burrows within the nonnative annual grassland in the vicinity of the PSA. Potential disruption of burrowing owls from construction activities could result in the abandonment or loss of active nests through burrow destruction. With the incorporation of the measures identified for this species in **mitigation measure BR-4**, including conducting a preconstruction survey, impacts to burrowing owls would be reduced to less than significant.

### **Swainson's Hawk**

Potential foraging and nesting habitat for Swainson's hawk is present within the PSA. Although no trees are proposed for removal under current project design, if Swainson's hawks are nesting near the PIA at the time of construction, the project would have the potential to disturb nesting individuals such that they could abandon their nests. Swainson's hawks have been known to nest in the vicinity of Chowchilla. The precautionary measures identified in **mitigation measure BR-5**, including preconstruction surveys, would reduce potential impacts to nesting Swainson's hawks to less than significant.

### **Nesting Birds**

Potential nesting habitat is present within the PSA for migratory bird species and other birds of prey. If active nests are present in these areas, construction activities associated with the project could result in impacts to these species. The nests and eggs of any bird are protected from take pursuant to California Fish and Game Code section 3503. With the incorporation of the mitigation measures identified for nesting birds in **mitigation measure BR-6**, including preconstruction surveys; impacts to nesting birds would be reduced to less than significant.

### **San Joaquin Kit Fox**

The PIA consists of a transportation corridor and disturbed roadside habitats unsuitable for SJKF. SJKF could conceivably forage or den in the larger PSA; however, this species is uncommon in the project vicinity. The nearest documented occurrence of SJKF is 7 miles away in the Le Grand quadrangle. Although SJKF are considered unlikely to occur within the project alignment, precautionary mitigation measures are recommended to minimize the potential for individuals to be harmed during construction activities. With the incorporation of the precautionary mitigation measures identified this species in **mitigation measure BR-7** incorporated, impacts to SJKF would be reduced to less than significant.

**Response b): Less than significant Impact.** The project is contained within the existing roadway facility. CDFW considers riparian habitat to be a sensitive community. The project does not impact riparian habitat but shall mitigate for impacts to aquatic resources including 0.0002 acres of vernal pool habitat. There is no proposed tree removal for the project. While some soil disturbance and vegetation removal is anticipated, stabilization post construction shall be implemented to allow regrowth of existing vegetation within the area. Implementation of the project would have a less than significant impact.

**Response c): Less than significant with mitigation incorporation.** Jurisdictional aquatic resources impacted by the project are listed in Table 2. Table 4 (below) lists locations and proposed actions for each culvert that falls within or is adjacent to aquatic resources. Proposed culvert and/or drainage improvements in will result in 0.0062 permanent and 0.0112 temporary impacts to water resources.

**Table 4 Culvert Activity Locations and Resource Affiliation**

Station	Action	Aquatic Resource	Notes
317+05	Culvert and headwall replacement	Vernal Pool	Permanent and temporary impacts to vernal pool habitat.
405+17	Replace Culvert	Vernal Pool	Adjusted design limits to avoid impacts to vernal pool habitat.
423+60	Clean Culvert	Vernal Pool	Adjusted design limits to avoid impacts to vernal pool habitat.
434+30	Replace Culvert and Install End Sections	Annual Grassland	Permanent and temporary impacts to annual grassland habitat.
452+20	Replace Culvert	Vernal Pool	Temporary impacts to vernal pool habitat.
483+53	Replace Culvert	Vernal Pool	Adjusted design limits to avoid impacts to vernal pool habitat. Temporary impacts to annual grassland habitat.
514+70	Install Headwall	Intermittent Channel	Temporary Impacts to intermittent channel and annual grassland habitat.
526+60	Install End Section	Intermittent Channel	Permanent and temporary Impacts to intermittent channel and annual grassland habitat.
562+25	Install Headwalls	Intermittent Channel	Permanent and temporary Impacts to intermittent channel and annual grassland habitat.
588+40	Culvert cleaning, ditch excavation on North	Intermittent Channel	Temporary impacts to annual grassland habitat.
717+40	Install Rip Rap Apron	Swale	Permanent impacts to swale and annual grassland habitat.
722+30	Install Headwalls	Swale	Temporary impacts to swale and annual grassland habitat.
820+00	Install Rip Rap Apron	Swale	Temporary impacts to annual grassland habitat.
827+30	Install Rip Rap Apron	Seasonal Wetland	Temporary impacts to annual grassland habitat.
978+46	Replace Culvert	Seasonal Wetland	Permanent impacts to seasonal wetland and annual grassland habitat. Temporary impacts to annual grassland habitat.

The final total jurisdictional impacts to aquatic resources shall be determined during the permitting process. Mitigation for resources shall also be implemented as prescribed within these aforementioned permits as described by the associated agencies. Permitting agencies are discussed in Table 1.

Areas of temporary and permanent impact are at locations of existing culvert and drainage facility within the ROW. Areas where action is necessary are highly disturbed and/or degraded and the project will prevent future scour and facility failures that if not addressed may have adverse affects on these resources. Planned improvements anticipate a minimum of a 20-year lifespan before any future work will be required, assisting in the

longevity and quality of the aquatic resources within and adjacent to planned improvements. Compensatory mitigation is proposed for offsets to permanent impacts to vernal pool habitat. Mitigation is proposed at a 3:1 ratio and shall be obtained by the action agency. A nationwide section 404 permit as well as a section 401 Water Quality Certification shall be obtained prior to construction within these jurisdictional resources. With **mitigation measure BR-8** including offsetting impacts to wetlands; impacts to are considered less than significant.

**Response d): Less than Significant.** The project is located in an area that is already developed as a public travel way. While wildlife corridor and connectivity areas have been identified at two locations, construction activities or final development of the project will not prohibit wildlife movement or impede any native wildlife nursery sites or use of adjacent lands. The current use of the roadway shall remain constant with no increase of capacity. There are no improvements such as concrete barriers or change in permeability of the existing facility proposed. As a result, the project would have a less than significant impact.

**Response e): No impact.** The project does not conflict with local policies or ordinances protecting biological resources. Implementation of the project would have no impact relative to this environmental topic.

**Response f): Less than significant impact with mitigation.** The project falls within the core region for the USFWS 2005 Habitat Conservation Plan for the San Joaquin Valley. This plan addresses specifically vernal pool habitats and associated species. Vernal pools occur adjacent to and within the PIA. A total of 0.0002 acres of permanent impacts to vernal pools are proposed. Impacts shall be mitigated at a ratio of 3:1, through compensatory mitigation at an agency approved mitigation bank. There are no additional habitat conservation plans, no natural community conservation plans, or other approved local, regional, or state habitat conservation plans within the PIA. In order to prevent indirect impacts to vernal pool habitats **mitigation measure BR-9** shall be implemented. Additional avoidance and minimization measures incorporated into the project also reduce the possibility of indirect impacts to adjacent resources. As a result, with the implementation of mitigation measures and the purchase of compensatory mitigation, the project would have a less than significant impact with regards to this environmental topic.

#### ***Mitigation Measures Biological Resources***

**BR-1.** A USFWS approved, qualified biologist(s) shall be onsite during initial ground disturbing activities that are within proximity to the mapped vernal pools, aquatic resources and thereafter as needed. Qualifications shall be submitted for approval to USFWS no later than 30 days prior to the start of construction. The biologist(s) shall retain copies of applicable permits in their possession while onsite.

- a) Construction personnel will receive worker environmental awareness training. This training instructs workers to recognize special-status species, their habitat(s), as well as other environmentally sensitive areas.

- b) The biologist shall be given the authority to:
- Communicate either verbally, by telephone, email or hardcopy with all project personnel to minimize take of federally listed species and oversee implementation of the permit requirements; and
  - Stop project activities to minimize take of federally listed species, or if he/she determines that any permit requirements are not fully implemented. The USFWS will be notified within 24 hours if take of any federally listed species occurs.

**BR-2.** Prior to activities requiring ground disturbance or vegetation removal within seasonal wetlands, swales, intermittent channels, or adjoining annual grassland habitat, a qualified biologist shall survey these areas for the presence of the spiny-sealed button-celery. Surveys should be conducted during the fruiting period when the sepals are mature (June-August) to determine presence/absence of this species. Should this species occur within the PIA, the population(s) shall be avoided if feasible. If avoidance is not possible, the impacted population(s) shall be transplanted to a suitable, protected location in the spring or early summer.

**BR-3.** A Biological Opinion with an incidental take statement shall be obtained from the USFWS and a 2081, incidental take permit (ITP) shall be obtained from the CDFW for impacts to CTS prior to construction. Permit conditions, preservation and compensatory measures required within these documents shall be implemented. At a minimum, the following shall be implemented for CTS:

- a) Prior to construction activities within CTS breeding and aestivation habitat, preservation credits shall be obtained from a USFWS and CDFW approved mitigation bank for every acre of habitat permanently lost. If no credits are available at a CDFW approved bank, negotiations shall be implemented with CDFW to mitigate at a USFWS approved bank. Ratios of 3:1 compensatory mitigation (3 acres of mitigation for every 1 acre of impact) are proposed.
- b) Construction activities that would disturb soil within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is lower potential for an individual to enter the work area.
- c) Within the portion of the construction limits that includes potential CTS habitat, as defined by the qualified biologist, the limits of all work areas including staging, construction, parking, and access routes will be flagged or fenced by the contractor, under the supervision of the qualified biologist, prior to disturbance. In addition, the qualified biologist will survey the temporary workspace areas, where the contractor is proposing to stage/park construction equipment and vehicles, no more than two weeks in advance of construction to map and flag for avoidance

burrows that could support California tiger salamanders. All activity will be confined to within the marked areas.

- d) Prior to the initiation of ground disturbing activities, a qualified biologist will map the location and number of ground squirrel burrows that could be directly impacted by the proposed action. Subsequently, a burrow excavation plan and map showing the burrow location data will be prepared and submitted to CDFW and USFWS, for review 30 days prior to initiation of ground disturbance. The excavation plan will include details regarding how excavations will be performed, based on site-specific conditions, to minimize the potential for take of CTS.
- e) Exclusionary silt fencing, or some other suitable exclusionary fencing material shall be installed to preclude wildlife from entering the work area, limit the transport of sediment into adjacent aquatic resources during construction, and prevent construction access into adjacent environmentally sensitive areas. Fencing will be placed at the edge of the temporary workspace in areas within or adjacent to vernal pools. A fencing plan will be developed and submitted to CDFW and USFWS, 30 days prior to the initiation of ground disturbing activities for review. The biological monitor will inspect the exclusionary fencing on a weekly basis to identify areas that are in need of repair by the contractor, and document that all necessary repairs are made within 48 hours. Pedestrian and vehicular traffic into habitat excluded by the fencing will be prohibited during construction.
- f) All excavations shall be conducted between April 1 and September 30, during the salamander non-breeding season, and burrow mapping in areas proposed for direct impact will be re-verified no more than two weeks prior to initiation of excavation activities.
- g) Plastic monofilament netting (erosion control matting) or similar material will not be used for the proposed action because California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- h) The contractor shall immediately contact the agency approved project biologist(s) in the event that California tiger salamander is observed within a construction zone, and will suspend construction activities within a 50-foot radius of the animal until it leaves the site voluntarily or the agency approved protocol for removal has been completed.
- The Service-approved biologist(s) will have the authority to handle California tiger salamanders. If an individual of these species is observed in an area to be affected by project activities, and cannot leave the work area of its own volition, the biologist will capture and relocate the animal to nearby suitable

habitat out of harm's way. Relocation sites will be identified prior to the start of the project, and submitted to the Service for approval 30 days prior to the start of construction.

- i) The Service-approved biologist(s) and/or all work personnel will visually inspect for California tiger salamanders under and around vehicles and equipment prior to use.
- j) All construction pipe, culverts, or similar structures that are stored at the construction site for one or more overnight periods shall be inspected before it is moved, buried or capped. If CTS is discovered within the structure, no movement or disturbance shall occur until the salamander has escaped on its own.
- k) To prevent entrapment of CTS, all excavated, steep-walled holes or trenches shall be covered with plywood or similar materials, or filled with an escape ramp constructed of earthen fill or wooden planks. Prior to fill all trenches, holes etc. shall be thoroughly inspected for trapped animals. If, at any time, trapped CTS are located, all work within the immediate area will cease until the animal is allowed to leave on its own.
- l) Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas.
- m) Project related vehicles and equipment shall not exceed 20 miles per hour within the construction area.
- n) Disturbances to habitats of listed species will be minimized to the extent practicable. Vehicle traffic will be restricted to established roads and designated areas and utilize previously disturbed areas to the extent practicable. Vehicle use areas will be included in preconstruction surveys.
- o) All fueling and maintenance of vehicles and other equipment including staging areas shall occur at least 65 feet from any water body. All workers shall be informed during the worker education program of the importance of preventing leaks and spills including appropriate prevention and implementation measures should a leak or spill occur.
- p) A litter control program shall be implemented for the entire project alignment. Closed garbage containers for the disposal of all food-related trash items shall be kept and removed from the site at the end of each day. Construction personnel shall not feed or attract any wildlife to the action area.
- q) No canine or feline pets shall be permitted at the project site to avoid harassment or killing or injuring of wildlife.



**BR-4.** Implementation of the following mitigation measures to avoid project-related impacts to potential nesting and/or wintering habitat for burrowing owls:

- a) A qualified biologist shall conduct a preconstruction protocol level survey no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the Detection Surveys Section in appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). If no burrowing owls or their sign are detected in the vicinity of the project site during the preconstruction survey, a letter report documenting survey methods and findings shall be submitted to the County and the CDFW, and no further mitigation is required.
- b) If burrowing owls are detected, “no-construction” buffers and timing outlined in Table 2 on page 9 of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012) shall be followed unless a qualified biologist verifies through noninvasive methods that either 1) the birds have not begun egg laying and incubation or 2) that juveniles from the occupied burrows are capable of independent survival (i.e., foraging independently). Buffer diameters outlined in Table 2 in the Staff Report on Burrowing Owl Mitigation (CDFW, 2012) are as follows:

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting Sites	April 1-Aug 15	200 meters	500 meters	500 meters
Nesting Sites	Aug 16-Oct 15	200 meters	200 meters	500 meters
Nesting Sites	Oct 16-Mar 31	50 meters	100 meters	500 meters

**BR-5.** Implementation of the following mitigation measures to avoid and/or minimize project-related impacts to nest sites for Swainson’s hawk:

- a) If project activities will occur between February 1 and September 15, a qualified biologist shall conduct a minimum of two preconstruction nest surveys during the recommended survey periods in accordance with the Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley (Swainson’s Hawk Technical Advisory Committee, 2000). The qualified biologist shall conduct surveys for nesting Swainson’s hawk in the PSA and within 0.5 miles of construction activities where legally permitted. The biologist will use binoculars to visually search for Swainson’s hawk nests if access to any portion of the survey area is denied. If no active Swainson’s hawk nests are identified on or within 0.25 miles of construction activities within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the County within 30 days following the survey, and no further mitigation for nesting habitat is required.

- b) If active Swainson's hawk nests are found within 0.25 miles of construction activities, an appropriate disturbance-free buffer will be established around the nest, to be maintained for the duration of construction or until the young associated with the nest have fledged and are no longer reliant on the nest for parental care, whichever comes first. Should it be necessary to work within the disturbance-free buffer, a qualified biologist shall monitor all activities that occur within the buffer to ensure that disruption of the nest or forced fledging does not occur. Should the biologist determine that the construction activities within the buffer are disturbing the nest, he/she shall stop work within the buffer or within portions of the buffer closest to the nest tree, at his/her discretion. The biologist will also have the authority to expand the disturbance-free buffer around any active Swainson's hawk nests, should that become necessary.

**BR-6.** Implementation of the following mitigation measures to avoid and/or minimize project-related impacts to nest sites for migratory birds and other birds of prey:

- a) A qualified biologist shall conduct a preconstruction survey for active nests should construction commence during the nesting season for birds of prey and migratory birds (between February 1 and September 15). The preconstruction survey will be conducted within 30 days prior to commencement of construction activities. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 30 days of the survey.
- b) If any active nests are located within the study area, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist shall delineate the buffer zone with construction tape or pin flags within 250 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged.
- c) Exclusionary netting should be implemented if any culverts within the project area support nesting swallows. If an active nest becomes established before initiation of exclusionary methods, then guidance from CDFW will be requested prior to construction activities within that location.
- d) Eastman Lake National Recreational Area staff are aware of three known bald eagle nesting sites greater than one half mile, but less than one mile from the northern Road 29 terminus of the project. Eastman Lake staff (Park Manager Carrie Richardson 559-689-3255) should be consulted prior to construction to inquire of any new known nesting site locations in the area. A 0.5 mile no disturbance buffer will be maintained throughout the breeding season (December 30 through July 1) or until the young have fledged and are no longer dependent

upon the nest or parental care for survival.

**BR-7.** Precautionary mitigation measures shall be implemented to avoid project-related effects to SJKF in accordance with the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance (1999a) (Recommendations) for linear projects:

- a) A preconstruction survey must be conducted for SJKF dens within 15 days prior to commencement of construction activities. If no SJKF dens are observed, a letter report summarizing the survey results shall be submitted to the County, the USFWS, and the CDFW within 30 days following the survey, and no further mitigation for denning habitat is required.
- b) Should SJKF dens be observed, then the following mitigation measures shall be implemented:

Exclusion Zones

The configuration of exclusion zones around the SJKF dens shall have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums and if they cannot be followed the USFWS and CDFW must be contacted:

- 50 feet from potential den;
  - 100 feet from known den;
  - USFWS And CDFW must be contacted if presence of occupied & unoccupied natal/pupping den; and
  - 50 feet from a typical den.
- c) For known dens, the exclusion zone shall be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by SJKF. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.
  - d) For potential and atypical dens, the placement of four to five flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location. No fencing is required, but the exclusion zone must be observed.
  - e) Construction and other project activities shall be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic shall be permitted. All construction, vehicle operation, material storage, or any other type of surface-disturbing activity shall be prohibited within the exclusion zones.

### Destruction of Dens

Disturbance to all SJKF dens shall be avoided to the maximum extent possible. Protection provided by SJKF dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of SJKF dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to SJKF of potential, known, and natal/pupping dens differ, and therefore, each den type needs a different level of protection. Destruction of any known or natal/pupping SJKF den requires a take authorization/permit from the USFWS and the CDFW.

- f) Occupied natal/pupping dens shall not be destroyed until the pups and adults have vacated and then only after consultation with the USFWS and the CDFW. Project activities at some den sites may have to be postponed.
- g) Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infrared beam camera to determine the current use. If no SJKF activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances with soil in a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The USFWS encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. Extreme caution must be exercised. Destruction of the den should be accomplished by careful excavation until it is certain that no SJKF are inside. The den should be fully excavated, filled with dirt and compacted to ensure that SJKF cannot reenter or use the den during the construction period. If at any point during excavation a SJKF is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist the animal has escaped from the partially destroyed den.
- h) If a take authorization/permit has been obtained from the USFWS and the CDFW, destruction of potential dens may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by SJKF (e.g. if SJKF sign is found inside), then destruction shall cease and

the USFWS and the CDFW shall be notified immediately.

#### Construction and Operational Requirements

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance shall be minimized. Project designs shall limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated areas. These areas shall also be included in preconstruction surveys and, to the extent possible, shall be established in locations disturbed by previous activities to prevent further impacts.

- i) Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and federal highways; this is particularly important at night when SJKF are most active. To the extent possible, nighttime construction shall be minimized. Off-road traffic outside of designated project areas should be prohibited.
- j) To prevent inadvertent entrapment of SJKF or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than two feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.
- k) SJKF are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for SJKF before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a SJKF is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.
- l) All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or study area.
- m) To prevent harassment, mortality of SJKF or destruction of dens by dogs or cats, no pets shall be permitted on study areas.
- n) Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of SJKF and the depletion of prey populations on which they depend. All uses of such compounds should

observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and the CDFW. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to SJKF.

- o) A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS and the CDFW.
- p) A USFWS-approved biologist conduct habitat sensitivity training related to SJKF for all project contractors and personnel as identified under the CTS conservation measures.
- q) Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and re-vegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be re-vegetated. Appropriate methods and plant species used to re-vegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, CDFW, and re-vegetation experts.
- r) In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.
- s) Any contractor, employee, or military or agency personnel who inadvertently kills or injures a SJKF shall immediately report the incident to their representative. This representative shall contact the CDFW immediately in the case of a dead, injured or entrapped SJKF. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.
- t) The USFWS Sacramento office and the CDFW Central Region office will be notified in writing within three working days of the accidental death or injury to a SJKF during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species is at 2800 Cottage Way, Suite W2605, Sacramento, CA

95825, (916) 414-6620. The CDFW contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

**BR-8.** The applicant shall obtain a Section 404 Clean Water Act (CWA) Permit from the USACE for impacts to wetlands and waters of the U.S. and Section 401 State CWA Permit with the Regional Water Quality Control Board (RWQCB) *and* comply with the mitigation measures identified in the Hydrology and Water Quality Section to prevent discharge of pollutants to surface waters during construction. This shall include complying with the State's National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) issued by the RWQCB. All conditions of the Nationwide Permit shall be adhered to. At a minimum, impacts to waters of the U.S. shall be offset at a 1:1 ratio through the purchase of creation credits or onsite creation. The mitigation credits that would be purchased for CTS may be used to satisfy the USACE requirements for removal of seasonal wetlands.

**BR-9.** For work occurring within 250 feet of vernal pools, ground-disturbing activities shall occur when the vernal pools are dry, typically after May 1 and before October 31. Work will be postponed if a 50 percent or greater chance of rain and a half an inch or greater rain event is predicted by the local hourly forecast, based on the local National Oceanic and Atmospheric Administration weather forecast. If such a rain event starts occurring onsite during ongoing work, work will be postponed within these areas until the rain ceases and the hourly rain forecast drops below 50 percent. After the rain event begins, work will resume only after rain has ceased and the USFWS-approved biologist confirms site conditions will not cause runoff into adjacent vernal pools. As necessary, additional best management practices such as fiber roll or silt fence will be installed to minimize potential for runoff into adjacent vernal pools.

## CULTURAL RESOURCES

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Cause a substantial adverse change in the significance of a historical resource defined in '15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
d) Disturb any human remains, including those interred outside of formal cemeteries?		X		

### Cultural Setting

The surrounding area of the project has had thousands of years of human occupation. Ethnographically it has been tied to the Me-wuk and Yokut with the Yokut Village of Hewchi noted at Berenda. The history of the area surrounding the project is inextricably tied to the discovery of Yosemite. Yosemite soon became a hub for visitor attraction. Roads were constructed into Yosemite Valley as early as 1874 and by 1876 the Washburn brothers had constructed a hotel at Wawona and offered stage service from the Southern Pacific rail line in Madera. The Southern Pacific built the Berenda Spur line to Raymond (M.Kile, 2015).

The prehistory of the San Joaquin Valley may have its origins in late Pleistocene and Early Holocene sites dating from as early as 12,000 years ago. Various regionalized cultural traditions and sequences emerged throughout the San Joaquin Valley, Sierra Foothills, and Coast Range areas. Early attempts to categorize the chronology and cultural attributes of the numerous prehistoric manifestations into a single scheme led to the development of the Central California Taxonomic System (CCTS). The CCTS was a tripartite division of Early, Middle, and Late Periods, that was based upon artifact types, burial patterns, and the condition of human bones (Moratto, 1984). Later recast by Heizer and Fenega (1939) as the Early, Middle, and Late Horizons, the CCTS assumed a basically uniform cultural succession for all of central California and soon became the dominant paradigm in California prehistory.

### Native American Consultation

On December 2, 2016, the State of California Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American cultural resources within the project area. The NAHC responded on December 2, 2016,



indicating they have no knowledge of any sacred sites located within the project site. At the same time, the NAHC recommended contacting local tribal entities. Consultation letters to Chairpersons of both the Costanoan Northern Valley Yokuts Tribe (Northern Valley Yokuts) and Miwok Northern Valley Yokut Paiute Tribe (Southern Sierra Miwok Nation) were sent correspondence regarding the project on December 21<sup>st</sup> 2016 (Appendix G). Lois Martin of the Southern Sierra Miwok Nation indicated through telephone correspondence that the Tribe had no immediate concerns but would request to be informed if any findings were discovered during construction. The Tribal representative, Katherine Perez of the Northern Valley Yokuts sent email correspondence requesting the CEQA process address proper response actions should a discovery of human remains occur.

#### *RESPONSES TO CHECKLIST QUESTIONS*

**Response a), b), c), d): Less than Significant with Mitigation.** Historical resources are considered under CEQA, as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places (NRHP) listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

Four recorded historic resources fall within the project APE: P-20-002308, P-20-003120, P-20-003121, and P-20-002662. Three of the four resources within the APE are recommended not eligible for listing in the NRHP or CRHR due to a lack of significance and/or integrity.

1. P-20 002308 is a 100-foot segment section of the 35.9-mile Madera Canal. The resource is located approximately 2,300 feet to the west of Road 26. The canal is earthen-lined with a bottom width of approximately 20 feet, a depth of approximately 9 feet. The Madera Canal was constructed as part of the Central Valley Project (CVP) and is currently being evaluated by the U.S. Department of the Interior's (USDOI) Bureau of Reclamation for NRHP eligibility as a component of the CVP (USDOI 2013).
2. P-20-003120 is an 11-mile segment of Ave 26, which was a dirt road that transitioned to an oiled dirt road in the early twentieth century and was paved during the late twentieth century. The road is currently a deteriorating asphalt route. Five historic culverts are present along Avenue 26 between Road 20 and Road 26. Culverts are either badly damaged or filled in with sediment and no longer serve their intended purpose. Due to a lack of significance and/or integrity P-20-003120 and associated culverts are recommended as ineligible for the NRHP and CRHR. (HDR, 2017). Project activities will not have a potential to impact the site.

3. P-20-003121 is 5.4-mile segment of Road 29 that links Chowchilla, California, with the Eastman Lake Recreation Area in conjunction with Avenue 26. Likely the road was originally a dirt road, which transitioned to an oiled dirt road in the early twentieth century and was later paved during the late twentieth century. Due to a lack of significance and/or integrity P-20-003121 is recommended as ineligible for the NRHP and CRHR. (HDR, 2017). Project activities will not have a potential to impact the site.
4. P-20-002662 is a 115-foot historic segment of the Atchison, Topeka, and Santa Fe Railroad (AT & SF) at the Avenue 26 crossing in Chowchilla, CA. The railroad segment currently consists of double track standard gauge rail lines with creosote treated railroad ties. Due to a lack of significance and/or integrity P-20-002662 is recommended as ineligible for the NRHP and CRHR. (HDR, 2017). Project activities will not have a potential to impact the site.

The potential for previously undiscovered cultural resources to be present within the PIA is considered low. There are no unique paleontological or geological resources known to occur on, or within the immediate vicinity of the PIA. Therefore, it is not anticipated that project activities would result in impacts to cultural, historical, archaeological or paleontological resources. There are no known human remains located on or directly adjacent to the project site, nor is there evidence to suggest that human remains may be present within this area.

The implementation of **mitigation measure of CR-1** would require appropriate steps to preserve and/or document any previously undiscovered resources that may be encountered during construction activities, including human remains. Implementation of this measure would reduce impacts to a less than significant level.

#### ***Mitigation Measures Cultural Resources***

**CR-1:** An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be available and identified during the course of this project. No monitoring is required during work activities. Mitigation measure CR-1 is required should an unidentified, unknown resource be discovered during work activities even though the likelihood of discovery is low.

- a) If cultural resources or Native American resources are identified, every effort shall be made to avoid significant cultural resources, with preservation an important goal. If significant sites cannot feasibly be avoided, appropriate mitigation measures, such as data recover excavations or photographic documentation of buildings, shall be undertaken consisted with applicable state and federal regulations.

- b) If human remains are discovered, all work shall be halted immediately within 50 meters (165 feet) of the discovery, the County Coroner must be notified, according to Section 5097.98 of the State Public Resources Code and Sections 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, contacts previously identified with the Southern Sierra Miwok Nation, the Northern Valley Yokuts and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed.
- c) If any fossils are encountered, there shall be no further disturbance of the area surrounding this find until the materials have been evaluated by a qualified paleontologist, and appropriate treatment measures have been identified.

## GEOLOGY AND SOILS

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?		X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

## Environmental Setting

Topography within the PSA consists of flat agricultural and livestock grazeland to gradually rolling hills as it approaches the Eastman Lake Reservoir. Elevations range from approximately 250 feet to 600 feet above mean sea level (msl). There are a number of existing cut and fill slopes along Road 29. Surveys of existing cut and fill slopes show that they are in good condition. There are no signs of slope instability or severe erosion.

### *RESPONSES TO CHECKLIST QUESTIONS*

**Responses a.i), a.ii): Less than Significant.** No known earthquake faults exist in the PSA. The closest fault to the PSA is the Clovis fault located in Fresno County, approximately six miles south of the Madera County line. This fault is not active in recent history. The California Geologic Survey does not identify Madera County as a jurisdiction within the Alquist-Priolo Earthquake hazard zone. Due to the proximity of the PSA to the Clovis fault, minor ground shaking may result if any seismic activity occurs. The potential for strong seismic shaking within the PSA is minimal, given the project's location in an inactive seismic region of California.

All of the road facility is designed and shall be constructed to meet current applicable requirements and roadway standards. Therefore, in accordance with these standards, any potential impacts would be reduced to less than significant.

**Responses a.iii): Less than Significant Impact.** The potential for seismic related ground failure including liquefaction, has minimal potential within the PSA due to the infrequency of seismic activity in the PSA. Liquefaction normally occurs when sites underlain by saturated, loose to medium dense, granular soils are subjected to relatively high ground shaking. During an earthquake, ground shaking may cause certain types of soil deposits to lose shear strength, resulting in ground settlement, oscillation, loss of bearing capacity, land sliding, and the buoyant rise of buried structures. The PSA is considered to have a very low potential for liquefaction during seismic shaking. All of the road facility is designed and shall be constructed to meet all applicable requirements and roadway standards. Design in accordance with these standards would reduce any potential impact to a less than significant level.

**Response a.iv): Less than Significant Impact.** The PSA is relatively flat to rolling hills. Disturbed slopes within the PIA shall be stabilized in post construction. The road facility will be paved and developed utilizing existing road shoulders and will direct flows similar to previous conditions. As such, the PSA has little to no risk associated with landslides. There are no known areas of landslides within or adjacent to the project. All of the road facility is designed and shall be constructed to meet all applicable requirements and roadway standards. Design in accordance with these standards would reduce any potential impact to a less than significant level.

**Response b): Less than Significant with Mitigation.** Construction activities associated with the project include pulverizing existing pavement, adding aggregate base and widening shoulder widths in various areas. Drainage improvements include culvert

replacement, culvert extension and adding of headwalls. Clearing of existing ground cover within the road shoulder during work activities will also be required for the road and infrastructure improvements, culvert expansions or replacements.

During the construction preparation process, existing vegetation shall be removed to grade and soils shall be compacted as required. As construction occurs, exposed surfaces may be susceptible to erosion from wind and water. Effects from erosion include impacts on water quality and air quality. Exposed soils that are not properly contained or capped increase the potential for airborne dust and discharges of sediment and/or other construction related pollutants into nearby surface waters.

Risks associated with erosive surface soils can be reduced by using appropriate controls during construction and properly re-vegetating exposed areas. Air quality mitigation measures incorporated into this document require the implementation of various dust control measures during site preparation and construction activities that would reduce the potential for soil erosion and the loss of topsoil. Hydrology and Water Quality mitigation measure 1 listed within that section would require the implementation of best management practices (BMPs) that would reduce the potential for disturbed soils and ground surfaces to result in erosion and sediment discharge into adjacent surface waters during construction activities. County National Pollution Discharge Elimination System (NPDES) and State Water Resource Control Board (SWRCB) requirements prohibit erosion and sedimentation from construction projects. By following current Federal, State and Local requirements, and implementing mitigation measures previously described, impacts would be reduced to a less than significant level.

**Response c) and d): Less than Significant Impact:** Soil stability concerns are associated with increasing slope severity. Project activities that will occur contain slope activities limited within the existing road prism. Current Permitting under NPDES and SWRCB regulations would mitigate and prevent soil stability impacts.

Landslides, lateral spreading, and subsidence are not significant threats to the project. Current local and state requirements would ensure that the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse would be less than significant.

**Response e): No Impact.** The project does not propose any wastewater facilities or require soils capable of supporting them (i.e. drainage), and does not require an alternative wastewater system such as septic tanks. There is no impact regarding this topic.

## GREENHOUSE GAS EMISSIONS

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?				X

### Environmental Setting

Unlike the pollutants discussed previously that may have regional and local effects, greenhouse gases have the potential to cause global changes in the environment. In addition, greenhouse gas emissions do not directly produce a localized impact, but may cause an indirect impact if the local climate is adversely changed by its cumulative contribution to a change in global climate. Individual development projects contribute relatively small amounts of greenhouse gases that when added to all other greenhouse gas producing activities around the world result in increases in these emissions that have led many to conclude is changing the global climate. However, no threshold has been established for what would constitute a cumulatively considerable increase in greenhouse gases (GHG) for individual development projects.

The State of California has taken several actions that help to address potential global climate change impacts. Although not originally intended to reduce greenhouse gas emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The amendments were made in October 2005 and require new homes to use half the energy they used only a decade ago. Since electricity produced by fossil fuel power plants results in the production of greenhouse gases, reductions in electricity use through energy efficient buildings results in decreased greenhouse gas emissions.

California Assembly Bill (AB) 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB apply to 2009 and later model year vehicles. CARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (CARB 2004a).

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S 3-05, the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels (CA 2005). The California Climate Action Team's (CAT) Report to the Governor contained recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met (CAT 2006).

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 describes how global climate change will impact the environment in California. The impacts described in AB 32 include changing sea levels, changes in snow pack and availability of potable water, changes in storm flows and flood inundation zones, and other impacts. The list of impacts included in AB 32 may be considered substantial evidence of environmental impacts requiring analysis in CEQA documents. AB 32 focuses on reducing GHG in California. The GHG emissions reductions found in AB 32 and Executive Order S-3-05 are consistent with the climate stabilization models produced by the International Panel on Climate Change (IPCC). These climate stabilization models show that if GHG emissions are reduced to the levels shown in Executive Order S-3-05, the climate will stabilize at approximately a 2 degree Celsius rise averting the worst impacts associated with global climate change.

GHG as defined under AB 32 include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. CARB was also required to publish a list of discrete early action greenhouse gas emission reduction measures to be implemented in 2010.

AB 32 required that by January 1, 2008, CARB determine what the statewide greenhouse gas emissions level was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020 (CEC 2006).

The actions described above provide a framework for reducing greenhouse gas emissions in California. The project must comply with Title 24 energy efficiency standards. Regulations stemming from AB 32 will result in reductions in emissions from major sources such as electrical power generation and cement production.

A number of standards and policies are incorporated into the project that will serve to mitigate the project's overall contribution to greenhouse gas emissions. These strategies and project compliance measures are required under law and identified in Table 5.



**Table 5. California Greenhouse Gas Emission Reduction Strategies**

<i>Strategy</i>	<i>Project Design/Mitigation to Implement with Strategy</i>
Vehicle Climate Change Standards: AB 1493 (Pavley) required the state to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the CARB.	These are CARB enforced standards; vehicles that access the project that are required to comply with the standards would comply with these strategies.
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Mitigation measure incorporated within County General Plan and current emission standards.
Achieve 50 percent Statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, will reduce climate change emission associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Mitigation measure incorporated within County General Plan, to be followed as part of project activities.
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands previously forested and are now covered with other vegetative types.	Chapter 7, Biological Resources, requires replanting of habitat to restore impacts from construction activities within the PIA. The use of native plants is required. No Forests occur.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	Mitigation measure incorporated within County General Plan, to be followed as part of project activities. The project provides an improved facility for vehicles and improves culvert conveyance systems for surface runoff reducing the risk of erosion and allowing access for maintenance activities.
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards.	Mitigation measure incorporated within County General Plan, to be followed as part of project activities.

**RESPONSES TO CHECKLIST QUESTIONS**

**Response a): Less than Significant.** GHG emissions associated with the project would come primarily from emissions associated with construction activities, but are addressed in current laws and regulatory standards.

As described the Transportation and Circulation Section of this IS/MND, the project would not result in an increase in vehicle trips (non-capacity increasing). The project is consistent with the General Plan Use for Madera County and construction and post construction use activities shall follow current regulatory requirements for the reduction of GHG emissions. There is a less than significant impact for this environmental topic.

**Response b): No Impact.** As described in Response a, implementation of the project would not conflict with any adopted State-level plans for the reduction of GHG emissions, nor would it conflict with the Madera County General Plan that addresses GHG emissions. The project would have no impact with regards to this environmental topic.

## HAZARDS AND HAZARDOUS MATERIALS

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

## Environmental Setting

Visual inspection for potential hazardous material was made during the scoping visit. No dumping areas or habitations were found. Nothing was noted that would indicate the potential presences of hazardous materials or need for additional survey.

### *RESPONSES TO CHECKLIST QUESTIONS*

**Responses a), b): Less than significant.** During construction, limited quantities of miscellaneous hazardous substances such as fuels, solvents, oils, and paint could potentially be used during roadway construction. If properly used, stored, and disposed of, these materials would not be a hazard to people or the environment. The use of such materials would be considered minimal and would not require these materials to be stored in bulk form. As such, the project would not create a significant hazard to the public through the routine use, transport, or disposal of hazardous materials. Since hazardous materials will not be stored in bulk form, no impacts are expected regarding potential upset and accidental conditions involving the release of hazardous materials into the environment.

Construction contractors are required to implement BMPs for the storage, use, and transportation of hazardous materials. The BMPs would be outlined within a site specific Storm Water Pollution Prevention Plan (SWPPP) that would be required as part of the NPDES General Permit. Local grading ordinances will also require the preparation of a SWPPP. Compliance with the SWPPP through the Construction General Permit and implementation of a site-specific SWPPP will ensure impacts remain less than significant.

**Response c): No Impact.** The project is not located within ¼ mile of an existing or proposed school, and would therefore, not result in the exposure of any school site to any hazardous materials that may be used or stored. As described under Response a), above, the project is subject to measures that would reduce potential impacts associated with the use or storage of hazardous materials. There are no schools in the immediate vicinity of the project; implementation of the project would have no impact with regards to this environmental issue.

**Response d): No Impact.** The following five Cal/EPA Data Resources, commonly referred to as the 'Cortese List', were searched for the project:

1. EnviroStor database, List of Hazardous Waste and Substances sites, Department of Toxic Substances Control (DTSC)
2. Geotracker database, List of Leaking Underground Storage Tank sites, State Water Resources Control Board
3. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit, State Water Resources Control Board

4. Cleanup Desist Orders/Cleanup Abatement Orders List (CDO/CAO), List of active Cease and Desist Orders and Cleanup and Abatement Orders, State Water Resources Control Board
5. List of hazardous waste facilities subject to corrective action, DTSC

Additional searches included:

Solid Waste Information System, Department (SWIS) database of Resources Recycling and Recovery (CalRecycle).

The database search did not identify any active Leaking Underground Fuel Tanks or other cleanup sites that would affect the project. Two previous Leaking Underground Storage Tank (LUST) case sites were identified along the Avenue 26 corridor. Both case sites were closed by the Lead Agency. A closed case indicates a closure letter or other formal closure decision document has been issued for the site. The project will remain within the right-of-way along Avenue 26 and will not disturb the sites in question. If undocumented hazardous waste or materials are encountered during construction, appropriate protocols for testing, off-site transport, and disposal will be followed. Based on findings no impact is anticipated with regards to this environmental topic.

**Responses e), f): No Impact.** The Federal Aviation Administration (FAA) establishes distances of ground clearance for take-off and landing safety based on such items as the type of aircraft using the airport. The Madera County Airport Land Use Commission (ALUC) is an advisory body that assists local agencies with ensuring the compatibility of land uses in the vicinity of airports. The Madera County ALUC is responsible for protecting public health, safety and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public exposure to excessive noise and safety hazards within areas around airports to the extent that such areas are not already devoted to incompatible uses.

The Madera Municipal Airport is the closest commercial airport to the project site, located approximately 9 miles south of the west-most project alignment. The Airport is a general aviation airport owned by the City of Madera and managed by the Public Works Department. There is a single private airstrip approximately 6 miles southeast of the project southwest transition from Road 29 to Ave 26. The project is not located within the flight zones of these two airstrips; additionally project activities during construction are not considered an incompatible land use to the existing facility. There is no impact with relation to this environmental topic.

**Response g): No Impact.** The project does not include any actions that would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. Furthermore, the project would not result in population growth that would increase the demand for emergency services during disasters. Temporary construction activity would be expected to create temporary delays in traffic. Such delays would be typical for a construction project of this nature but would not be expected to interfere with an adopted emergency response plan or emergency evacuation plan, as such, no impacts would occur.

**Response h): Less than Significant Impact.** The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point, while fuels such as trees have a lower surface area to mass ratio and require more heat to reach the ignition point.

The project site is identified as being located within a “Moderate” Fire Hazard Severity Zone (CAL FIRE 2007) and is within local response jurisdictions along portions of Avenue 26. Construction vehicles and equipment such as welders, torches, and grinders may accidentally spark and ignite vegetation within the PIA. The increased risk of fire during construction would be similar to threat found at other roadway construction sites and would be considered potentially significant. **Mitigation measures HM-1 and 2** will reduce this risk to a less than significant level.

#### ***Mitigation Measures Hazardous Materials***

**HM-1:** Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. That is not limited to, vehicles, heavy equipment, and small hand powered equipment.

**HM-2:** Construction contractors shall ensure that during construction, staging areas, building areas, and/or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak.

## HYDROLOGY AND WATER QUALITY

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off- site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?				X

<b>Would the project:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
i) Expose people or structure to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

### **Environmental Setting**

As discussed in previous chapters, the project travels within the rural agricultural lands along Avenue 26 east of the town of Chowchilla to the low foothills of the western Sierra Nevada mountain range before turning north along Road 29. Road 29 winds within the foothills as it travels north towards the Chowchilla River drainage basin before its terminus southwest of the Eastman Lake Recreational Area. Existing culverts along the running line will require culvert maintenance and/or improvements. Project plans follow existing contours and improvements will result in little to no change to existing flow patterns.

### ***RESPONSES TO CHECKLIST QUESTIONS***

**Responses a), c), d), e), f): Less than Significant with Mitigation.** Grading, excavation, removal of vegetation cover, and loading activities associated with construction could temporarily increase runoff, erosion, and sedimentation. As required by the CWA, construction of the proposed improvements will require an approved SWPPP that includes BMPs for grading, and preservation of topsoil. Through required submittal of the SWPPP with a Notice of Intent (NOI) to the RWQCB a Construction General Permit (CGP) shall be obtained. The RWQCB is the agency responsible for reviewing the SWPPP and the NOI, prior to issuance of a CGP for the discharge of stormwater during construction activities. Implementation of **mitigation measure HWQ-1** at the end of this section, would ensure consistency with the regulatory requirements and ensure that the project would have a less than significant impact on construction related water quality.

**Responses b): No Impact.** The project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Groundwater recharge occurs primarily through percolation of surface waters through the soil and into the groundwater basin. The addition of significant areas of impervious surfaces (such as roads, parking lots, buildings, etc.) can interfere with this natural groundwater recharge process. The project will include very limited new areas of impervious surfaces with a slight widening of lanes within the existing road prism. The areas of impervious surfaces added as a result of project implementation will not adversely affect the recharge capabilities of the local groundwater basin.



**Responses g), h): No Impact.** The project area is depicted on the National Flood Insurance Program (NFIP) panels 06039C0625E and 06039C0650E. The majority of the PSA is within Zone X, which is determined to be outside the 0.2% annual chance floodplain and is not considered a Special Flood Hazard Area (SFHA). Two small portions of Ave 26 run through areas designated as Zone A on the FEMA floodplain maps. These small areas are within a SFHA, which is subject to inundation by the 1% annual chance flood. The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The project does not include any change to the vertical or horizontal alignment of the existing road or include the placement of substantial amounts of fill within any waters of the U.S. Resurfacing of the road will add approximately 4" inches to the roadway surface elevation. The improvements will not result in a rise of the 100-year water surface elevation and there is no significant encroachment to the floodplain. Based on project design, there will be no impacts to floodplains.

**Response i): No Impact.** The project proposes to rehabilitate and widen shoulders to safety widths within the existing road prism of the facility. No new structures that would impede or alter flows are proposed. The project does pass within the Chowchilla River basin and crosses over two bridges at Berenda Slough and Madera Canal, no work is proposed on the bridges of these crossings. As a result there is no risk of exposure for people or structures that would constitute a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. The condition of these structures remains unchanged. There is no impact in regards to this topic.

**Response j): No Impact.** There are no significant bodies of water near the project that could result in the occurrence of a seiche or tsunami. Additionally, the project alignment and the surrounding areas are not downstream of any major canyons, which preclude the possibility of mudflow occurrence. While Berenda slough is adjacent to the project and Avenue 26 Bridge crosses the overflow channel of the slough, there is no risk in regards to this environmental topic. There is no impact in regards to seiche, tsunami, or mudflow to the project.

#### ***Mitigation Measures Hydrology and Water Quality***

**HWQ-1:** Prior to the commencement of grading activities a NOI and SWPPP shall be submitted to the RWQCB in accordance with the NPDES CGP requirements. The SWPPP shall utilize BMPs and technology to reduce erosion and sediment to meet water quality standards. BMPs may include: temporary erosion control measures such as silt fences, staked amphibian-friendly wattles, silt/sediment basins and traps, check dams, geo-fabric, sandbag dikes, and temporary re-vegetation or other ground cover. The SWPPP shall be kept on site and implemented during construction activities.

## LAND USE AND PLANNING

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

### Environmental Setting

Land use in the project area consists mainly of agricultural and undeveloped graze land with some intermittent residential development. The project alignment is within an existing road facility, which currently is allowable within the Land Use Planning for Madera County. No changes to Land Use shall be required for the project.

### RESPONSES TO CHECKLIST QUESTIONS

**Response a): No Impact.** The project would not physically divide an established community. No changes in site use or planning shall occur with road improvements. There is no impact in relation to this topic.

**Response b): No Impact.** The proposed improvements are consistent with the existing uses of the project (road facility), and are consistent with Madera County's designation and zoning of land use. As described throughout this IS/MND, the project would not result in any significant environmental impacts for which a plan or policy has been adopted for the purpose of avoiding or mitigating an environmental impact.

**Response c): No Impact.** There are no habitat or natural community conservation plans that will be impacted as a result of this project.

## MINERAL RESOURCES

<b>Would the project:</b>	<i><b>Potentially Significant Impact</b></i>	<i><b>Less Than Significant with Mitigation Incorporation</b></i>	<i><b>Less Than Significant Impact</b></i>	<i><b>No Impact</b></i>
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

### **Environmental Setting**

The nearest aggregate quarry to the project is the Raymond Granite Quarry operated in Knowles, California. The quarry is located approximately 10 miles northeast of the Road 29 and Avenue 26 intersection. There are no known mineral resources present within the PIA.

### *RESPONSES TO CHECKLIST QUESTIONS*

**Responses a) and b): No Impact.** There are no known mineral resources located within the PIA. The project is currently developed roadway and road shoulders. The project would not result in the loss of availability of a known mineral resource. In the event that mineral resources were determined in the future to be present within the project alignment, implementation of the project would not preclude the ability to extract these resources. The closest mine in the area under operation, the Raymond Granite Quarry is approximately 8 miles northeast of the north-most project terminus. Large buffers between the project and existing and historical mines ensure the continued use and value of known mineral resources within the Planning Area.

## NOISE

<b>Would the project result in:</b>	<b><i>Potentially Significant Impact</i></b>	<b><i>Less Than Significant with Mitigation Incorporation</i></b>	<b><i>Less Than Significant Impact</i></b>	<b><i>No Impact</i></b>
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

## Environmental Setting

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses (Caltrans, 2009). A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well being could be impaired or endangered by the existence of noise.

The noise environment in the vicinity of the project is typical of undeveloped agricultural and rural lands. The predominant existing noise source in the PSA is vehicular traffic and seasonal use of agricultural machinery on the adjacent fields. Sensitive receptors represent all land use activity categories where the FHWA noise abatement criteria specify exterior and interior noise levels. Land use activity categories include residences, recreation areas, hotels, schools, churches, libraries, and hospitals. Noise sensitive receptors in the project area include several standalone residences, agricultural facilities off of the road corridor and a residential neighborhood located adjacent to the start of the project alignment on Ave 26 where there are approximately 10 units within 200 feet of the right of way line.

The primary source of noise during construction of a project is from the operation of construction equipment. Construction of the project will result in activities moving along the road alignment. Work activities associated with ambient noise shall be limited in nature at any one location as the work progresses along the alignment.

#### *RESPONSES TO CHECKLIST QUESTIONS*

**Responses a) c) and d): Less than Significant with Mitigation.** Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local planning criteria or ordinances, or substantially increase noise levels at noise-sensitive land uses.

The project would not increase the traffic capacity of the roadway or induce an increase in traffic, nor would it alter roadway conditions in any manner that would result in increased noise at any of the receivers in the general vicinity.

Construction would generate noise from the short-term use of equipment such as excavators, compressors, generators, trucks, diesel-powered earth-moving equipment, such as dump trucks and bulldozers, and back up alarms on certain equipment. According to the FHWA Construction Noise Handbook (August 2006), maximum noise levels from diesel-powered equipment range from 80 to 95 decibels (dBA) at a distance of 50 feet.

A sound level measured from a point source decreases at a rate of 6 dBA per doubling of distance (FHWA 2011). Based on the maximum noise levels from construction activities and the distance of noise sensitive receptors from the road, temporary noise levels associated with construction activities are anticipated to exceed levels that would be expected in a rural setting. These impacts will be of short duration and will occur during daytime hours when noise-sensitivity in a residential area is the lowest. Therefore, these temporary noise impacts are anticipated to be minor. In addition, a large portion of the project area is within active agricultural fields including both orchards and ranch lands. In these areas, especially the orchards, heavy machinery is frequently used on a seasonal basis. As a result, large portions of the project area are routinely subject seasonal increased noise levels above what would be expected in a typical rural setting.

**Responses b): Less than significant.** The project has the potential to create perceivable ground-borne vibrations during construction. Operation of construction equipment would be the most perceivable source of vibrations. Table 6 shows the ground-borne vibrations from common road construction equipment at 25 feet, as well as vibrations at 100 feet. The Caltrans 2004 Transportation- and Construction-Induced Vibration Guidance Manual states that a vibration of 0.04-peak particle velocity (PPV) in inches per second is barely perceivable. The operation of a vibratory roller would result in a perceptible vibration at receptors located within 100 feet of the construction area. Operation of a vibratory roller would be temporary and with the implementation of **mitigation measure N-1**; impacts would be considered less than significant.

**Table 6 Construction Vibration at Various Distances**

Construction Equipment	At 25 Feet	At 57 Feet	At 100 Feet
Vibratory Roller	0.21	0.0921	0.0525
Large Bulldozer	0.089	0.0390	0.0223
Caisson Drilling	0.089	0.0390	0.0223
Loaded Trucks	0.076	0.0333	0.0190
Jackhammer	0.035	0.0154	0.0088
Small Bulldozer	0.003	0.0013	0.0088

Source: Caltrans 2004

**Responses e) and f): No Impact.** The project site is not located within two miles of a public or private airstrip. There is no impact.

#### **Mitigation Measures Noise**

**Mitigation measure N-1**, would ensure that construction noise does not increase ambient nighttime noise levels in the project vicinity by limiting construction activities to daytime hours. This measure is currently within Madera County Code Ordinances §9.58.020, General noise regulations.

## POPULATION AND HOUSING

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

### Setting

Madera County is located in the San Joaquin Valley of Central California. The County had a population of 156,890 in 2017 (U.S. Census Bureau, 2018). The City of Chowchilla is the closest city to the project site. In 2017, the Chowchilla had 18,558 residents. Homes in the PSA consist mostly of scattered single-family rural residential.

### *RESPONSES TO CHECKLIST QUESTIONS*

**Response a): No Impact.** Implementation of the project would not directly result in population growth, nor would it convert any land use designations to a use that would allow for the construction of housing. The project will not generate new jobs, which could lead indirectly to population growth.

**Responses b) and c): No impact.** There are no homes or residents located within the PIA, and therefore, no homes or people would be displaced as a result of project implementation.

## PUBLIC SERVICES

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Would the project result in substantial adverse physical impacts associate with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objective for any of the public services:				
i) Fire protection?				X
ii) Police protection?				X
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X

### Setting

The PSA is within agricultural, graze and pasture lands of mid-northern rural Madera County. Madera County, Chowchilla Volunteer Fire Department and CAL FIRE provide primary fire protection and emergency medical services to the area. Several ambulance companies including Sierra Ambulance and Pistoresi Ambulance Service provide emergency medical transport services within the area. The California Highway Patrol and Madera County Sheriff's Department are the responsible law enforcement agencies within the PSA.

### RESPONSES TO CHECKLIST QUESTIONS

**Response a;i-v): No Impact.** The project consists of improvements to existing County roadway facility that will bring the existing roadway up to current safety standards. As described previously, the project would not increase employment by creating jobs, nor would it result in population growth within the area. The existing use of the roadway would remain unchanged and would not result in any increased demand for police and fire protection, schools, parks, or other public facilities. The project would have a beneficial impact on law enforcement, fire, and medical services, as the road improvements would provide increased safety to accommodate existing traffic needs and travel abilities. As such, no adverse impacts would occur.



## RECREATION

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreation facilities or require the construction of expansion of recreational facilities, which might have an adverse physical effect on the environment?				X

### Setting

The Buchanan Dam was a 1975 flood control and irrigation project of the United States Army Corps of Engineers (ACOE). The earthen dam is approximately 218 feet high and 1,746 feet long impounding a maximum of 150,000 acre-feet of Chowchilla River watershed creating H.V. Eastman Lake.

Approximately 85,000 people visit Eastman Lake Recreation Area annually. Ave 26 and Road 29 provide access to this recreation area. Recreational activities on USACE owned lands include hiking, mountain biking, boating, sightseeing, horseback riding, hunting and fishing. The recreation area provides camping and picnic areas as well as access to hiking and fishing. The Chowchilla Recreation Area Day Use and the Codorniz Recreation Area Campground are both part of the Eastman Lake Recreation Area and offer visitor facilities. The campground is operated by the USACE, has 88 campsites, and is open year-round.

Currently, visitors hauling travel trailers and/or boats are concerned about damage to their equipment due to the existing roadway conditions. The project will improve the visitor experience by providing visitors improved access to the site. Providing a consistent paved width of roadway and a smooth driving surface will improve safety and accessibility, resulting in a long-term benefit for recreationists.

### RESPONSES TO CHECKLIST QUESTIONS

**Responses a), b): No impact.** The project would not increase the use of existing recreational facilities, nor would it include the construction of new recreational facilities.

## TRANSPORTATION/TRAFFIC

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in locations that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

### Setting

Avenue 26 is aligned east/west and connects State Route 99 (SR 99) with a multitude of arterial routes from the SR 99 corridor to the eastern foothills of the Sierra Nevada mountain range. Road 29 aligns north and south with its northern terminus at Eastman Lake Recreational Facility. The roadways carry a variety of vehicles from commercial to private autos and recreational vehicles. There are no dedicated bike lanes along the project and no plans to provide them in the future.

### RESPONSES TO CHECKLIST QUESTIONS

**Response a), b): No impact.** The project would not result in any traffic increases following the completion of construction activities. During construction, minor and

temporary increase in traffic may occur on roadways in the vicinity of the site from workers associated with construction of the project. These temporary construction traffic increases would be short-term and would not adversely impact roadway operations or levels of service in the project area. No impacts regarding increased traffic or congestion due to traffic increases are anticipated.

**Response c): No Impact.** The project site is not located within close proximity of a public airport or private airstrip. Project implementation would have no impact on air traffic patterns.

**Responses d) and e): No impact.** There are no roadway design improvements proposed as part of the project that would create a dangerous condition. Improvements proposed shall increase traffic safety overall. Emergency access to the project site would continue to be provided from current roads within the area. As described above, the project would result in no impacts regarding this topic.

**Response f): No Impact.** Implementation of the project would not result in an increased demand for parking. Designated staging areas as previously described shall be identified along the alignment and shall accommodate construction workers. The new road shoulder will additionally provide emergency pull off not previously available. There is no impact with regards to this topic.

**Response g): No impact.** The project would have no impact on any existing plans or policies related to alternative transportation.

## UTILITIES AND SERVICE SYSTEMS

<b>Would the project:</b>	<i><b>Potentially Significant Impact</b></i>	<i><b>Less Than Significant with Mitigation Incorporation</b></i>	<i><b>Less Than Significant Impact</b></i>	<i><b>No Impact</b></i>
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

### Setting

There are multiple known utilities in on the project alignment (electric, fiber, and telephone). It is not anticipated there will be utility conflicts as the utilities are outside the PIA. Conflicts will be evaluated prior to construction. Utility poles, telephone/fiber optic pedestals, culvert headwalls, and bridge ends reduce the clear zone from standard. The clear zone varies from 6 feet at the utility poles to 2.5 feet at the culvert headwalls. Some of the culvert headwalls have been hit and knocked over. There is anecdotal history of

some utility poles or facilities being struck. If utility conflicts are identified, coordination with utility companies shall occur.

There are no parcels, which are connected to a public waste system. Intermittent residences along the PSA are connected to individual well and septic systems. An independent contractor provides solid waste services within the PSA or individuals handle solid waste by taking it to the local landfill. The closest landfill is located on Avenue 22 west of SR 99 in Chowchilla, California.

#### *RESPONSES TO CHECKLIST QUESTIONS*

**Responses a), b), d), e), f) and g): No Impact.** The primary objective and purpose of the project is to bring the existing road facility up to current safety standards and is not capacity increasing. The project would not impact existing service systems or create growth in the area, which would cause a need for additional water or wastewater facility, nor additional solid waste facilities. No impact would occur.

Construction contractors shall notify Utilities Service Alliance one week prior to the beginning of excavation activities, or within an appropriate timeline so that the roadway alignment may be surveyed in order to minimize the risk of exposing or damaging underground utilities. No impact would occur.

**Response c): Less than Significant.** The project would result in a slight increase of impervious surfaces with the shoulder and lane widening. Culvert improvements would slightly extend the existing culvert footprint in some areas with new headwalls and slight length extensions. Project improvements to existing culverts and maintenance of drainage facilities would be less than significant.

## MANDATORY FINDINGS OF SIGNIFICANCE:

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

### RESPONSES TO CHECKLIST QUESTION

**Responses a) and c): Less than significant with mitigation Incorporation.** As discussed in the previous sections, the project would not degrade the quality of the environment, substantially reduce habitats or species, or eliminate important examples of the major cultural periods of the State. In addition, the project would not contribute environmental effects that have substantial adverse effects on human beings. When appropriate, mitigation measures have been provided to reduce all potential impacts to a less-than-significant level.

**Responses b): Less than significant with mitigation Incorporation.** Cumulative impacts and indirect effects for each resource area have been considered within the analysis of each resource area. When appropriate, mitigation measures have been provided to reduce all potential impacts to a less-than-significant level.

## SUMMARY OF MITIGATION MEASURES

Listed below is a summary of the mitigation measures by topic and conditions of approval for the project as a result of the Initial Study.

### *Mitigation Measures Air Quality*

**AQ-1:** The Agency, or the contractor(s) hired to complete construction of the project, shall implement the following specific mitigation to ensure adequate dust control during construction activities. Compliance with the mitigation measures should minimize the potential for violations of Regulation VIII, Fugitive Dust Emissions.

#### **Clearing and Grubbing/Earth Moving**

- Water shall be applied by means of truck(s), hoses and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions.
- Haul vehicles transporting soil into or out of the property shall be covered. A water truck shall be onsite at all times. Water shall be applied to disturbed areas a minimum of 2 times per day during the dry season or as needed to limit dust emissions.
- Speed limits on unpaved roads and within the dirt surface work area shall be limited to 5 mph where applicable.
- A sign visible to the public shall be installed posting the contact number for person responsible for handling dust complaints. Corrective actions shall be addressed within 24 hours of receipt of complaint.
- Contact information for the Project Manager shall be posted for all other nuisance complaints, comments or questions regarding the project.

#### **Disturbed Soil Surface Areas:**

- All disturbed soil surface areas that are visibly dry and subject to disturbance from the project, the public, or wind events, shall be watered to minimize dust emissions.

#### **Track-out to Paved Roads:**

- Existing Public Paved Roadways that have visible signs of track-out shall be cleaned up at the end of the day or immediately if a rain event is forecasted or begins during the workday. If track-out exceeds 50 feet in length, it must be cleaned up immediately.

#### **Disturbed Roadways – Unpaved:**

- Should visible dust emissions be observed during operation on unpaved roadways, the roadway shall be watered to minimize dust emissions.
- A water truck shall be onsite at all times. Water shall be applied to disturbed areas as needed to control dust emissions.
- On-site vehicles shall limit speeds to minimize emissions from unpaved roads.

- Haul roads shall be wetted to provide a visible crust at the end of the workday to control wind erosion as required.

**Ingress/Egress within the Construction Area:**

- Vehicles entering or exiting the construction area shall travel at a speed, which minimizes dust emissions.

**Personnel Vehicles:**

- Construction workers and staged equipment shall park in designated parking areas (where applicable) to help reduce dust emissions.

**Bulk Material Storage Piles:**

- Storage piles that are susceptible to wind erosion shall be wetted to provide a visible crust, secured with tarps or plastic, or covered with other materials to reduce dust emissions.

**AQ-2:** The following mitigation shall be implemented to reduce and mitigate combustion emissions from heavy-duty construction equipment:

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to the extent feasible, the use of diesel construction equipment meeting the latest CARB certification standards for off-road heavy-duty diesel engines.
- Electrify equipment where feasible
- Use gasoline-powered equipment in lieu of diesel-powered equipment, where feasible.
- Use alternatively fueled construction equipment where feasible during construction such as propane, biodiesel, compressed natural gas, and liquefied natural gas.

***Mitigation Measures Biological Resources***

**BR-1.** A USFWS approved, qualified biologist(s) shall be onsite during initial ground disturbing activities that are within proximity to the mapped vernal pools, aquatic resources and thereafter as needed. Qualifications shall be submitted for approval to USFWS no later than 30 days prior to the start of construction. The biologist(s) shall retain copies of applicable permits in their possession while onsite.

- a) Construction personnel will receive worker environmental awareness training. This training instructs workers to recognize special-status species, their habitat(s), as well as other environmentally sensitive areas.
- b) The biologist shall be given the authority to:



- Communicate either verbally, by telephone, email or hardcopy with all project personnel to minimize take of federally listed species and oversee implementation of the permit requirements; and
- Stop project activities to minimize take of federally listed species, or if he/she determines that any permit requirements are not fully implemented. The USFWS will be notified within 24 hours if take of any federally listed species occurs.

**BR-2.** Prior to activities requiring ground disturbance or vegetation removal within seasonal wetlands, swales, intermittent channels, or adjoining annual grassland habitat, a qualified biologist shall survey these areas for the presence of the spiny-sepaled button-celery. Surveys should be conducted during the fruiting period when the sepals are mature (June-August) to determine presence/absence of this species. Should this species occur within the PIA, the population(s) shall be avoided if feasible. If avoidance is not possible, the impacted population(s) shall be transplanted to a suitable, protected location in the spring or early summer.

**BR-3.** A Biological Opinion with an incidental take statement shall be obtained from the USFWS and a 2081, incidental take permit (ITP) shall be obtained from the CDFW for impacts to CTS prior to construction. Permit conditions, preservation and compensatory measures required within these documents shall be implemented. At a minimum, the following shall be implemented for CTS:

- a) Prior to construction activities within CTS breeding and aestivation habitat, preservation credits shall be obtained from a USFWS and CDFW approved mitigation bank for every acre of habitat permanently lost. If no credits are available at a CDFW approved bank, negotiations shall be implemented with CDFW to mitigate at a USFWS approved bank. Ratios of 3:1 compensatory mitigation (3 acres of mitigation for every 1 acre of impact) are proposed.
- b) Construction activities that would disturb soil within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is lower potential for an individual to enter the work area.
- c) Within the portion of the construction limits that includes potential CTS habitat, as defined by the qualified biologist, the limits of all work areas including staging, construction, parking, and access routes will be flagged or fenced by the contractor, under the supervision of the qualified biologist, prior to disturbance. In addition, the qualified biologist will survey the temporary workspace areas, where the contractor is proposing to stage/park construction equipment and vehicles, no more than two weeks in advance of construction to map and flag for avoidance burrows that could support California tiger salamanders. All activity will be confined to within the marked areas.

- d) Prior to the initiation of ground disturbing activities, a qualified biologist will map the location and number of ground squirrel burrows that could be directly impacted by the proposed action. Subsequently, a burrow excavation plan and map showing the burrow location data will be prepared and submitted to CDFW and USFWS, for review 30 days prior to initiation of ground disturbance. The excavation plan will include details regarding how excavations will be performed, based on site-specific conditions, to minimize the potential for take of CTS.
- e) Exclusionary silt fencing, or some other suitable exclusionary fencing material shall be installed to preclude wildlife from entering the work area, limit the transport of sediment into adjacent aquatic resources during construction, and prevent construction access into adjacent environmentally sensitive areas. Fencing will be placed at the edge of the temporary workspace in areas adjacent to vernal pools. A fencing plan will be developed and submitted to CDFW and USFWS, 30 days prior to the initiation of ground disturbing activities for review. The biological monitor will inspect the exclusionary fencing on a weekly basis to identify areas that are in need of repair by the contractor, and document that all necessary repairs are made within 48 hours. Pedestrian and vehicular traffic into habitat excluded by the fencing will be prohibited during construction.
- f) All excavations shall be conducted between April 1 and September 30, during the salamander non-breeding season, and burrow mapping in areas proposed for direct impact will be re-verified no more than two weeks prior to initiation of excavation activities.
- g) Plastic monofilament netting (erosion control matting) or similar material will not be used for the proposed action because California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- h) The contractor shall immediately contact the agency approved project biologist(s) in the event that California tiger salamander is observed within a construction zone, and will suspend construction activities within a 50-foot radius of the animal until it leaves the site voluntarily or an agency approved protocol for removal has been completed.
- The Service-approved biologist(s) will have the authority to handle California tiger salamanders. If an individual of these species is observed in an area to be affected by project activities, and cannot leave the work area of its own volition, the biologist will capture and relocate the animal

to nearby suitable habitat out of harm's way. Relocation sites will be identified prior to the start of the project, and submitted to the Service for approval 30 days prior to the start of construction.

- i) The Service-approved biologist(s) and/or all work personnel will visually inspect for California tiger salamanders under and around vehicles and equipment prior to use.
- j) All construction pipe, culverts, or similar structures that are stored at the construction site for one or more overnight periods shall be inspected before it is moved, buried or capped. If CTS is discovered within the structure, no movement or disturbance shall occur until the salamander has escaped on its own.
- k) To prevent entrapment of CTS, all excavated, steep-walled holes or trenches shall be covered with plywood or similar materials, or filled with an escape ramp constructed of earthen fill or wooden planks. Prior to fill all trenches, holes etc. shall be thoroughly inspected for trapped animals. If, at any time, trapped CTS are located, all work within the immediate area will cease until the animal is allowed to leave on its own.
- l) Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas.
- m) Project related vehicles and equipment shall not exceed 20 miles per hour within the construction area.
- n) Disturbances to habitats of listed species will be minimized to the extent practicable. Vehicle traffic will be restricted to established roads and designated areas and utilize previously disturbed areas to the extent practicable. Vehicle use areas will be included in preconstruction surveys.
- o) All fueling and maintenance of vehicles and other equipment including staging areas shall occur at least 65 feet from any water body. All workers shall be informed during the worker education program of the importance of preventing leaks and spills including appropriate prevention and implementation measures should a leak or spill occur.
- p) A litter control program shall be implemented for the entire project alignment. Closed garbage containers for the disposal of all food-related trash items shall be kept and removed from the site at the end of each day. Construction personnel shall not feed or attract any wildlife to the action area.
- q) No canine or feline pets shall be permitted at the project site to avoid harassment or killing or injuring of wildlife.

**BR-4.** Implementation of the following mitigation measures to avoid project-related impacts to potential nesting and/or wintering habitat for burrowing owls:

- a) A qualified biologist shall conduct a preconstruction take avoidance survey no less than 14 days prior to initiating ground disturbance active using the recommended methods described in the Detection Surveys Section in appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). If no burrowing owls or their sign are detected in the vicinity of the project site during the preconstruction survey, a letter report documenting survey methods and findings shall be submitted to the County and the CDFW, and no further mitigation is required.
- b) If burrowing owls are detected, no-construction buffers and timing outlined in Table 2 on page 9 of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012) shall be followed unless a qualified biologist verifies through noninvasive methods that either 1) the birds have not begun egg laying and incubation or 2) that juveniles from the occupied burrows are capable of independent survival (i.e., foraging independently). Buffer diameters outlined in Table 2 in the Staff Report on Burrowing Owl Mitigation (CDFW, 2012) are as follows:

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting Sites	April 1-Aug 15	200 meters	500 meters	500 meters
Nesting Sites	Aug 16-Oct 15	200 meters	200 meters	500 meters
Nesting Sites	Oct 16-Mar 31	50 meters	100 meters	500 meters

**BR-5.** Implementation of the following mitigation measures to avoid and/or minimize project-related impacts to nest sites for Swainson's hawk:

- a) If project activities will occur between February 1 and September 15, a qualified biologist shall conduct a minimum of two preconstruction nest surveys during the recommended survey periods in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000). The qualified biologist shall conduct surveys for nesting Swainson's hawk in the PSA and within 0.5 miles of construction activities where legally permitted. The biologist will use binoculars to visually search for Swainson's hawk nests if access to any portion of the survey area is denied. If no active Swainson's hawk nests are identified on or within 0.25 miles of construction activities within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the County within 30 days following the survey, and no further mitigation for nesting habitat is required.

- b) If active Swainson's hawk nests are found within 0.25 miles of construction activities, an appropriate disturbance-free buffer will be established around the nest, to be maintained for the duration of construction or until the young associated with the nest have fledged and are no longer reliant on the nest for parental care, whichever comes first. Should it be necessary to work within the disturbance-free buffer, a qualified biologist shall monitor all activities that occur within the buffer to ensure that disruption of the nest or forced fledging does not occur. Should the biologist determine that the construction activities within the buffer are disturbing the nest, he/she shall stop work within the buffer or within portions of the buffer closest to the nest tree, at his/her discretion. The biologist will also have the authority to expand the disturbance-free buffer around any active Swainson's hawk nests, should that become necessary.

**BR-6.** Implementation of the following mitigation measures to avoid and/or minimize project-related impacts to nest sites for migratory birds and other birds of prey:

- a) A qualified biologist shall conduct a preconstruction survey for active nests should construction commence during the nesting season for birds of prey and migratory birds (between February 1 and September 15). The preconstruction survey will be conducted within 30 days prior to commencement of construction activities. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 30 days of the survey.
- b) If any active nests are located within the study area, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist shall delineate the buffer zone with construction tape or pin flags within 250 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged.
- c) Exclusionary netting should be implemented if any culverts within the project area support nesting swallows. If an active nest becomes established before initiation of exclusionary methods, then guidance from CDFW will be requested prior to construction activities within that location.
- d) Eastman Lake National Recreational Area staff are aware of three known bald eagle nesting sites greater than one half mile, but less than one mile from the northern Road 29 terminus of the project. Eastman Lake staff (Park Manager Carrie Richardson 559-689-3255) should be consulted prior to construction to inquire of any new known nesting site locations in the area. A 0.5 mile no disturbance buffer will be maintained throughout the breeding season (December 30 through July 1) or until the young have fledged and are no longer dependent

upon the nest or parental care for survival.

**BR-7.** Precautionary mitigation measures shall be implemented to avoid project-related effects to SJKF in accordance with the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance (1999a) (Recommendations) for linear projects:

- a) A preconstruction survey must be conducted for SJKF dens within 15 days prior to commencement of construction activities. If no SJKF dens are observed, a letter report summarizing the survey results shall be submitted to the County, the USFWS, and the CDFW within 30 days following the survey, and no further mitigation for denning habitat is required.
- b) Should SJKF dens be observed, then the following mitigation measures shall be implemented:

Exclusion Zones

The configuration of exclusion zones around the SJKF dens shall have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums and if they cannot be followed the USFWS and CDFW must be contacted:

- 50 feet from potential den;
  - 100 feet from known den;
  - USFWS And CDFW must be contacted if presence of occupied & unoccupied natal/pupping den; and
  - 50 feet from a typical den.
- c) For known dens, the exclusion zone shall be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by SJKF. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.
  - d) For potential and atypical dens, the placement of four to five flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location. No fencing is required, but the exclusion zone must be observed.
  - e) Construction and other project activities shall be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic shall be permitted. All construction, vehicle operation, material

storage, or any other type of surface-disturbing activity shall be prohibited within the exclusion zones.

#### Destruction of Dens

Disturbance to all SJKF dens shall be avoided to the maximum extent possible.

Protection provided by SJKF dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of SJKF dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to SJKF of potential, known, and natal/pupping dens differ, and therefore, each den type needs a different level of protection. Destruction of any known or natal/pupping SJKF den requires a take authorization/permit from the USFWS and the CDFW.

- f) Occupied natal/pupping dens shall not be destroyed until the pups and adults have vacated and then only after consultation with the USFWS and the CDFW. Project activities at some den sites may have to be postponed.
- g) Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infrared beam camera to determine the current use. If no SJKF activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances with soil in a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The USFWS encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. Extreme caution must be exercised. Destruction of the den should be accomplished by careful excavation until it is certain that no SJKF are inside. The den should be fully excavated, filled with dirt and compacted to ensure that SJKF cannot reenter or use the den during the construction period. If at any point during excavation a SJKF is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist the animal has escaped from the partially destroyed den.
- h) If a take authorization/permit has been obtained from the USFWS and the CDFW, destruction of potential dens may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously

used by SJKF (e.g. if SJKF sign is found inside), then destruction shall cease and the USFWS and the CDFW shall be notified immediately.

#### Construction and Operational Requirements

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance shall be minimized. Project designs shall limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated areas. These areas shall also be included in preconstruction surveys and, to the extent possible, shall be established in locations disturbed by previous activities to prevent further impacts.

- i) Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and federal highways; this is particularly important at night when SJKF are most active. To the extent possible, nighttime construction shall be minimized. Off-road traffic outside of designated project areas should be prohibited.
- j) To prevent inadvertent entrapment of SJKF or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than two feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.
- k) SJKF are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for SJKF before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a SJKF is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.
- l) All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or study area.
- m) To prevent harassment, mortality of SJKF or destruction of dens by dogs or cats, no pets shall be permitted on study areas.



- n) Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of SJKF and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and the CDFW. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to SJKF.
- o) A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the USFWS and the CDFW.
- p) A USFWS-approved biologist conduct habitat sensitivity training related to SJKF for all project contractors and personnel as identified under the CTS conservation measures.
- q) Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and re-vegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be re-vegetated. Appropriate methods and plant species used to re-vegetate such areas shall be determined on a site-specific basis in consultation with the USFWS, CDFW, and re-vegetation experts.
- r) In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice.
- s) Any contractor, employee, or military or agency personnel who inadvertently kills or injures a SJKF shall immediately report the incident to their representative. This representative shall contact the CDFW immediately in the case of a dead, injured or entrapped SJKF. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.
- t) The USFWS Sacramento office and the CDFW Central Region office will be notified in writing within three working days of the accidental death or injury to a SJKF during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any

other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species is at 2800 Cottage Way, Suite W2605, Sacramento, CA 95825, (916) 414-6620. The CDFW contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

**BR-8.** The applicant shall obtain a Section 404 Clean Water Act (CWA) Permit from the USACE for impacts to wetlands and waters of the U.S. and Section 401 State CWA Permit with the Regional Water Quality Control Board (RWQCB) *and* comply with the mitigation measures identified in the Hydrology and Water Quality Section to prevent discharge of pollutants to surface waters during construction. This shall include complying with the State's National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) issued by the RWQCB. All conditions of the Nationwide Permit shall be adhered to. At a minimum, impacts to waters of the U.S. shall be offset at a 1:1 ratio through the purchase of creation credits or onsite creation. The creation credits that would be purchased for CTS may be used to satisfy the USACE requirements for removal of seasonal wetlands.

**BR-9.** For work occurring within 250 feet of vernal pools (VP1 through VP7), ground-disturbing activities shall occur when the vernal pools are dry, typically after May 1 and before October 31. Work will be postponed if a 50 percent or greater chance of rain and a half an inch or greater rain event is predicted by the local hourly forecast, based on the local National Oceanic and Atmospheric Administration weather forecast. If such a rain event starts occurring onsite during ongoing work, work will be postponed within these areas until the rain ceases and the hourly rain forecast drops below 50 percent. After the rain event begins, work will resume only after rain has ceased and the USFWS-approved biologist confirms site conditions will not cause runoff into adjacent vernal pools. As necessary, additional best management practices such as fiber roll or silt fence will be installed to minimize potential for runoff into adjacent vernal pools.

#### ***Mitigation Measures Cultural Resources***

**CR-1:** An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be available and identified during the course of this project. No monitoring is required during work activities. Mitigation measure CR-1 is required should an unidentified, unknown resource be discovered during work activities even though the likelihood of discovery is low.

- a) If cultural resources or Native American resources are identified, every effort shall be made to avoid significant cultural resources, with preservation an important goal. If significant sites cannot feasibly be avoided, appropriate mitigation measures, such as data recover excavations or photographic documentation of buildings, shall be undertaken consisted with applicable state and federal regulations.

- b) If human remains are discovered, all work shall be halted immediately within 50 meters (165 feet) of the discovery, the County Coroner must be notified, according to Section 5097.98 of the State Public Resources Code and Sections 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, contacts previously identified with the Southern Sierra Miwok Nation, the Northern Valley Yokuts and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed.
- c) If any fossils are encountered, there shall be no further disturbance of the area surrounding this find until the materials have been evaluated by a qualified paleontologist, and appropriate treatment measures have been identified.

#### ***Mitigation Measures Hazardous Materials***

**HM-1:** Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. That is not limited to, vehicles, heavy equipment, and small hand powered equipment.

**HM-2:** Construction contractors shall ensure that during construction, staging areas, building areas, and/or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak.

#### ***Mitigation Measures Hydrology and Water Quality***

**HWQ-1:** Prior to the commencement of grading activities a NOI and SWPPP shall be submitted to the RWQCB in accordance with the NPDES CGP requirements. The SWPPP shall utilize BMPs and technology to reduce erosion and sediment to meet water quality standards. BMPs may include: temporary erosion control measures such as silt fences, staked amphibian-friendly wattles, silt/sediment basins and traps, check dams, geo-fabric, sandbag dikes, and temporary re-vegetation or other ground cover. The SWPPP shall be kept on site and implemented during construction activities.

#### ***Mitigation Measures Noise***

**N-1,** would ensure that construction noise does not increase ambient nighttime noise levels in the project vicinity by limiting construction activities to daytime hours. This measure is currently within Madera County Code Ordinances §9.58.020, General noise regulations.

## **REPORT PREPARERS**

### **REPORT PREPARERS**

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## **APPENDICES**

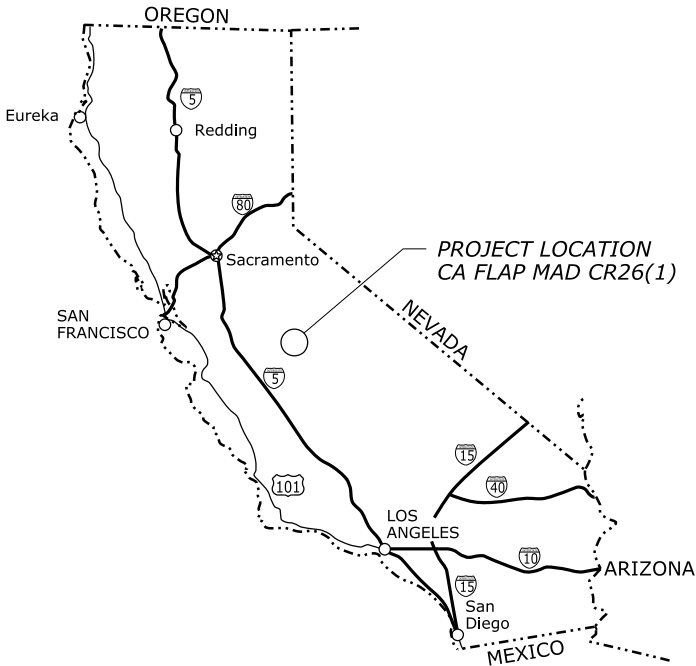
## **APPENDIX A - PROJECT PLANS**

3/28/2018 2:07:20 PM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\A-Gen\_sh\TTL(AVE26, RD29)MAD.dgn User: Leslie.Karsten

# U.S. DEPARTMENT OF THE INTERIOR US ARMY CORPS OF ENGINEERS

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A1

INDEX TO SHEETS	
SHEET	DESCRIPTION
A1	TITLE SHEET
A2 - A3	CONVENTIONAL PLAN SYMBOLS AND ABBREVIATIONS
A4	SURVEY CONTROL
A5 - A6	TYPICAL SECTIONS - AVENUE 26 & ROAD 29
A7	TYPICAL SECTIONS APPROACH ROADS
B1 - B4	SUMMARY OF QUANTITIES - SCHEDULE A
B5	SUMMARY OF QUANTITIES - OPTION X
B6	SURFACING SUMMARY
B7 - B8	APPROACH ROAD SUMMARY
B9 - B13	TABULATION OF QUANTITIES
C1 - C31	MAINLINE PLAN SHEETS
E1 - E4	EROSION AND SEDIMENT CONTROL DETAIL DRAWINGS
F1	DETAIL C204-51 SUBEXCAVATION
G1	SPECIAL 251-A PLACED RIPRAP AT CULVERT OUTLETS
K1	SPECIAL 401-A PAVEMENT TRANSITIONS
S1 - S22	BRIDGE SHEETS
T1 - T2	CONCRETE HEADWALL/WINGWALL STANDARD DRAWINGS
T3	SPECIAL 601-A PIPE CULVERT HEADWALLS
T4 - T7	PIPE CULVERT STANDARD DRAWINGS
T8	SPECIAL 604-A INLET DETAILS
T9	SPECIAL 604-B METAL FRAME AND GRATE DETAILS
T10 - T14	MGS GUARDRAIL STANDARD DRAWINGS
T15 - T45	SIGNING AND PAVEMENT MARKING LAYOUT SHEETS
T46	SPECIAL 633-A SIGN POST
T47	SPECIAL 634-A PAVEMENT MARKING SYMBOLS
T48	SPECIAL 634-B PAVEMENT MARKINGS AND RAISED PAVEMENT MARKINGS
T49 - T56	TEMPORARY TRAFFIC CONTROL STANDARD DRAWINGS
Z1 - Z5	DRAINAGE CROSS SECTIONS



KEY MAP OF CALIFORNIA

TYPE OF CONSTRUCTION:  
Pulverizing, aggregate base, asphalt surfacing,  
drainage, bridge rail, and guardrail

DESIGN DESIGNATIONS:  
ADT (2019) ----- 726  
ADT (2039) ----- 1229  
DHV ----- 184  
D ----- 50%  
T ----- 10%  
V ----- 55 mph  
e(max) ----- 10%

U.S. CUSTOMARY DIMENSIONS:  
Slopes are expressed as RISE:RUN

SPECIFICATIONS:  
"STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS  
AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14"



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PROJECT MANAGER	LEAD DESIGNER
V. AURIEMMA	L. KARSTEN

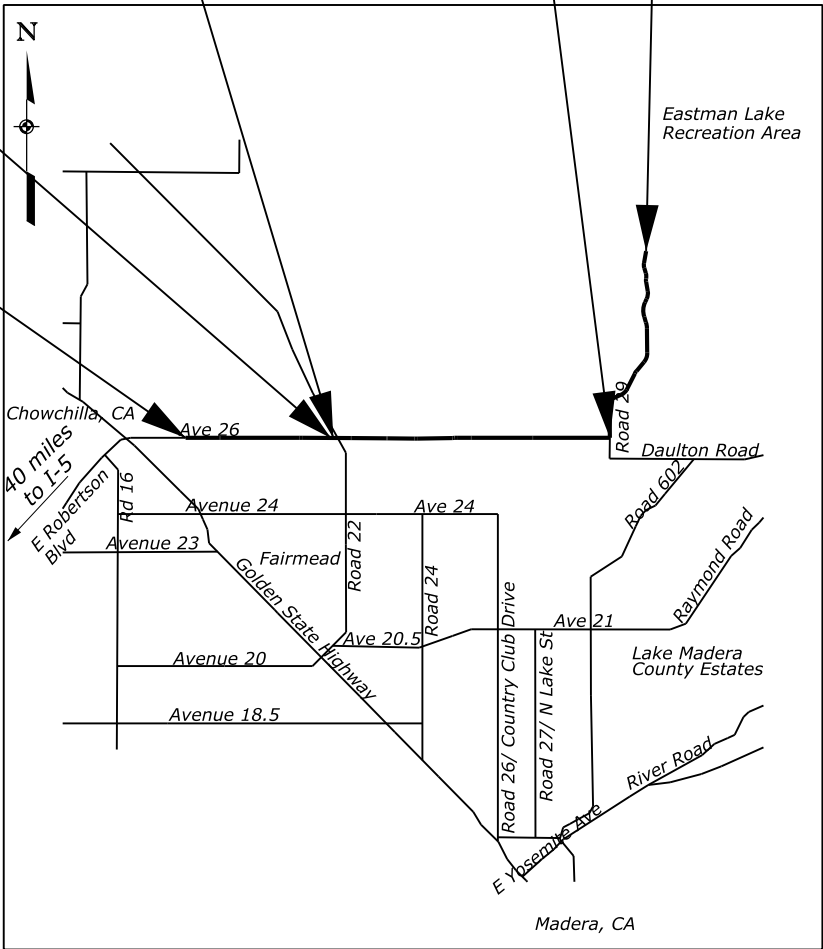
## PLANS FOR PROPOSED CA FLAP MAD CR26(1) ET AL AVENUE 26 AND ROAD 29 EASTMAN LAKE RECREATIONAL AREA MADERA COUNTY SCHEDULE A LENGTH 16.30 miles OPTION X LENGTH 0.05 miles

**STA. 210+40  
AVENUE 26  
SUSPEND SCHEDULE A  
BEGIN OPTION X**

**STA. 213+00  
AVENUE 26  
RESUME SCHEDULE A  
END OPTION X**

**STA. 593+34.76  
END AVENUE 26  
STA. 700+00  
BEGIN ROAD 29**

**STA. 980+00  
ROAD 29  
CA FLAP MAD CR26(1)  
END SCHEDULE A**



ABBREVIATIONS

<b>℄</b>	centerline
<b>Δ</b>	curve delta
<b>Ø</b>	diameter
<b>A</b> abut.	abutment
ADT	average daily traffic
aggr.	aggregate
AH	ahead
alt.	alternate
appr.	approach
asph.	asphalt
<b>B</b> b.f.	both faces
beg.	beginning, begin
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
<b>C</b> CBC	concrete box culvert
c-c	center to center
clr.	clear
CMP	corrugated metal pipe
Co.	county
col.	column
conc.	concrete
constr.	construction
constr. jt.	construction joint
cont.	continuous
corr.	corrugated
cr.	creek
CS	point of curve to spiral
ctrs.	centers
CTSM	contingent sum
culv.	culvert
<b>D</b> decr.	decrement
DHV	design hour volume
DI	drop inlet
dia. or D	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
Dist.	district
DLC	donation land claim
dwg(s).	drawing(s)
<b>E</b> E	east
e	superelevation rate
El. 94.066	elevation with number
elev.	elevation
emb.	embankment
engr(s).	Engineer(s)
EOP	edge of pavement
EQ or eq.	equation
ER	edge of road
et al	and others
et ux	and wife
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
ext.	exterior
<b>F</b> f.f.	fill face
Fed.	federal
FES	flared end section
fin.	finish
ftg.	footing
<b>G</b> ga.	gage (gauge)
galv.	galvanized
gdr.	girder
<b>H</b> hdwl.	headwall
HES	homestead entry survey
hex.	hexagon
horiz.	horizontal
HW	high water
hwy.	highway
<b>I</b> ID	inside diameter
incl.	inclusive, including
incr.	increment
int.	interior
<b>J</b> jt.	joint

<b>L</b> L	length of curve
lam.	lamination
lat.	latitude
long.	longitudinal
LPSM	lump sum
Lt. or LT	left
LW	low water
<b>M</b> mag.	magnetic
maint.	maintenance
matl.	material
max.	maximum
min.	minimum
mon.	monument
mtn(s).	mountain(s)
<b>N</b> N	north
NC	normal crown
neg.	negative
no. or #	number
<b>O</b> o.c.	on centers
o.f.	other face
OD	outside diameter
<b>P</b> PC	point of curve
PCC	point of compound curve
perf.	perforate
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
proj.	project
psi	pounds per square inch
PT	point of tangent
pvmt.	pavement
<b>Q</b> quant., Qty	quantities
<b>R</b> R	radius
R.	range
R/W	right-of-way
rd.	road
rdwy.	roadway
reconst.	reconstruction
reinf.	reinforcement
reqd.	required
res.	reservoir
Res.	Reservation
ret. wall	retaining wall
RH	reference hub
Rt. or RT	right
rte.	route
<b>S</b> S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sec.	section
shldr.	shoulder
spa.	spacing, Spaces or Spaced
spec.	specification
st.	street
ST	point of spiral to tangent
sta.	station
std.	standard
stiff.	stiffener
str.	straight
struc.	structural
sym.	symmetrical
<b>T</b> T	tangent length
T.	township
tan.	tangent
TBM	temporary bench mark
TCE	temporary construction easement
transv.	transverse
TS	point of tangent to spiral
typ.	typical
<b>V</b> V	design speed
vert.	vertical
vph	vehicles per hour
VPI	vertical point of intersection
<b>W</b> W	west

DRAINAGE SYMBOLS

Ditch (Existing, Proposed)

Flow Arrow

Drainage or Small Creek

Lake, Pond or Reservoir

Large Creek

Wetland

River

Spring

Bridge (Existing, Proposed)

Box Culvert (Existing, Proposed)

Pipe Culvert (Existing, Proposed)

With End Sections (Existing, Proposed)

With Headwalls (Existing, Proposed)

With Drop Inlet (Existing, Proposed)

Underdrain (Existing, Proposed)

Riprap Apron (Proposed)

EROSION & SEDIMENT CONTROL SYMBOLS

Bonded Fiber Matrix Mulching

Check Dam

Diversion Berm

Rolled Erosion Control Product

Riprap

Fiber Roll (Ditch and/or Cut Slope)

Silt Fence

Temporary Inlet Protection

Fiber Roll (Slope Protection)

FENCE & CATTLEGUARD SYMBOLS

Fence (Existing, Proposed)

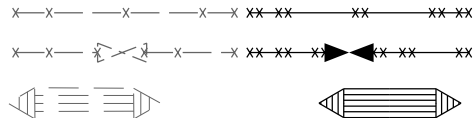
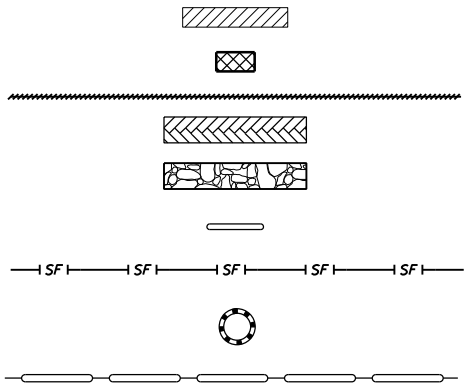
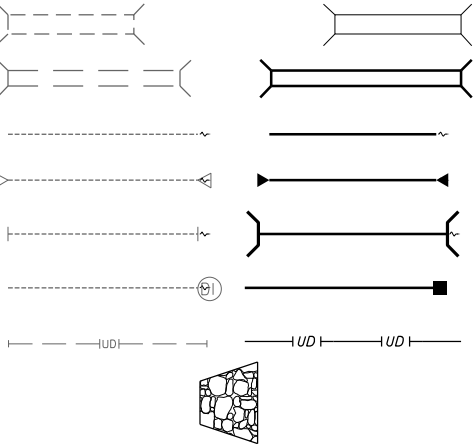
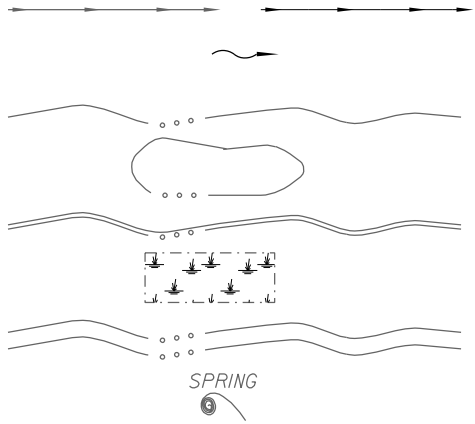
Fence w/ Gate (Existing, Proposed)

Cattleguard (Existing, Proposed)

GEOLOGIC SYMBOLS

Boring Location (Existing, Proposed)

Material Source



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A2

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CONVENTIONAL PLAN  
SYMBOLS AND ABBREVIATIONS  
Sheet 1 of 2

LANDSCAPING & VEGETATION SYMBOLS

Tree

Treeline

Building (Existing, Proposed)

Coordinate Grid Tick

North Arrow

Railroad

Single Track

Double Track

Spot Elevation

Trail

Survey Control Point

RIGHT-OF-WAY SYMBOLS

Boundaries

National

State

County

City

Township or Range Line

Section

1/4 Section

1/16 Section

Bureau of Indian Affairs

Bureau of Land Management

National Forest

National Park

National Wildlife Refuge

Easements

Permanent (Existing)

Permanent (Proposed)

Temporary (Proposed)

Monument (As described)

Parcel Number

Property Line

Right-of-Way Line (Existing)

Right-of-Way Line (Proposed)

Section Corner (Found, Projected)

1/4 Section Corner (Found, Projected)

1/16 Section Corner (Found)

GUARDRAIL, BARRIER & WALL SYMBOLS

Guardrail (Existing, Proposed)

Guardwall (Existing, Proposed)

Median & Side Barrier (Existing, Proposed)

Retaining Wall (Existing, Proposed)

Roadway Symbols

Clearing/Construction Limits

Slope Stake Limits

Top of Cut

Transition

Toe of Fill

Edge of Roadway

Existing

Proposed

Roadway Centerline (With Station ticks)

Roadway Obliteration

SIGN SYMBOLS

Signs

Commercial (Existing, Proposed)

Delineator (Existing, Proposed)

Portable (Proposed)

Post Mounted (Existing, Proposed)

UTILITY SYMBOLS

Utility Symbols

Irrigation Ditch

Underground (Existing, Proposed)

Surface (Existing, Proposed)

Support Pole (Existing, Proposed)

Support Pole Anchor (Existing, Proposed)

Street Light (Existing, Proposed)

Telephone Booth (Existing, Proposed)

Telephone Pedestal (Existing, Proposed)

Underground Utility (Existing, Proposed)

CATV

Fiber Optic

Gas

Oil

Power

Sanitary Sewer

Telephone

Water

Overhead Utility Line (Existing, Proposed)

CATV

Fiber Optic

Power

Telephone

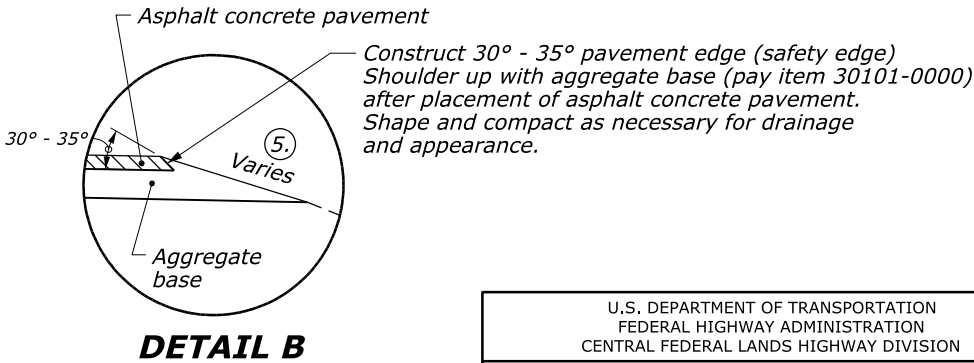
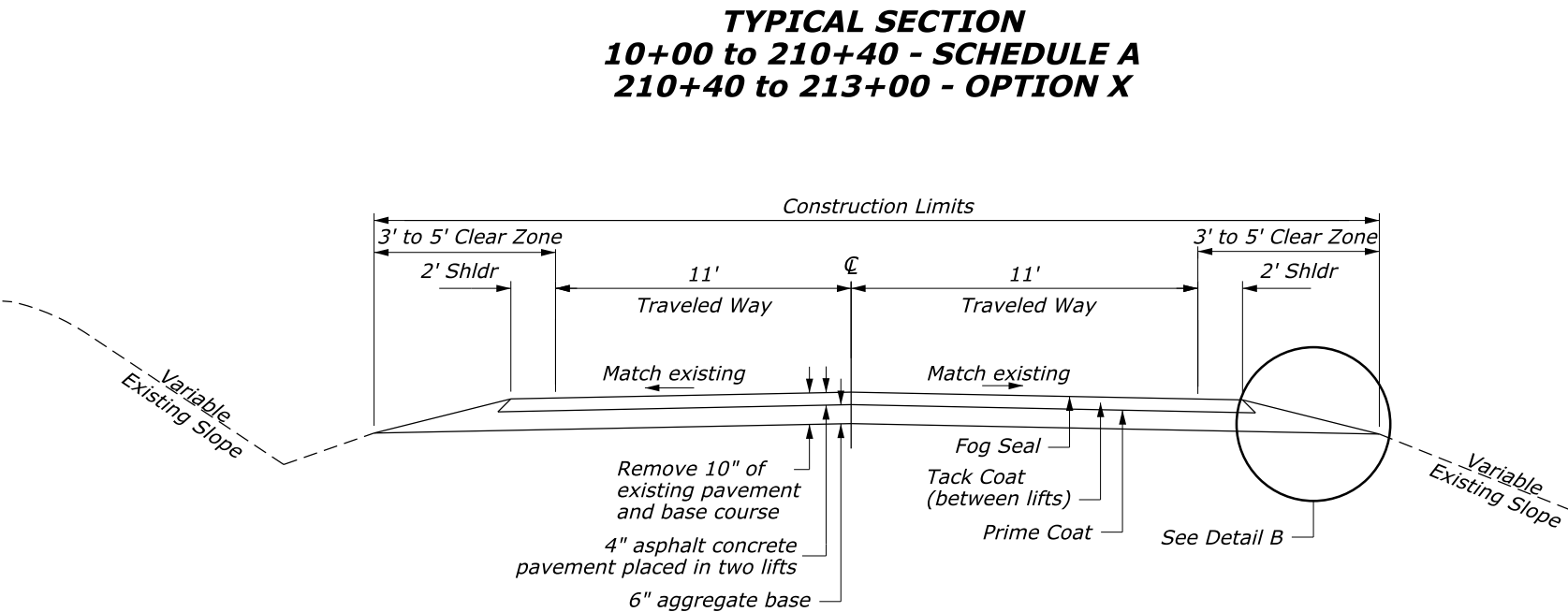
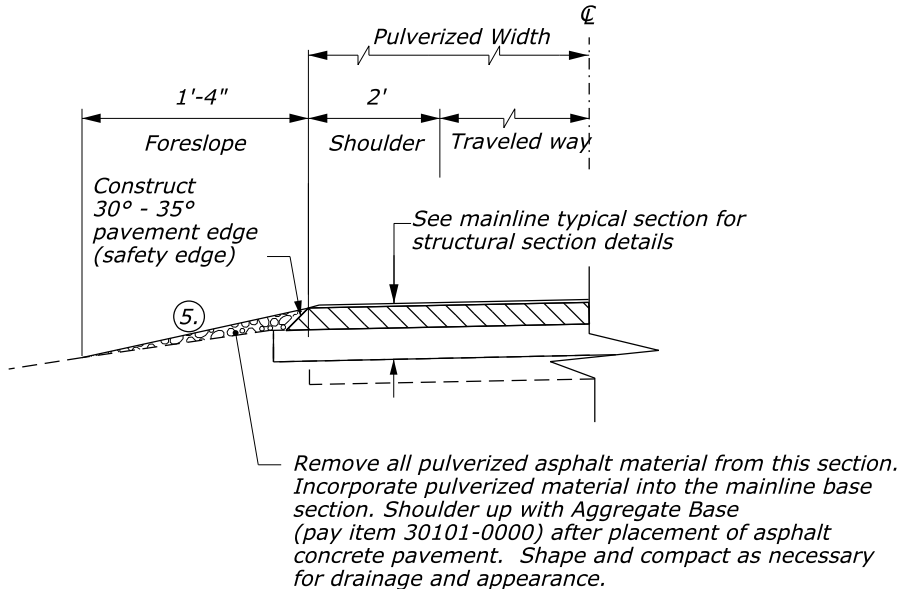
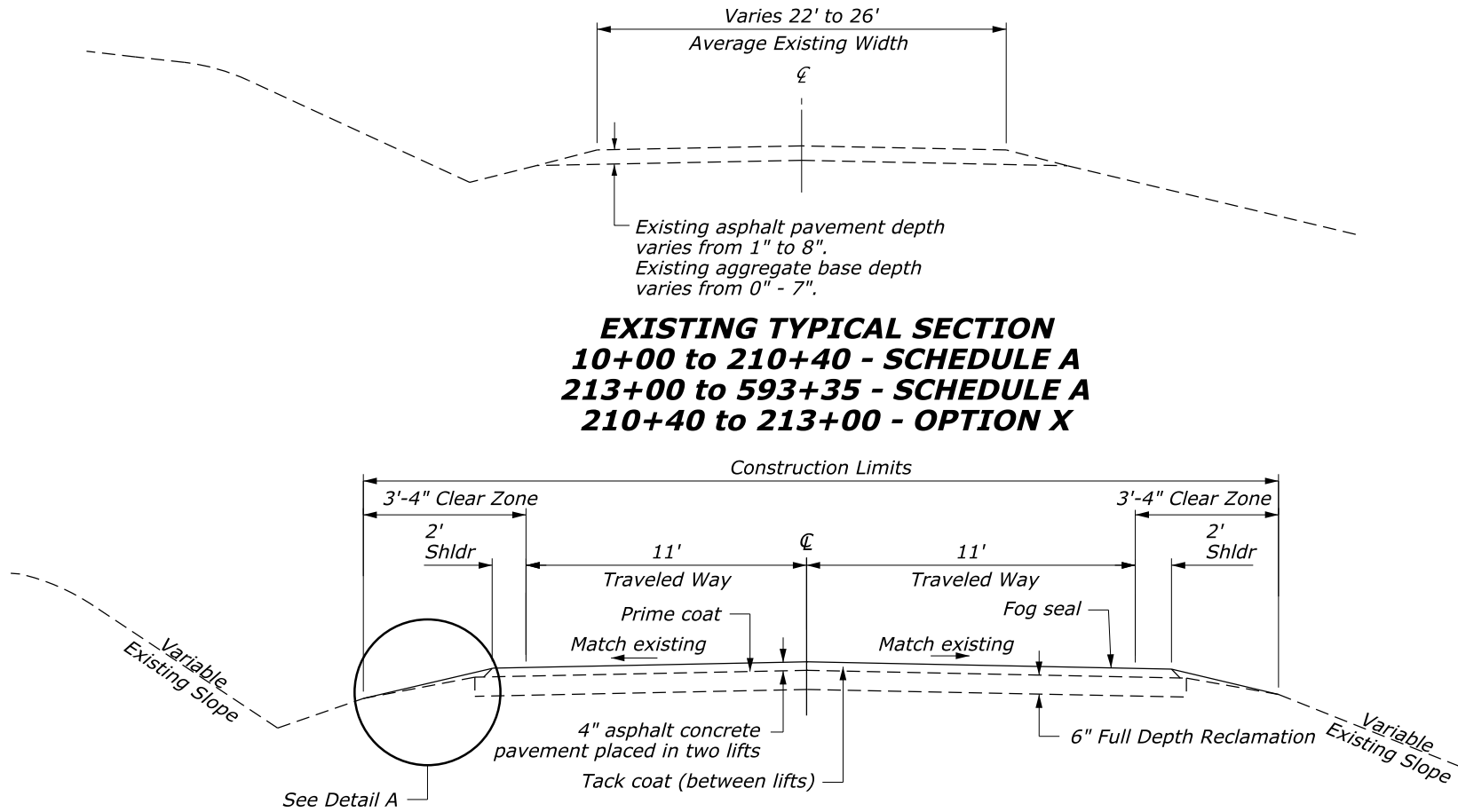
PROJECT SPECIFIC SYMBOLS

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A3

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A5

NOTE:

- Existing superelevated and widened sections are not shown.
- Dimensions shown are approximate and may be varied by the CO.
- Pulverize the existing paved width or as directed by the CO. Pulverize to a depth of 6".
- Place asphalt concrete pavement in two lifts. Apply tack coat to the first lift prior to placing the second lift.
- Construct a 1:4 foreslope unless otherwise directed by the CO. Steepen the foreslopes as necessary, but not steeper than 1:2, to stay on the existing bench.
- Spread pulverized asphalt and pave across the specified width in all areas less than 26 ft in width. Add additional aggregate base if necessary.



**TYPICAL SECTION**  
**213+00 to 593+35 - SCHEDULE A**

NO SCALE

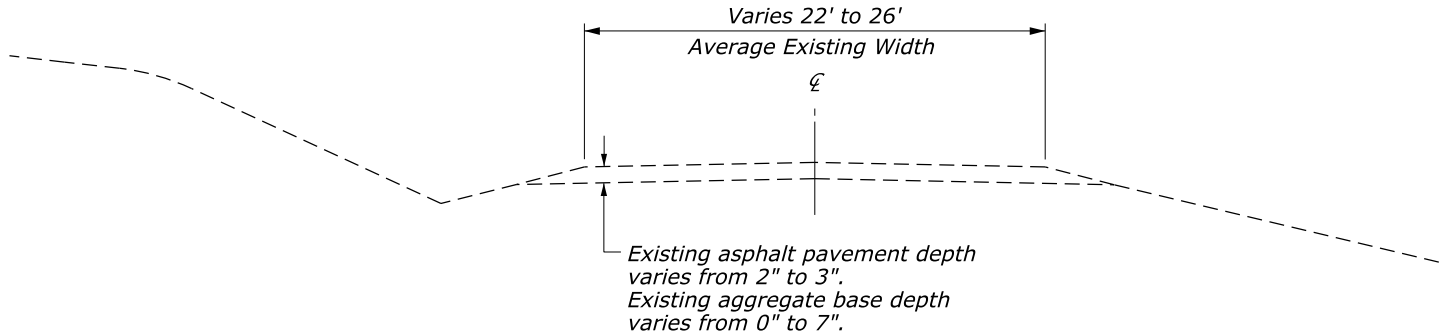
**TYPICAL SECTIONS**  
**MAINLINE**  
**AVENUE 26**

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

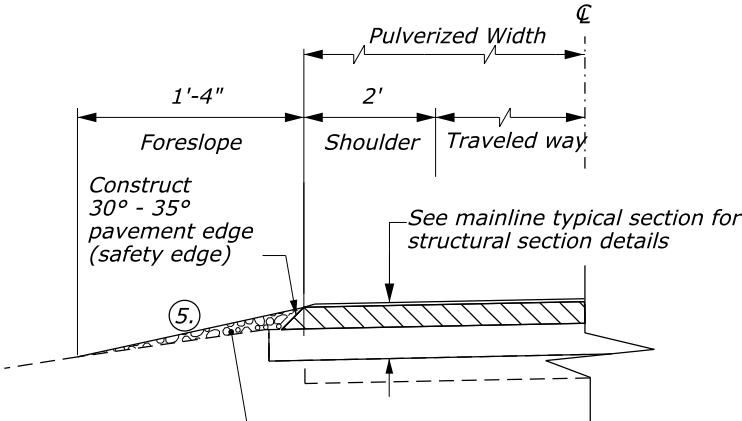
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A6

NOTE:

- Existing superelevated and widened sections are not shown.
- Dimensions shown are approximate and may be varied by the CO.
- Pulverize the existing paved width or as directed by the CO. Pulverize to a depth of 6".
- Place asphalt concrete pavement in two lifts. Apply tack coat to the first lift prior to placing the second lift.
- Construct a 1:4 foreslope unless otherwise directed by the CO. Steepen the foreslopes as necessary, but not steeper than 1:2, to stay on the existing bench.
- Spread pulverized asphalt and pave across the specified width in all areas less than 26 ft in width. Add additional aggregate base if necessary.

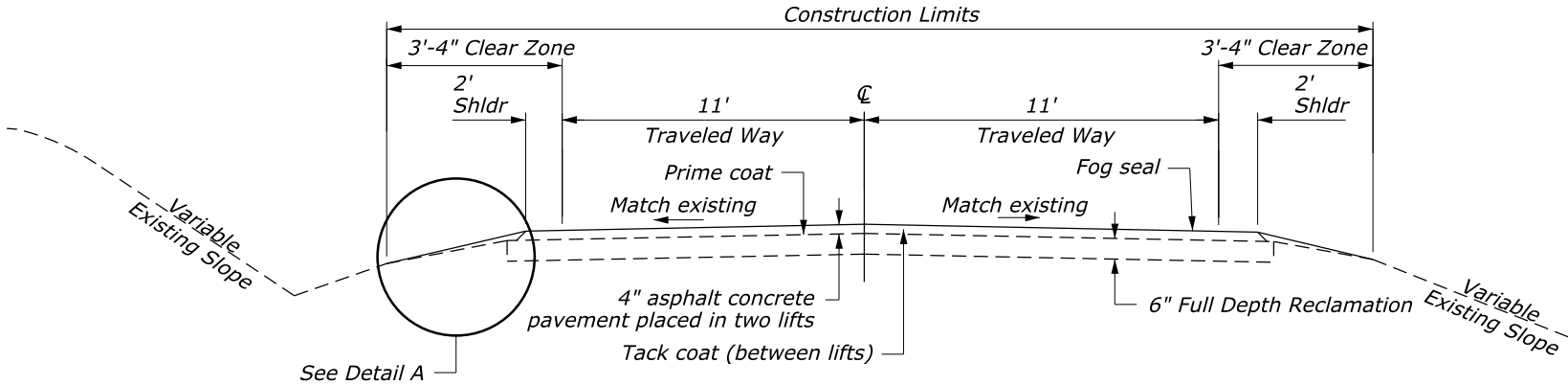


EXISTING TYPICAL SECTION  
700+00 to 980+00 - SCHEDULE A



Remove all pulverized asphalt material from this section. Incorporate pulverized material into the mainline base section. Shoulder up with Aggregate Base (pay item 30101-0000) after placement of asphalt concrete pavement. Shape and compact as necessary for drainage and appearance.

DETAIL A



TYPICAL SECTION  
700+00 to 980+00 - SCHEDULE A

LENGTH OF PROJECT

Station to Station	Roadway (ft)	Schedule/Option
10+00 to 210+40	20,040	Schedule A
210+40 to 213+00	260	Option X
213+00 to 593+34.76	38,034.76	Schedule A
700+00 to 980+00	28,000	Schedule A
TOTALS (ft)	86,074.76	Schedule A
TOTALS (miles)	16.30	Schedule A
TOTALS (ft)	260	Option X
TOTALS (miles)	0.05	Option X

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

TYPICAL SECTIONS  
MAINLINE  
ROAD 29

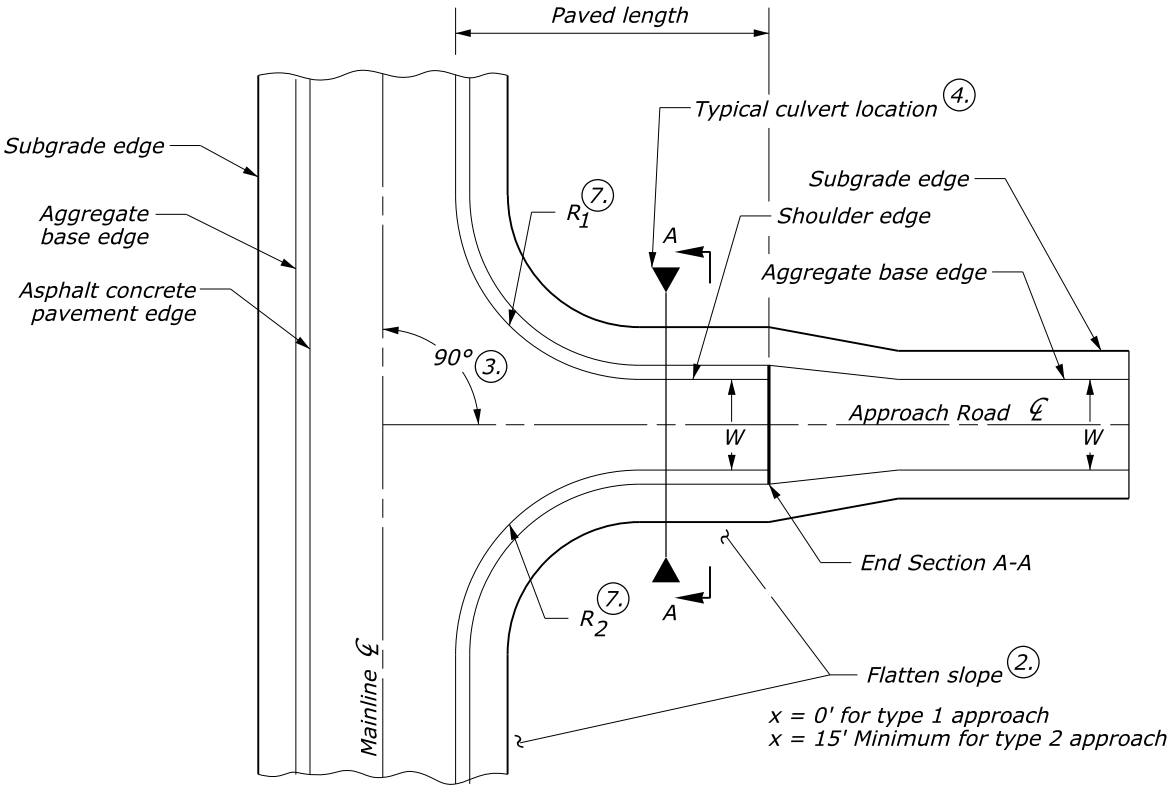
NO SCALE



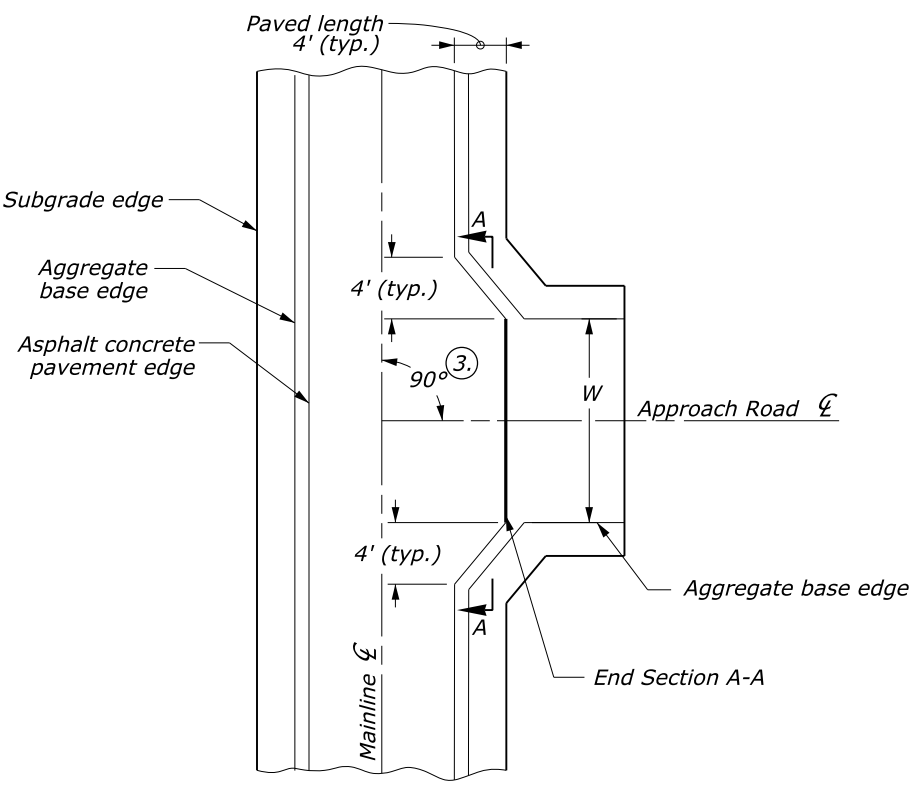
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A7

NOTE:

- Actual locations to be field verified. See Approach Road Summary.
- Construct cut and fill slopes for approach roads to match with mainline roadway construction.
- Under special conditions, the approach road angle shown may be varied  $\pm 20^\circ$ .
- Place culverts at the end of the approach road radius to provide a flatter foreslope and increased mainline recovery area. When a culvert must be placed within the clear zone of the mainline roadway, use safety end sections (see Standard Drawing 602-9).
- Apply the normal crown to approach roads with widths greater than 15 feet.
- Construct approach roads with landing areas having grades within  $\pm 2\%$ . In snowy regions restrict this to a 0% to -2% grade. Under special conditions, use 6% maximum.
- Vary radii to fit unusual field conditions. Do not reduce existing radii or widths.  $R_1$  is on the left side of the approach road centerline.



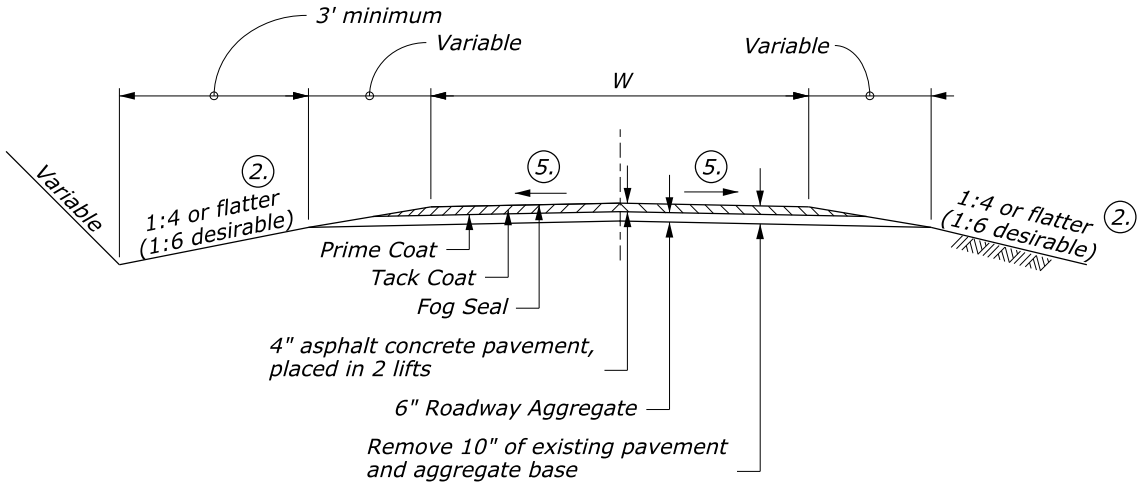
APPROACH ROAD  
TYPES 1 & 2  
TYPICAL PLAN



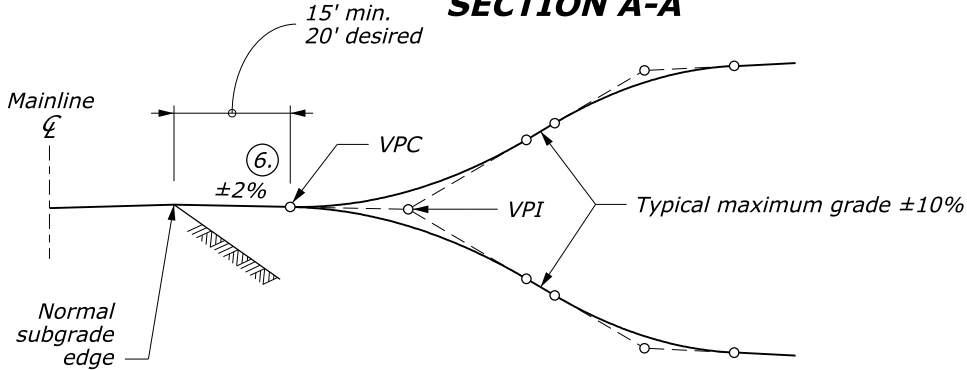
APPROACH ROAD  
TYPE 3  
TYPICAL PLAN

TYPE	CLASS	MIN. WIDTH W (ft)	MIN. RADIUS R (ft)	SAMPLE APPLICATION
1	A	12	15	Field Access
1	B	14	25	Minimum 1-Way Use
1	C	16	25	Farm Equipment
1	D	16	40	Logging Truck Use
2	A	18	25	Minimum 2-Way Use
2	B	20	25	
2	C	22	40	
2	D	24	40	
2	E	28	50	
3	A	*	N/A	Paved apron

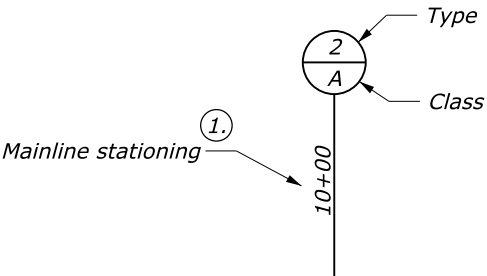
\* Match existing



SECTION A-A



TYPICAL PROFILE



Example of symbol showing standard approach road connection on plan and profile sheet

TYPICAL SYMBOL

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

TYPICAL SECTIONS  
APPROACH ROADS

NO SCALE



\_User: Leslie.Karsten\_

9:39:38 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C1.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C1

**10+00  
AVENUE 26  
BEGIN CA FLAP MAD CR26(1)  
SCHEDULE A**

APN: 026-150-017  
FAGUNES DAIRY

APN: 026-150-018  
FAGUNES DAIRY

APN: 026-150-019  
FAGUNES DAIRY

APN: 026-210-001  
CREEKSIDE LAND COMPANY LLC

APN: 026-150-020  
TAYLOR VINCENT TRACY

APN: 026-210-001  
CREEKSIDE LAND COMPANY LLC

Sta. 30+36  
Remove existing culvert  
Install 18"x46' CMP  
End Section, Lt. & Rt.  
50' of ditch excavation, Lt. & Rt.

Install fiber rolls at culvert inlet.  
See Detail C157-55

Install check dams  
See Detail C157-53

**AVENUE 26  
PLAN SHEET  
10+00 to 38+00**







\_User: Leslie.Karsten\_

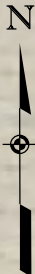
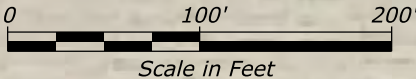
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C3

APN: 026-150-004  
CREEKSIDE LAND Co. LLC

65+00 70+00 75+00 76+52 80+00

26-220-002  
AGAN TRUSTEE ETAL

APN: 026-220-002  
MARY ANN BARRAGAN TRUSTEE



N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C3.dgn

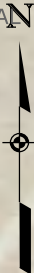
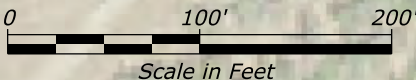
9:45:12 AM

3/29/2018

80+00 82+76 85+00 90+00 95+00

26-220-002  
RAGAN TRUSTEE ETAL

APN: 026-220-002  
MARY ANN BARRAGAN TRUSTEE ETAL



Sta. 85+00 to 95+00, Lt. & Rt.  
Install Fiber Rolls  
See Detail C157-55

Sta. 87+25 - 91+02, Rt.  
Remove existing bridge rail. Install  
bridge rail, MGS transition rail, and  
MGS tangent terminal sections.  
See S Sheets and Standard 617-40

Do not disturb existing metal scuppers

Sta. 87+46 - 91+24, Lt.  
Remove existing bridge rail. Install  
bridge rail, MGS transition rail, and  
MGS tangent terminal sections.  
See S Sheets and Standard 617-40

Do not disturb existing metal scuppers

Do not disturb existing metal scuppers

**AVENUE 26  
PLAN SHEET  
66+00 to 94+00**



\_User: Leslie.Karsten\_

9:46:53 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C4.dgn

3/29/2018

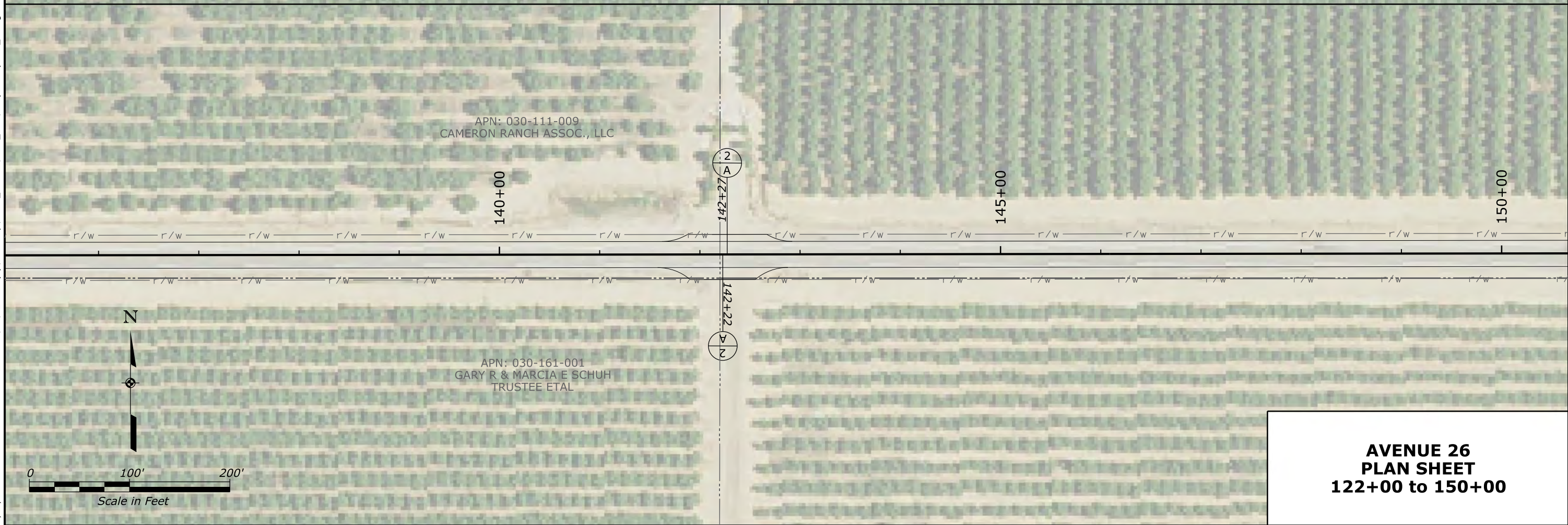
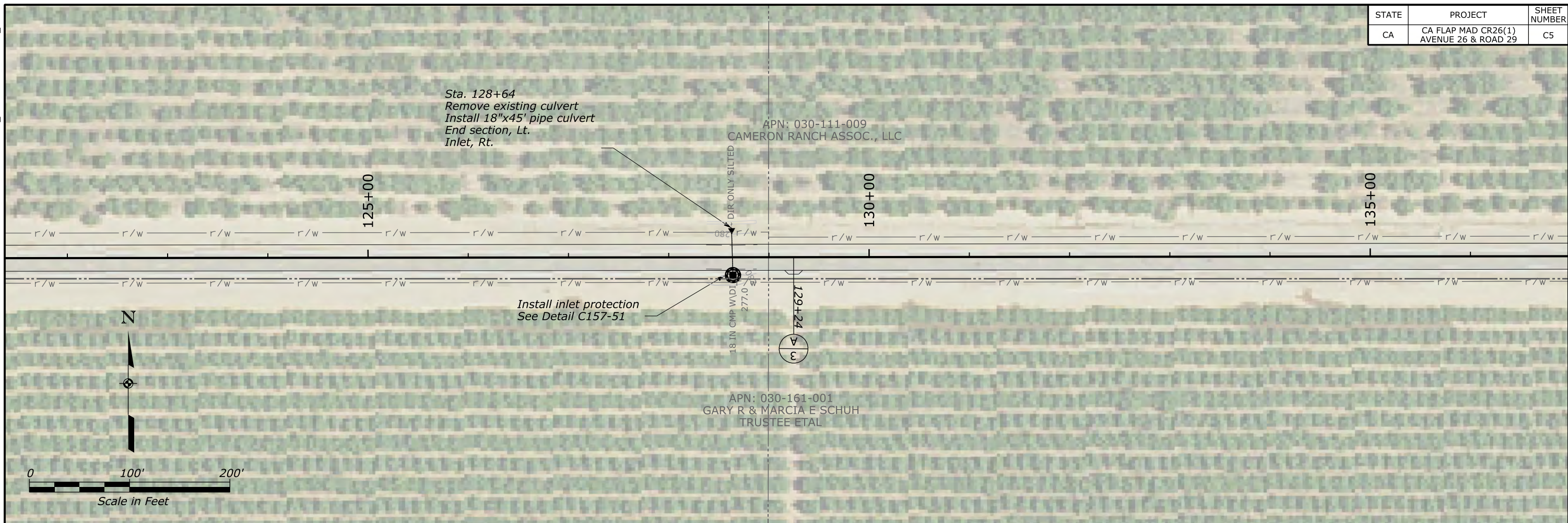
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C4





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C5

User: Leslie.Karsten\_





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C6



**AVENUE 26  
PLAN SHEET  
150+00 to 178+00**

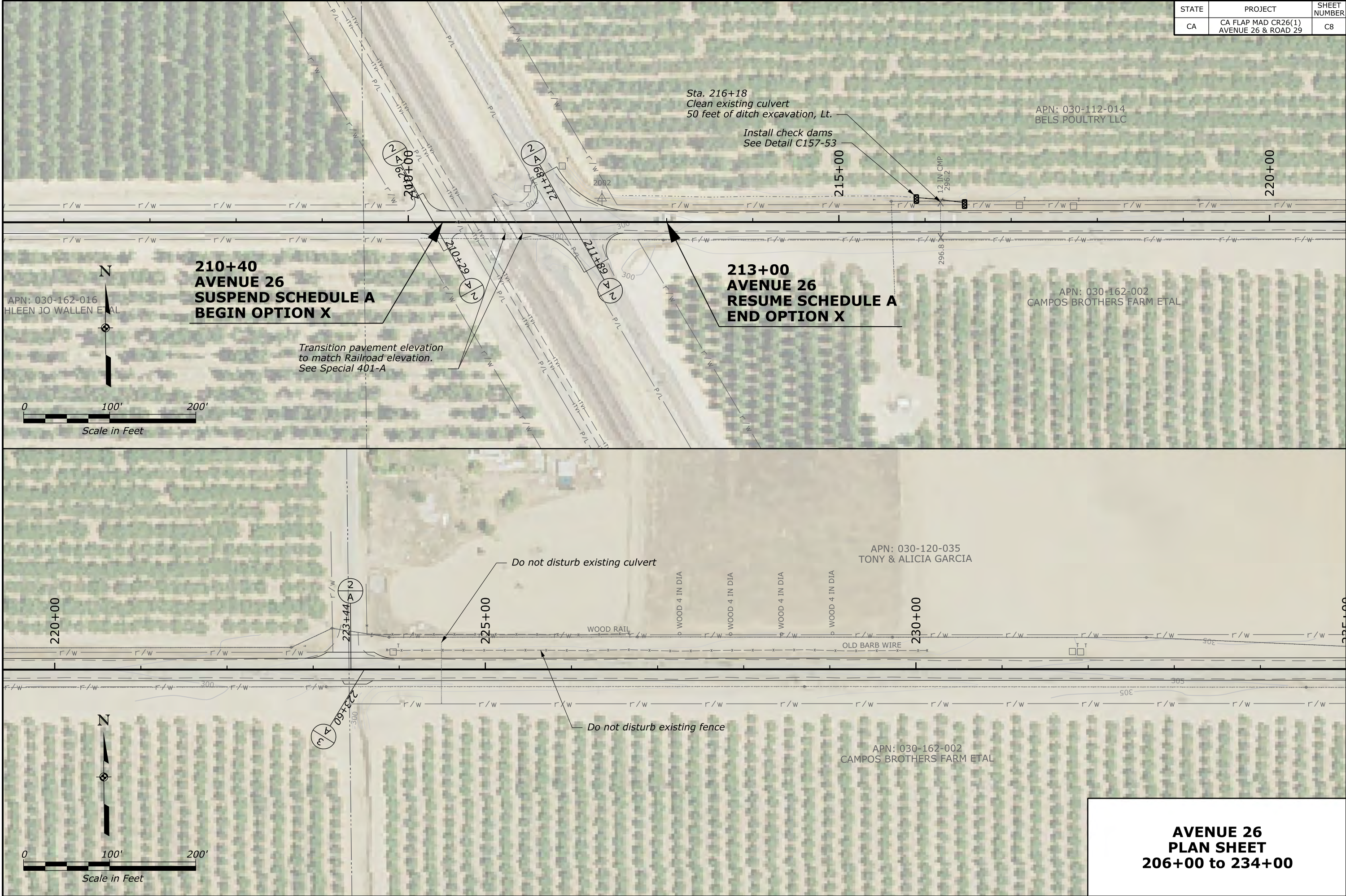


STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C7





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C8



**AVENUE 26  
PLAN SHEET  
206+00 to 234+00**







\_User: Leslie.Karsten\_

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C10



9:58:18 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C10.dgn

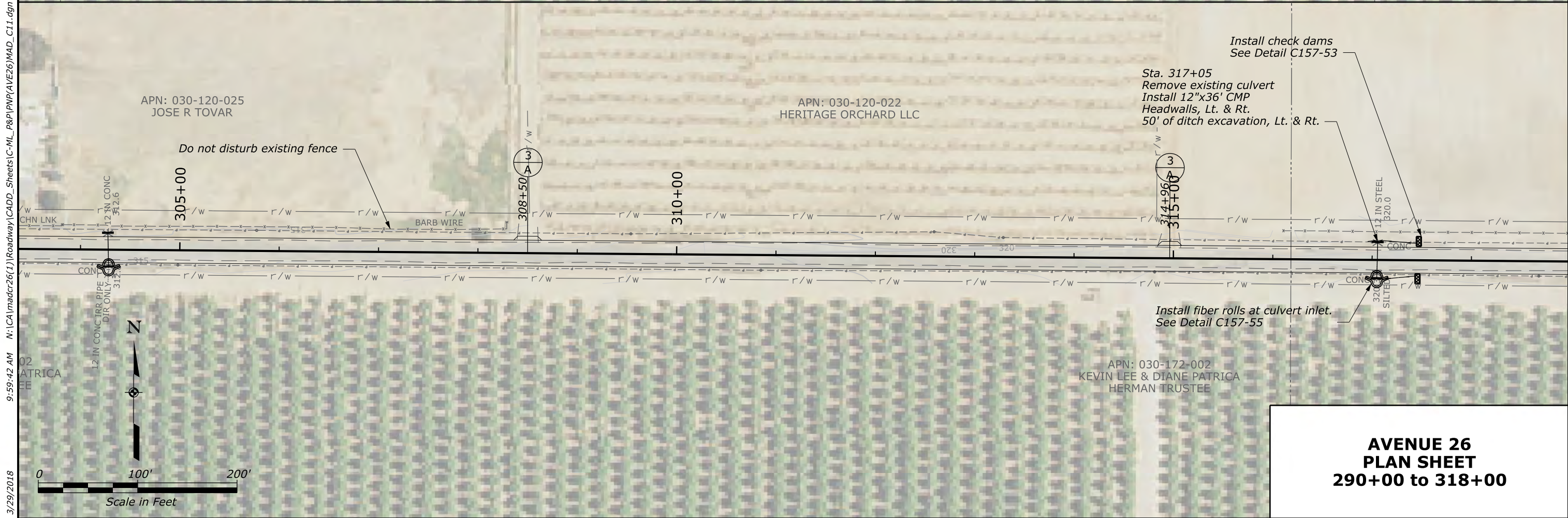


**AVENUE 26  
PLAN SHEET  
262+00 to 290+00**

3/29/2018



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C11



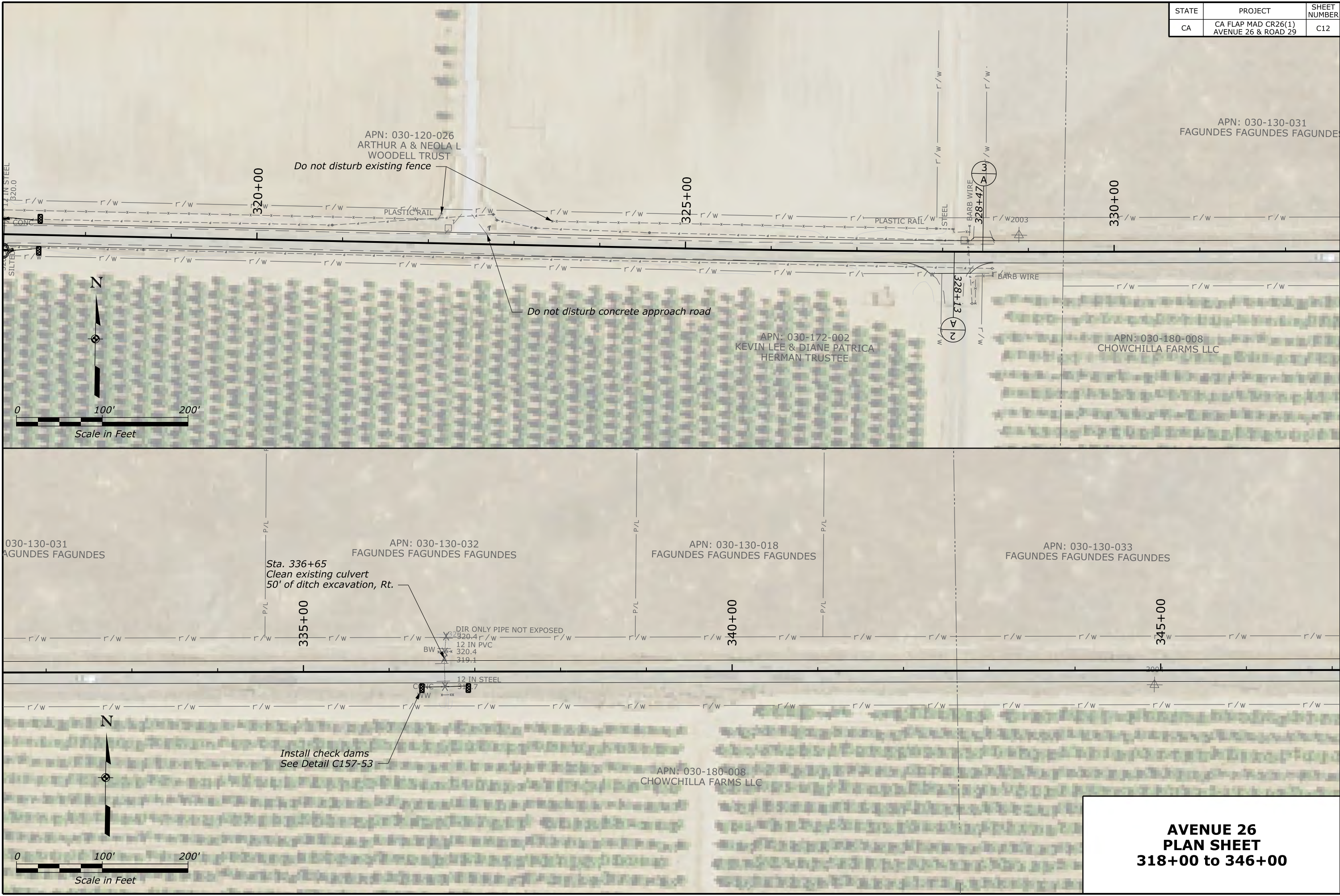


\_User: Leslie.Karsten\_

10:01:13 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)\MAD\_C12.dgn

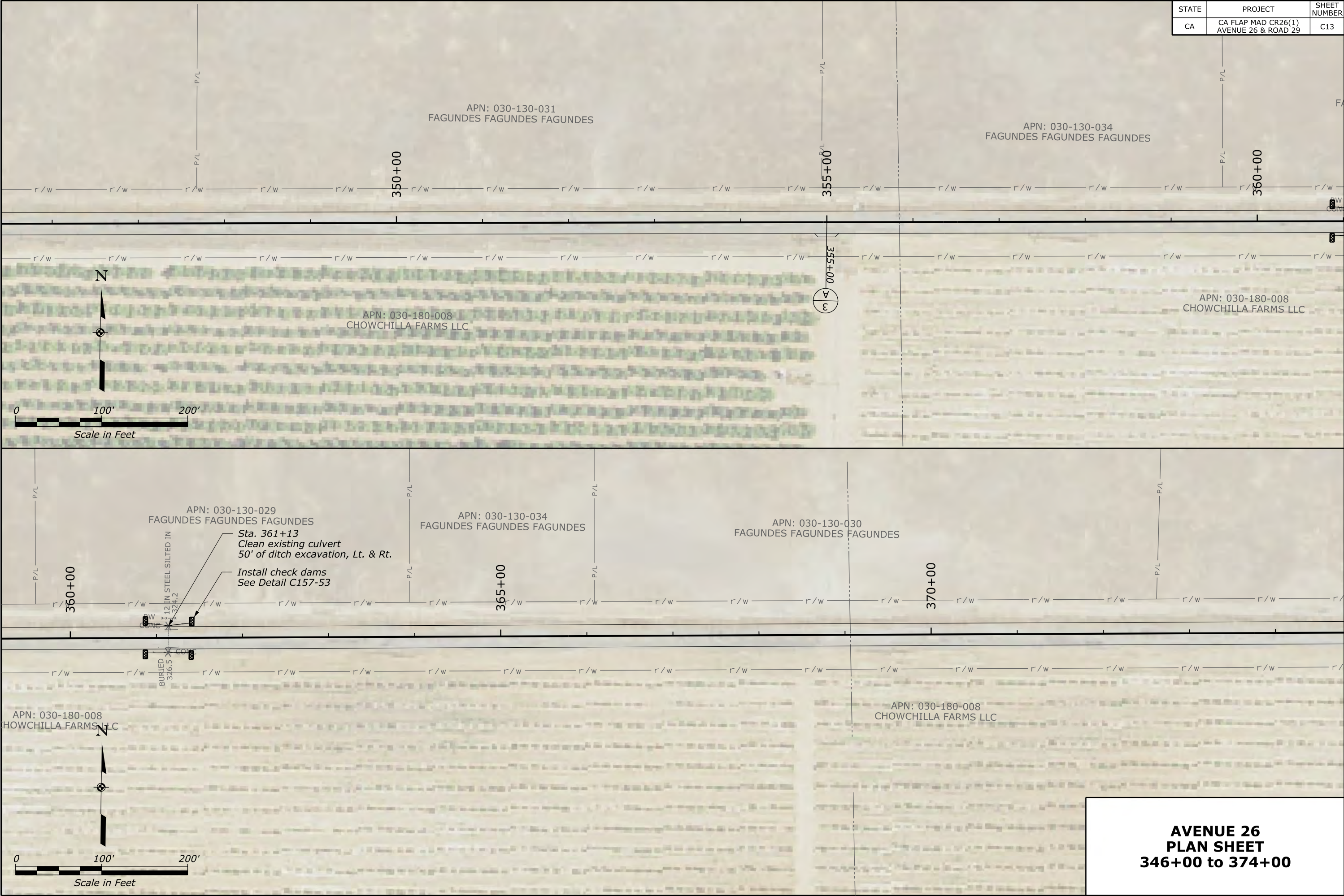
3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C12





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C13



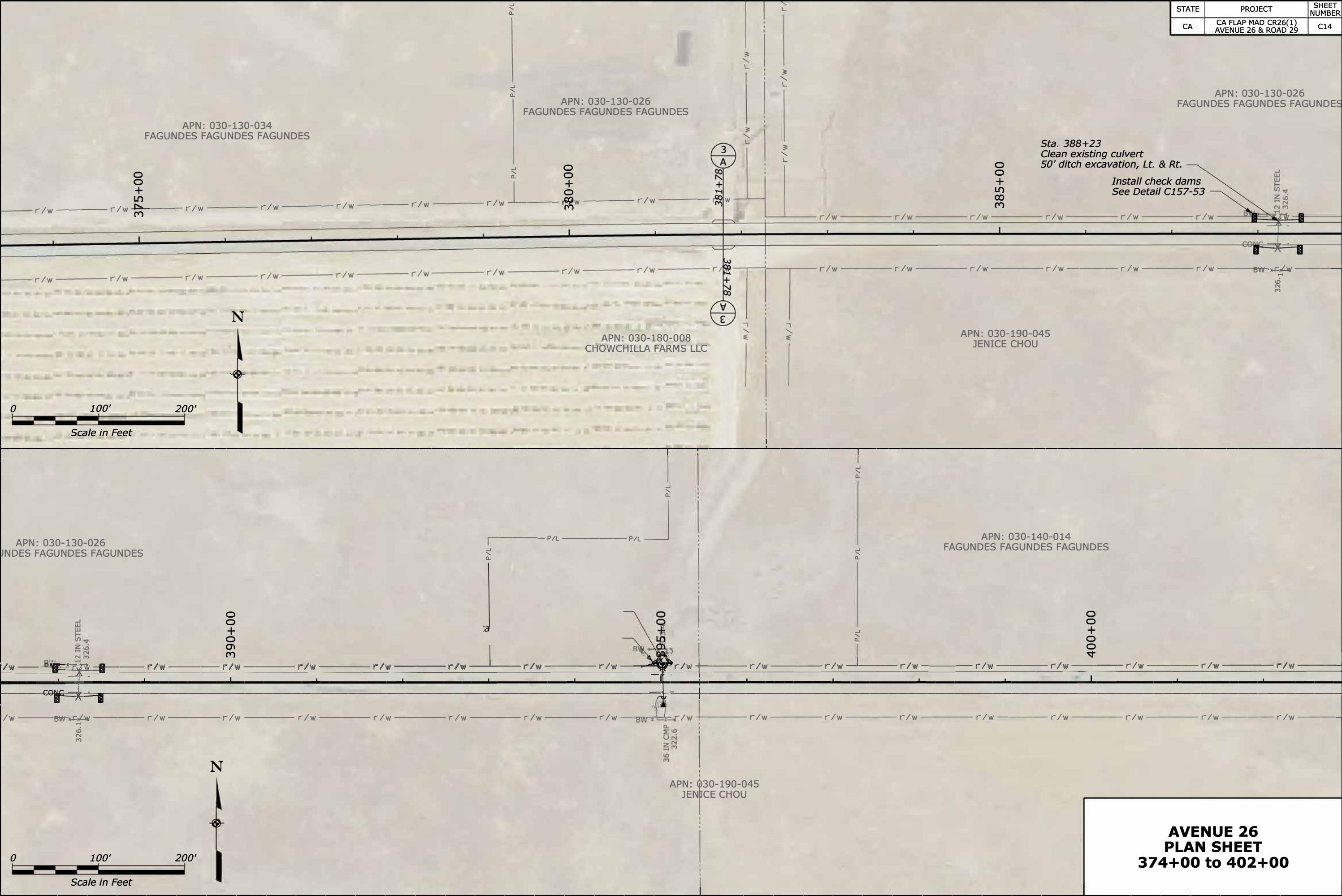


\_User: Leslie.Karsten\_

10:06:14 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)\MAD\_C14.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C14



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C15

Sta. 405+17  
Remove existing culvert  
Install 18"x40' CMP  
End sections, Lt. & Rt.

Sta. 410+74 - 412+58, Lt. & Rt.  
Remove existing guardrail and bridge  
rail. Install bridge rail, MGS transition  
rail, and MGS flared terminal sections.  
See S Sheets and Standard 617-39  
Do not disturb existing metal scuppers

APN: 030-140-014  
FAGUNDES FAGUNDES FAGUNDES

- Install fiber rolls at culvert inlet.  
See Detail C157-55

Do not disturb existing metal scuppers  
APN: 030-190-045  
JENICE CHOU  
Sta. 410+50 to 412+75  
Install fiber rolls  
See Detail C157-55

APN: 030-190-049 Do not disturb existing metal scuppers

APN: 030-190-047  
CAYIOUS JR & MAE KING

- Do not disturb existing metal scuppers

Sta. 423+60  
Clean existing culvert  
50' of ditch excavation, Lt. & Rt.

Install check dams  
See Detail C157-53

APN: 030-140-008  
FAGUNDES FAGUNDES FAGUNDES

APN: 030-190-047  
CAYIOUS JR & MAE KING

**AVENUE 26  
PLAN SHEET  
402+00 to 430+00**

User: Leslie.Karsten\_

10:16:53 AM N: |CA|madcr26(1)|Roadway|CADD\_Sheets|C-ML\_P&P|PNP(AVE26)MAD\_C15.dgn

3/29/2018

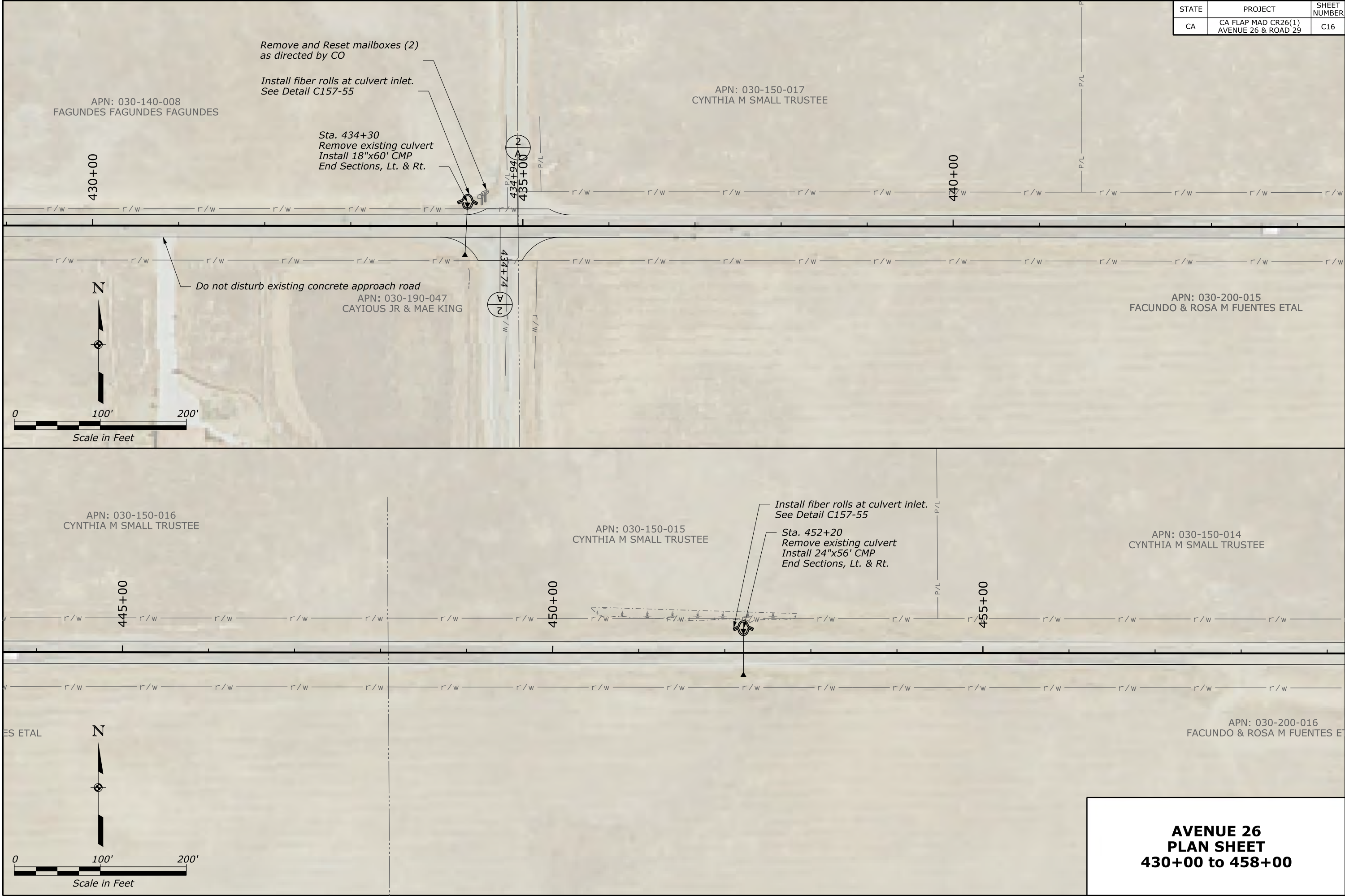


\_User: Leslie.Karsten\_

10:19:15 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C16.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C16



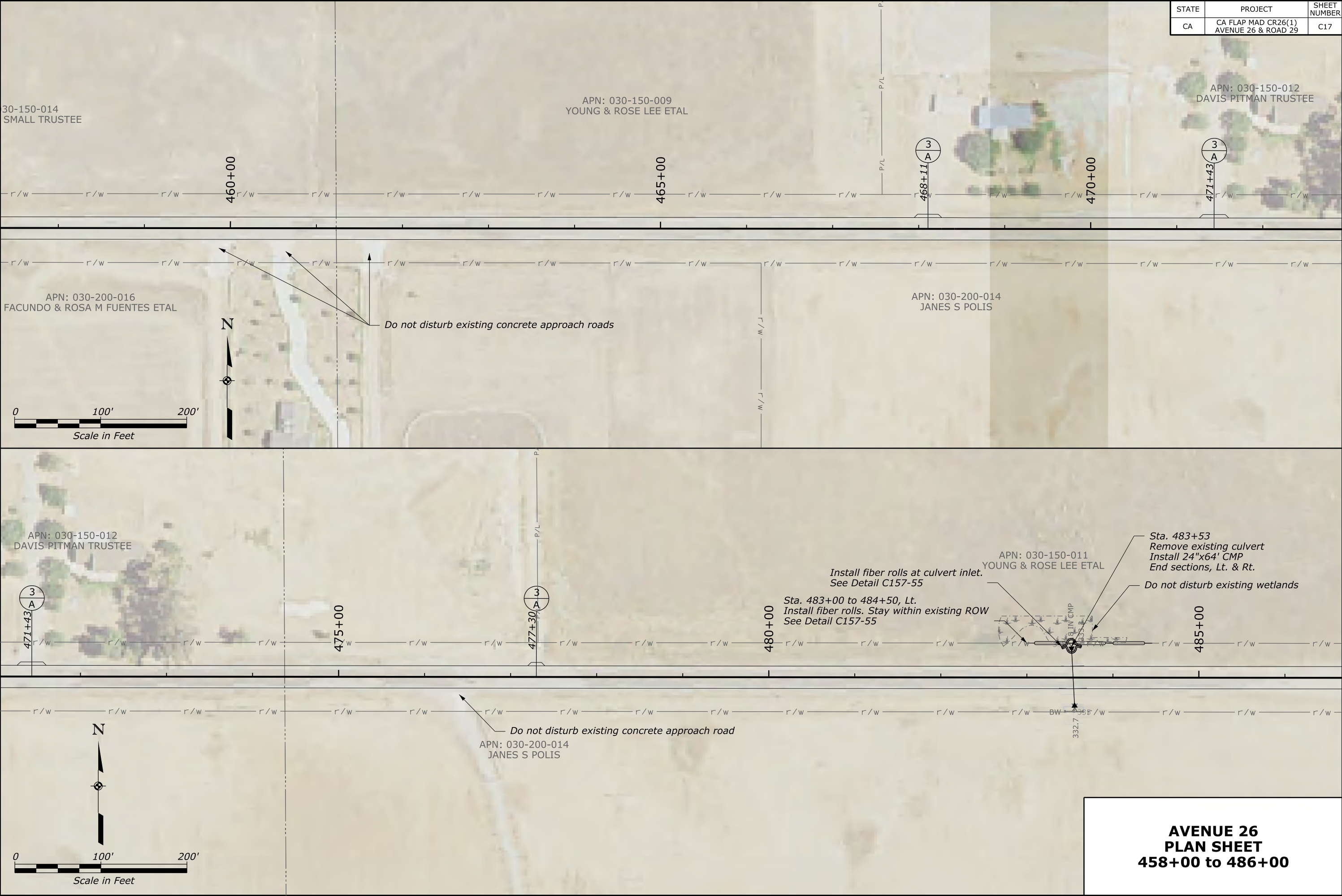


\_User: Leslie.Karsten\_

10:21:23 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-M\_L\_P&P\PNP(AVE26)MAD\_C17.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C17



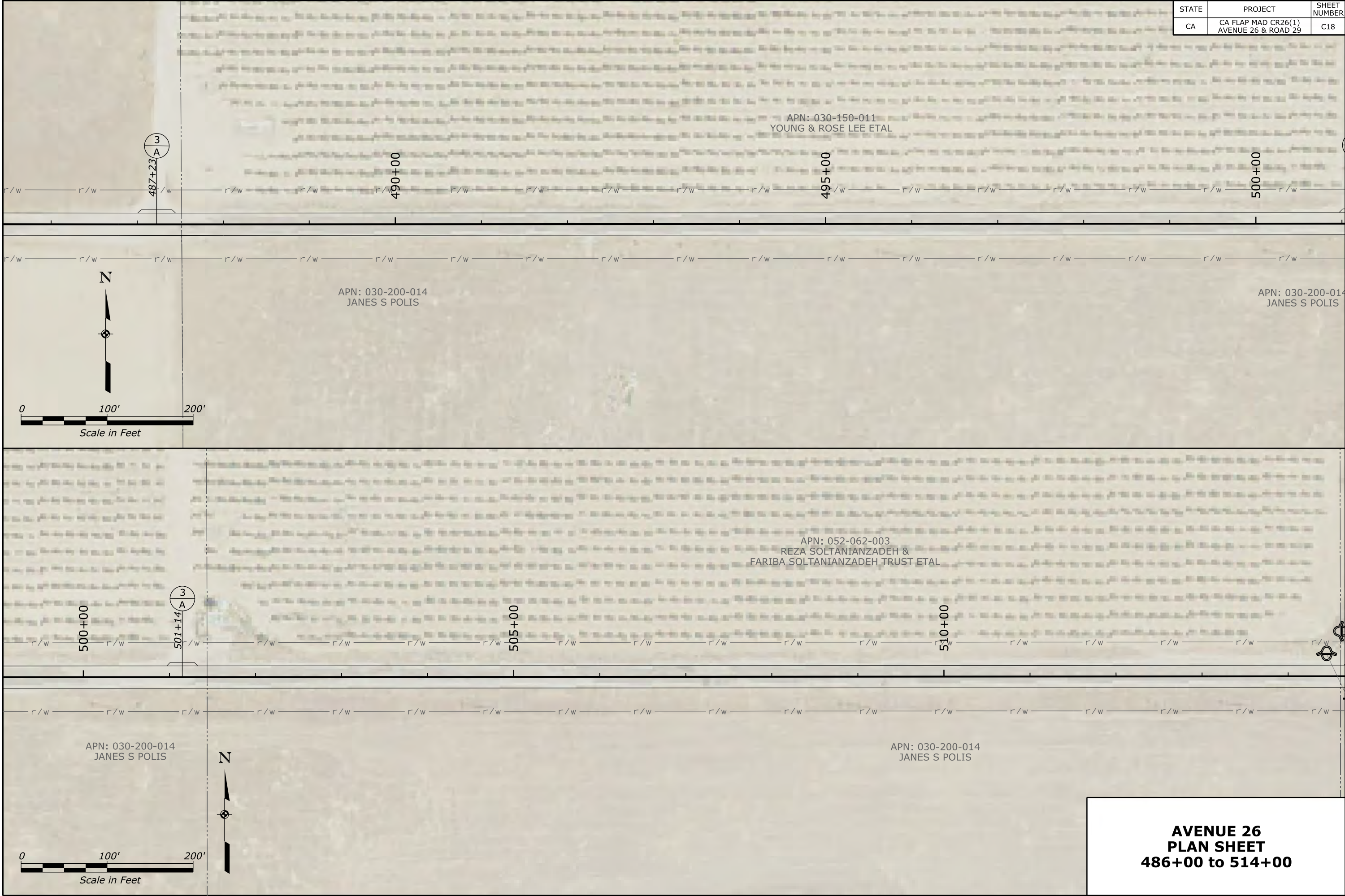


\_User: Leslie.Karsten\_

10:23:31 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C18.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C18



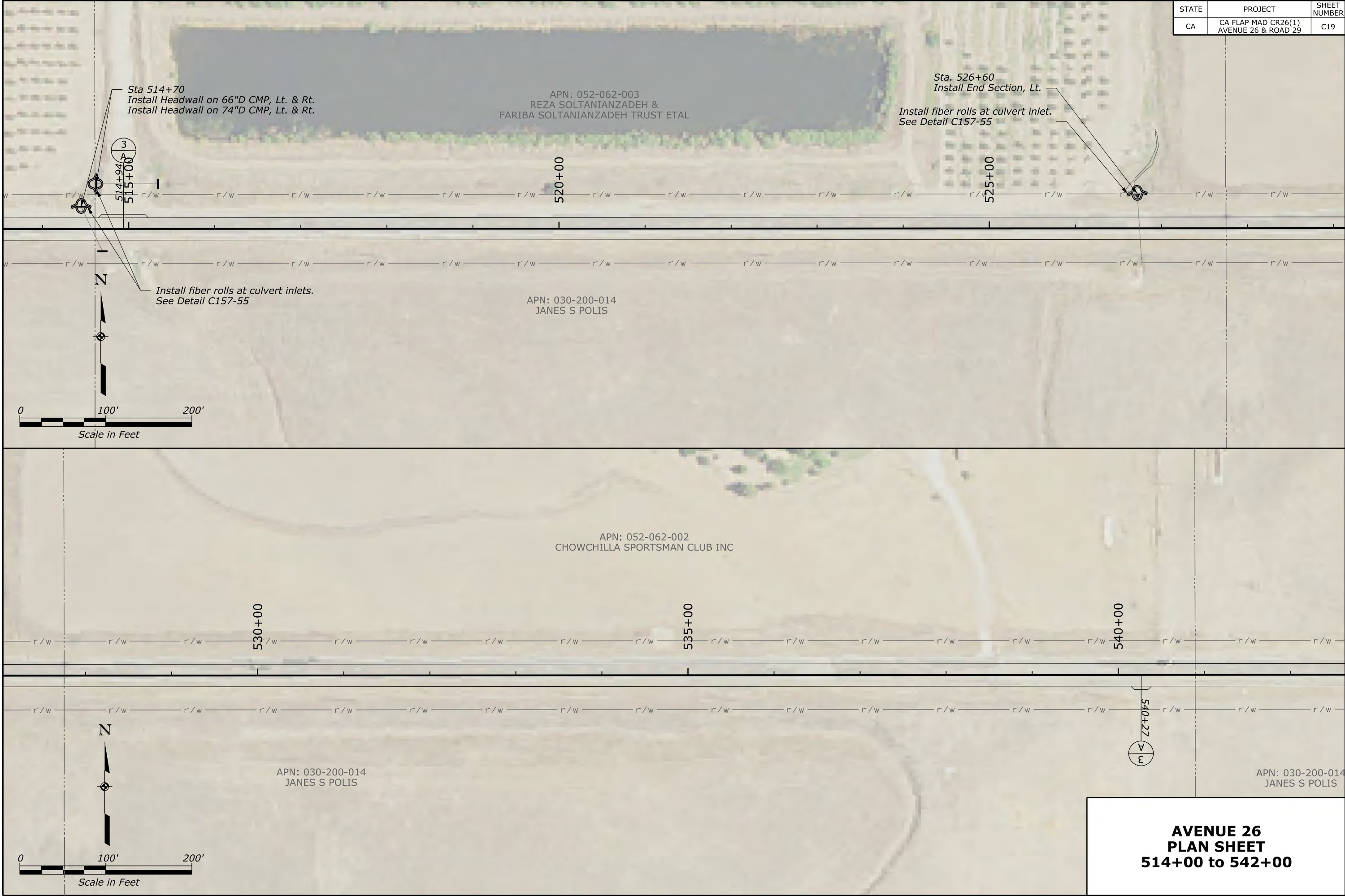


\_User: Leslie.Karsten\_

10:24:48 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-M\_L\_P&P\PNP(AVE26)MAD\_C19.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C19



**AVENUE 26  
PLAN SHEET  
514+00 to 542+00**



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C20

APN: 052-064-005  
KENNETH E & MILLIE R KRAUSE TRUSTEE

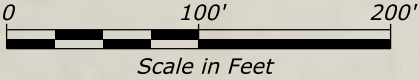
545+00

550+00

555+00

APN: 030-200-014  
JANES S POLIS

APN: 030-200-014  
JANES S POLIS



APN: 052-064-006  
KENNETH E & MILLIE R KRAUSE TRUSTEE

Sta 562+25  
Install Headwalls for 60" CMP, Lt. & Rt.

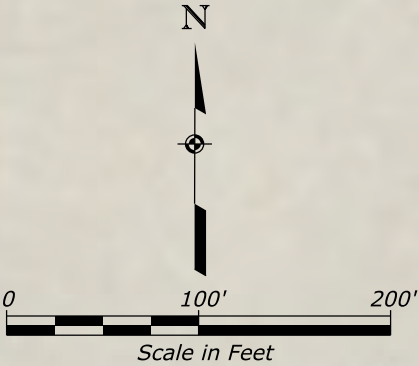
Install fiber rolls at culvert inlet.  
See Detail C157-55

560+00

565+00

570+00

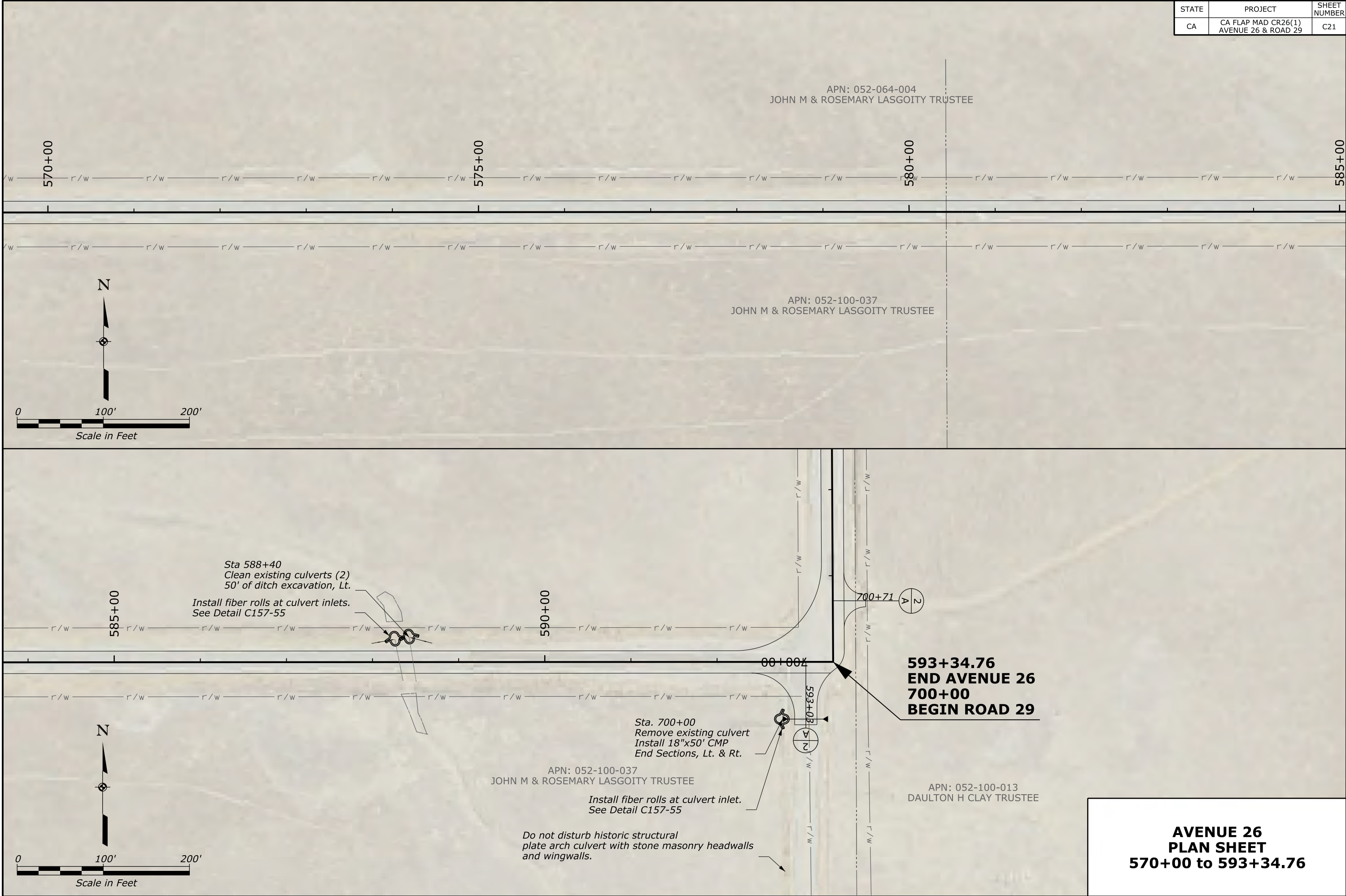
APN: 052-100-037  
JOHN M & ROSEMARY LASGOITY TRUSTEE



**AVENUE 26  
PLAN SHEET  
542+00 to 570+00**



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C21



**AVENUE 26  
PLAN SHEET  
570+00 to 593+34.76**

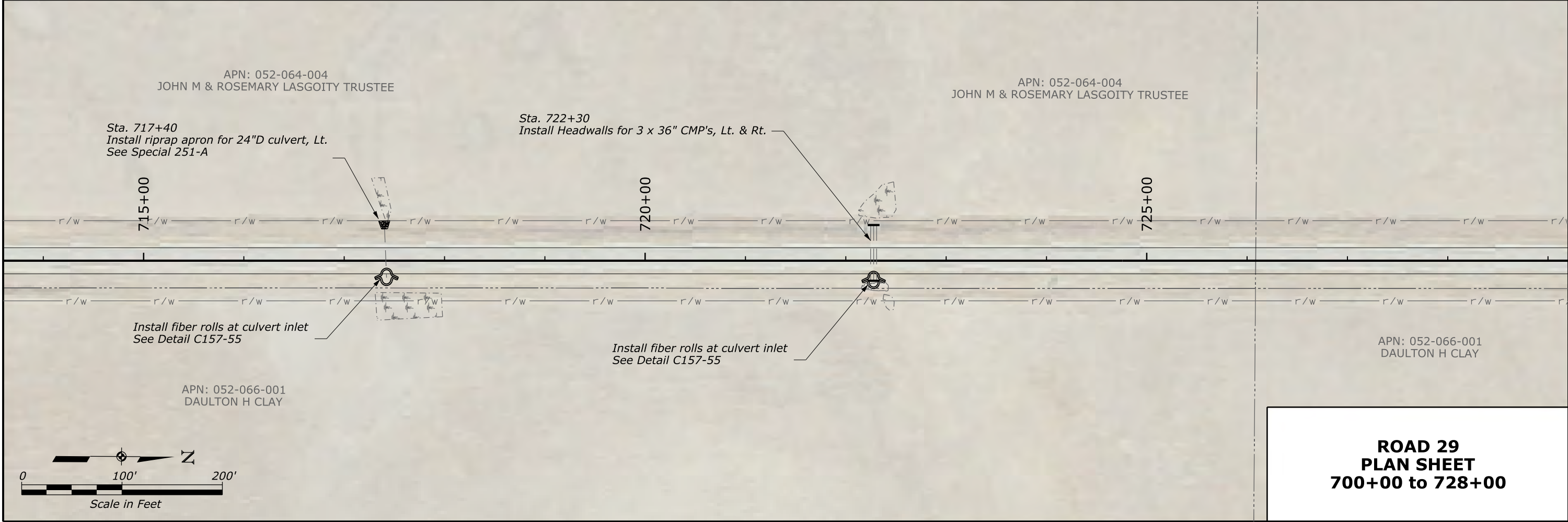
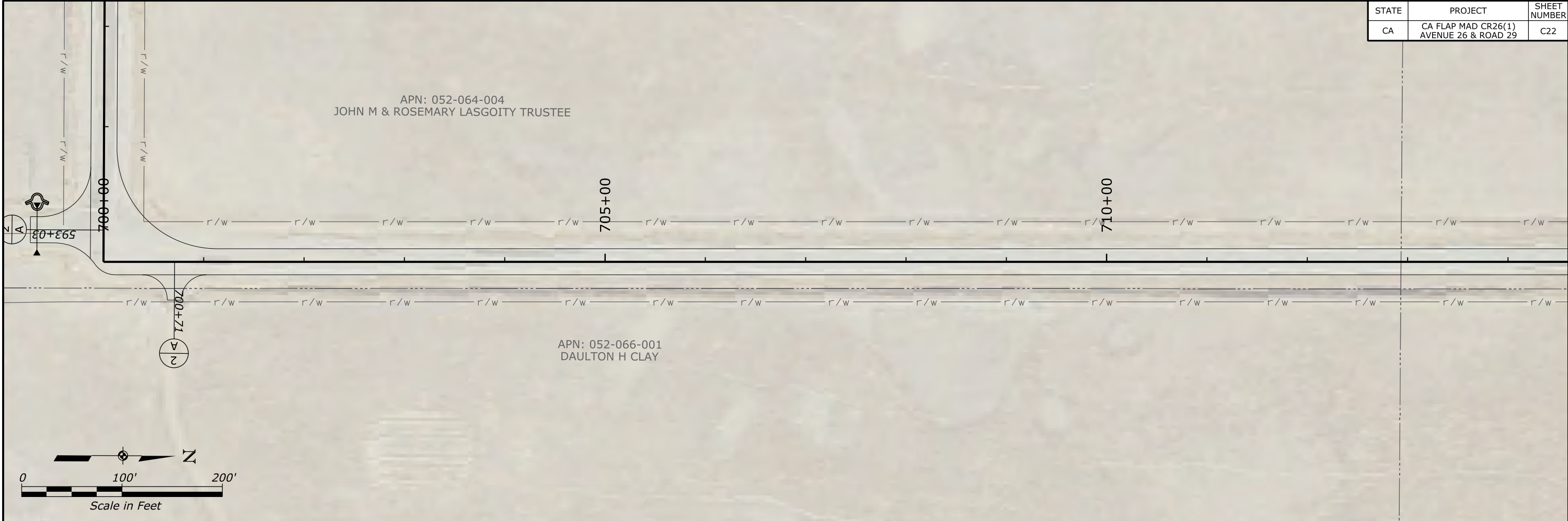


\_User: Leslie.Karsten\_

10:30:02 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C22.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C22



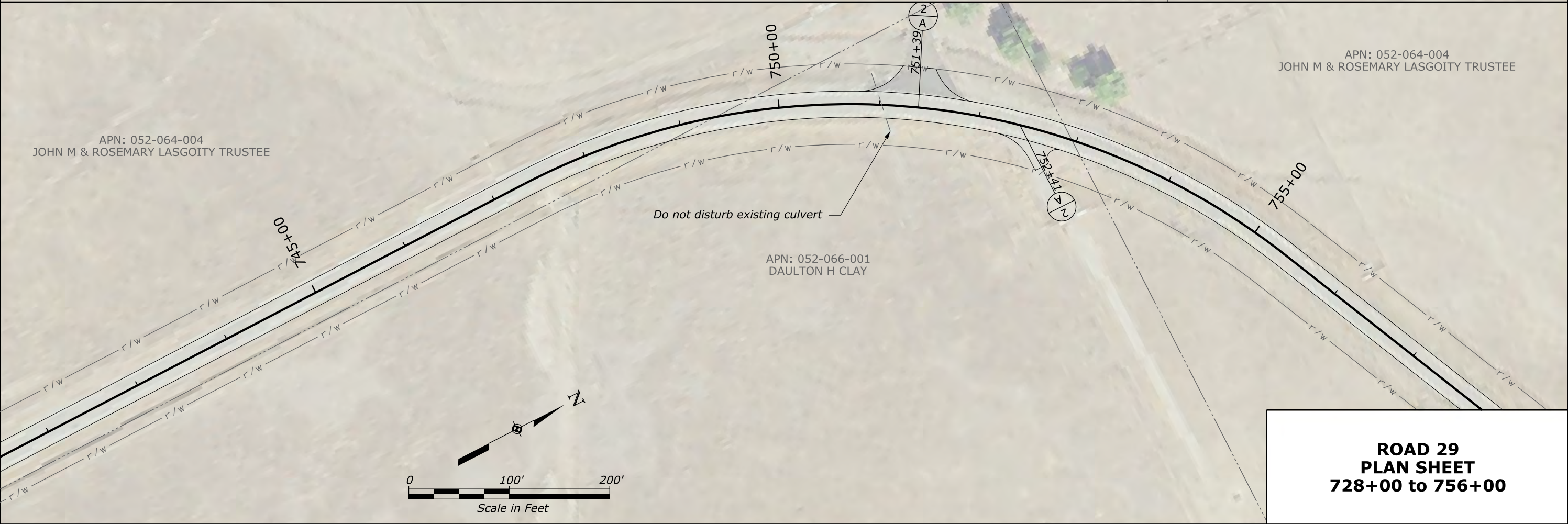
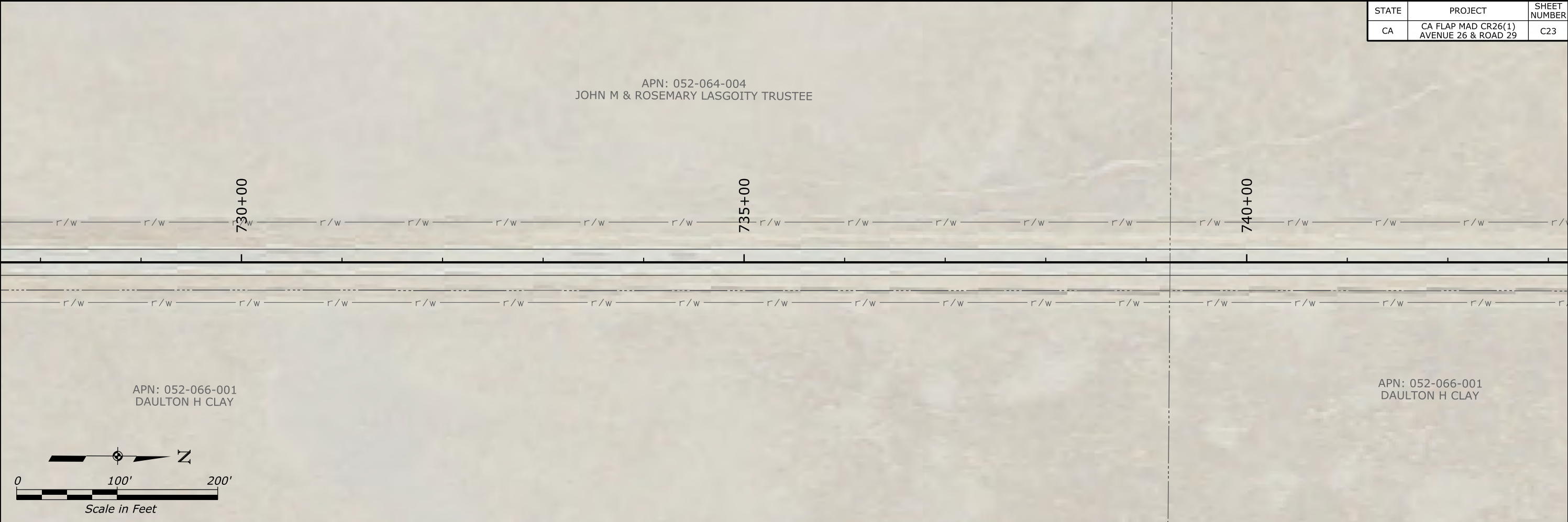
**ROAD 29  
PLAN SHEET  
700+00 to 728+00**



\_User: Leslie.Karsten\_

10:33:56 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C23.dgn  
3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C23



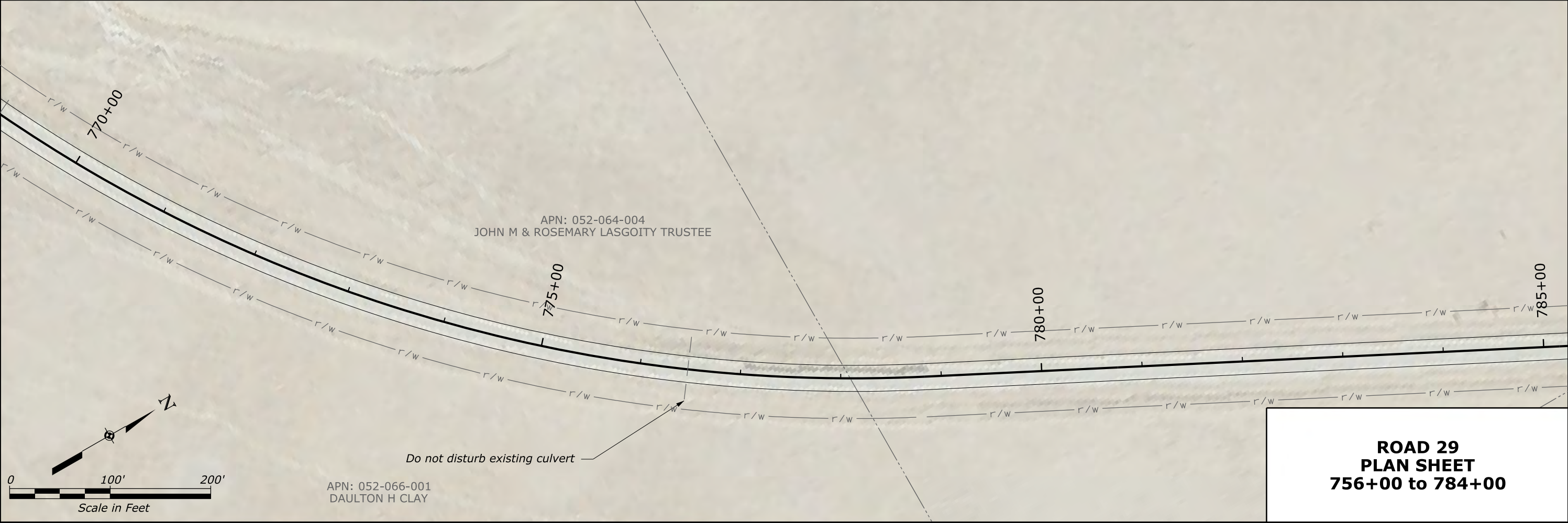
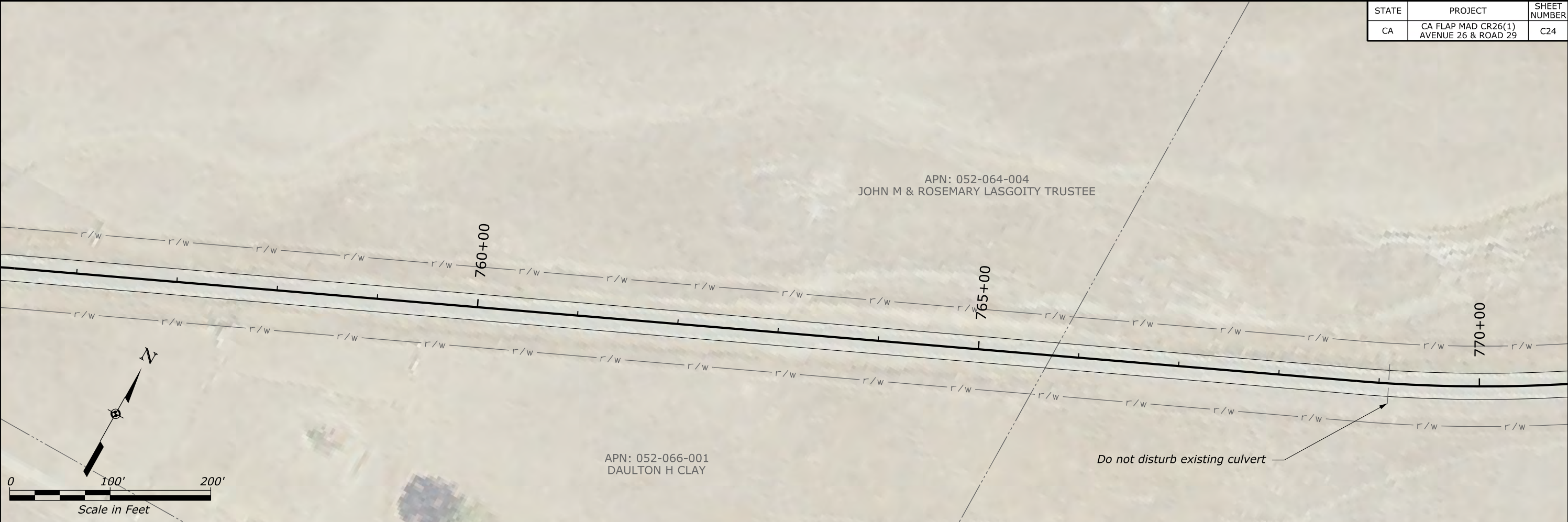


\_User: Leslie.Karsten\_

10:36:45 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C24.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C24



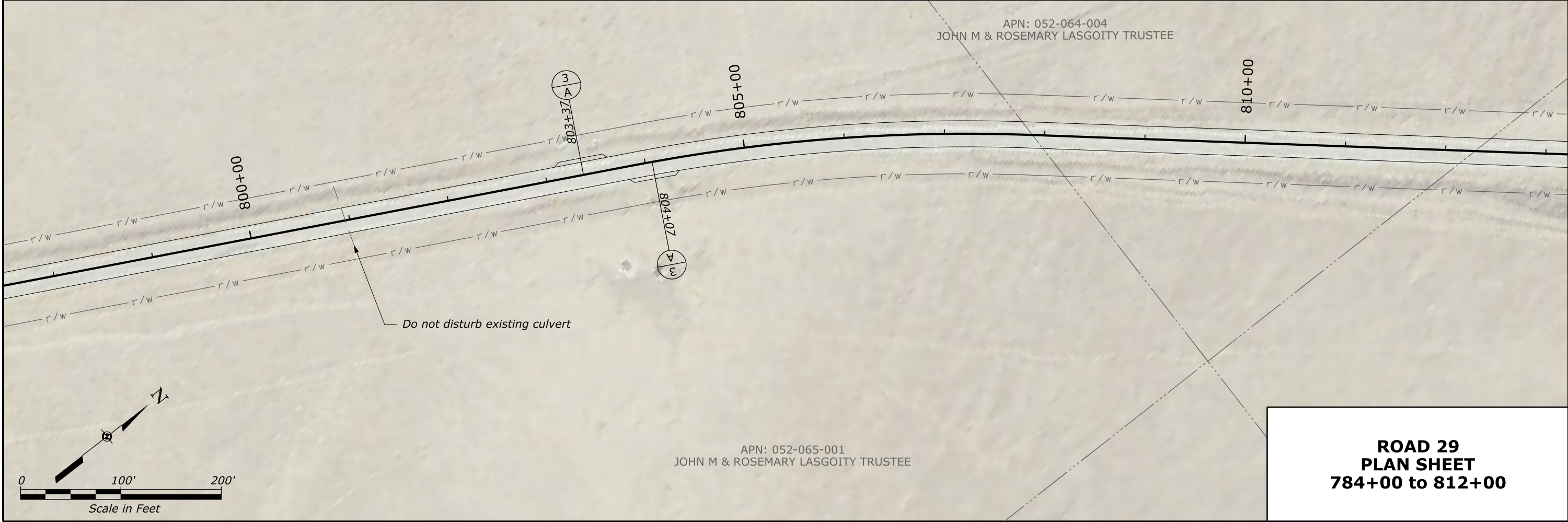
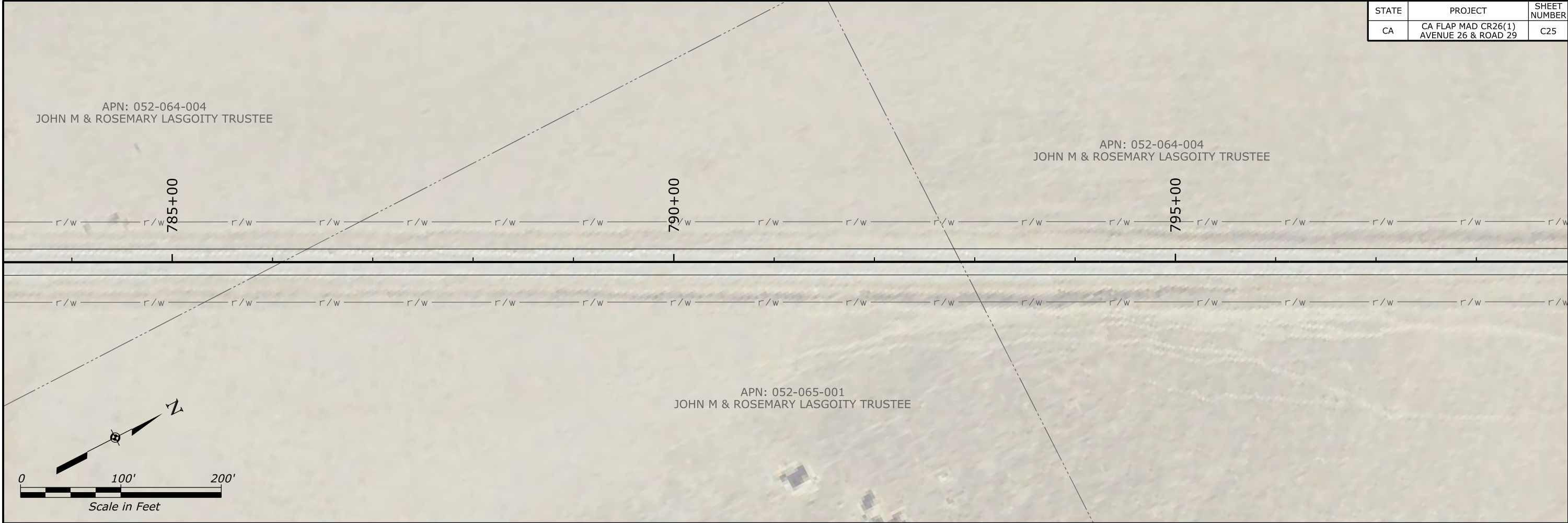


\_User: Leslie.Karsten\_

10:41:27 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C25.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C25



**ROAD 29  
PLAN SHEET  
784+00 to 812+00**

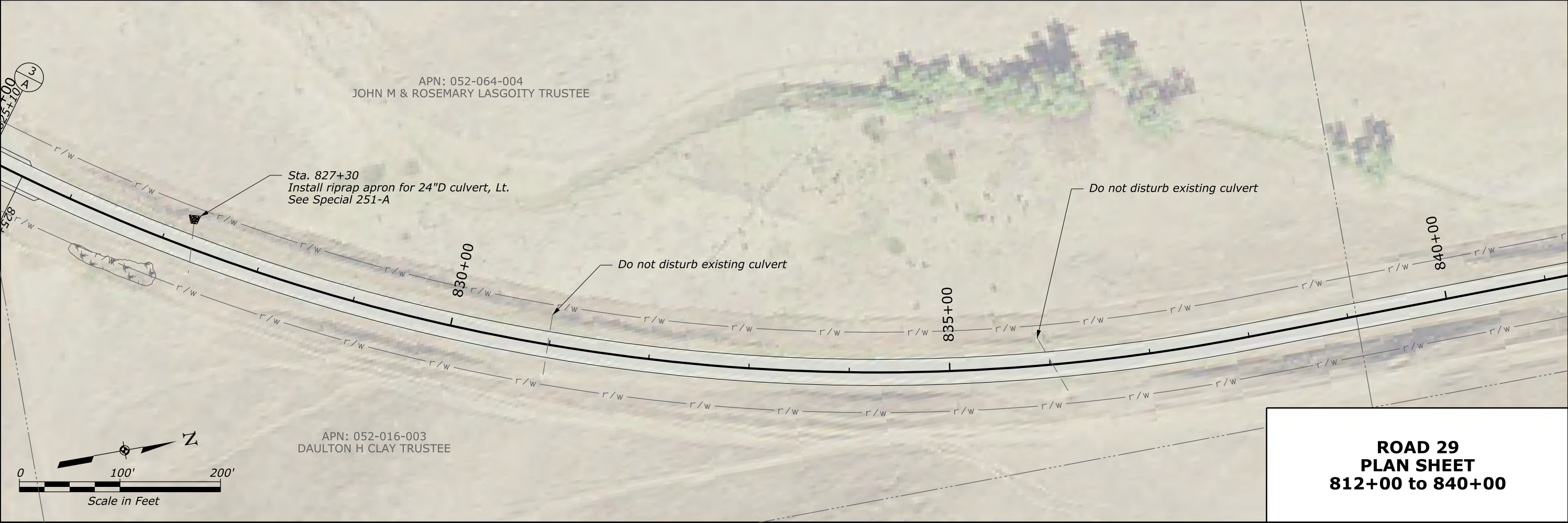
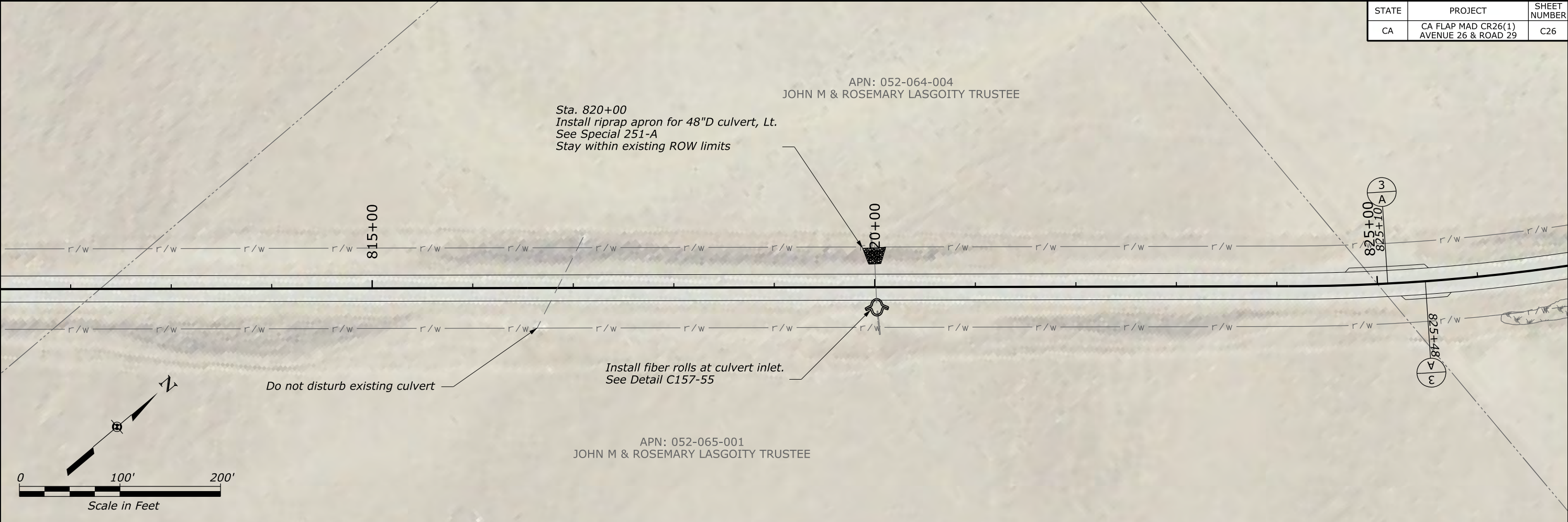


\_User: Leslie.Karsten\_

10:52:04 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C26.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C26



**ROAD 29  
PLAN SHEET  
812+00 to 840+00**

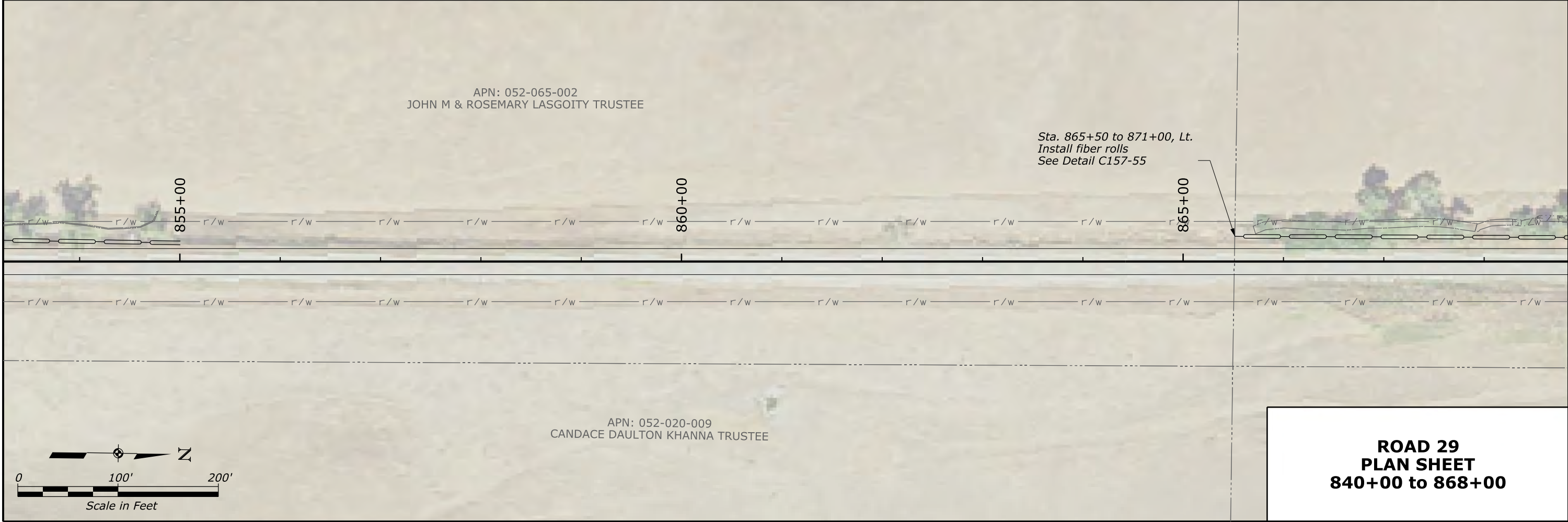
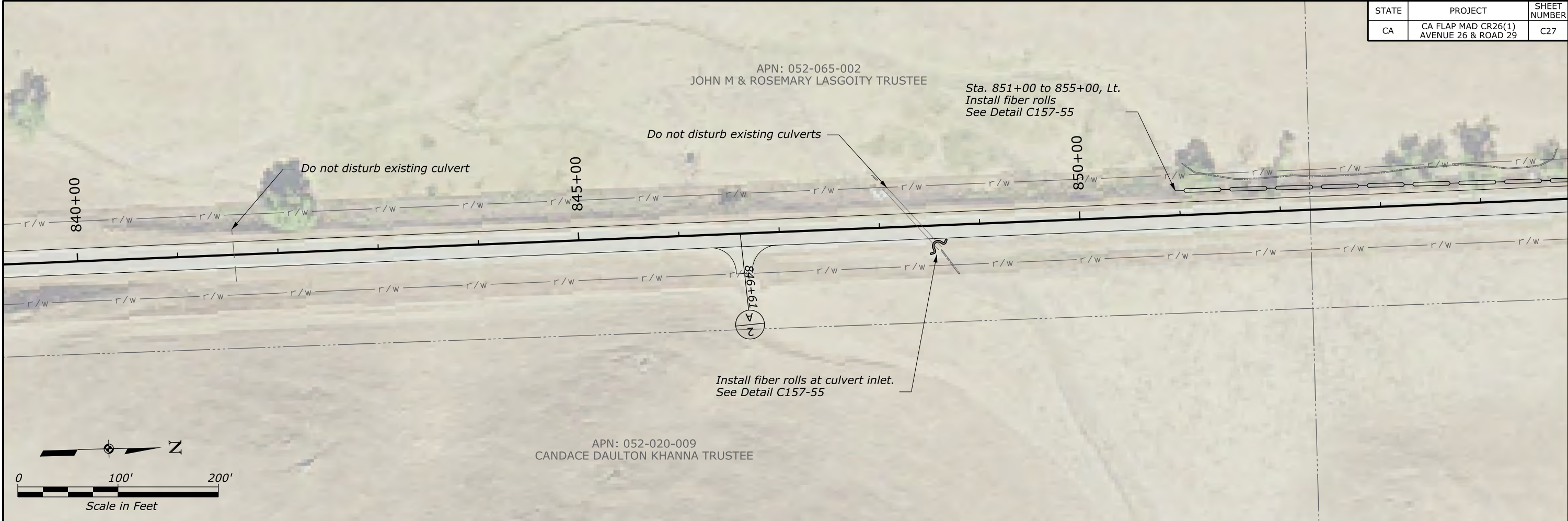


\_User: Leslie.Karsten\_

10:57:19 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C27.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C27



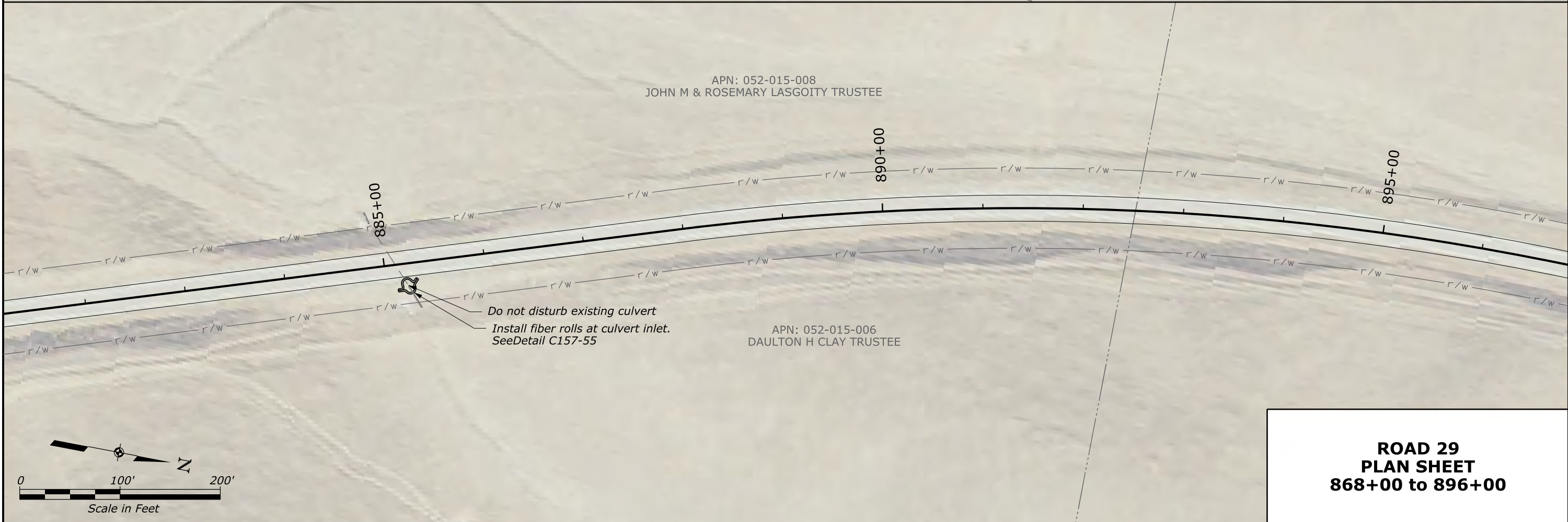


\_User: Leslie.Karsten\_

11:02:25 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C28.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C28



**ROAD 29  
PLAN SHEET  
868+00 to 896+00**

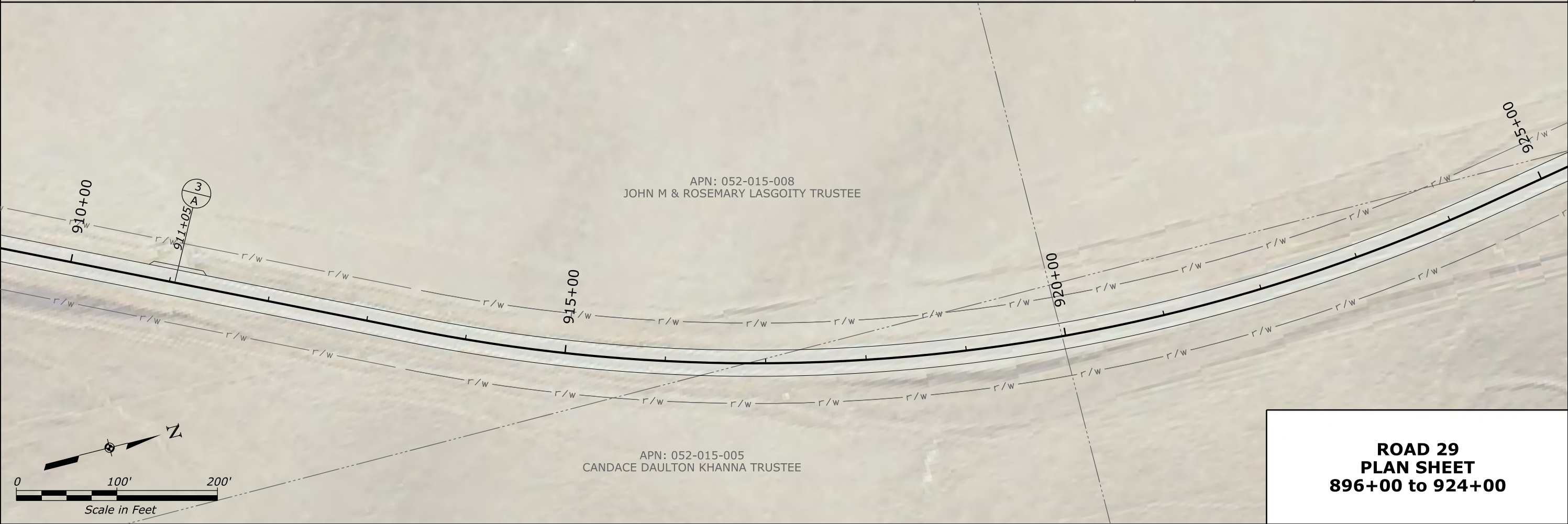
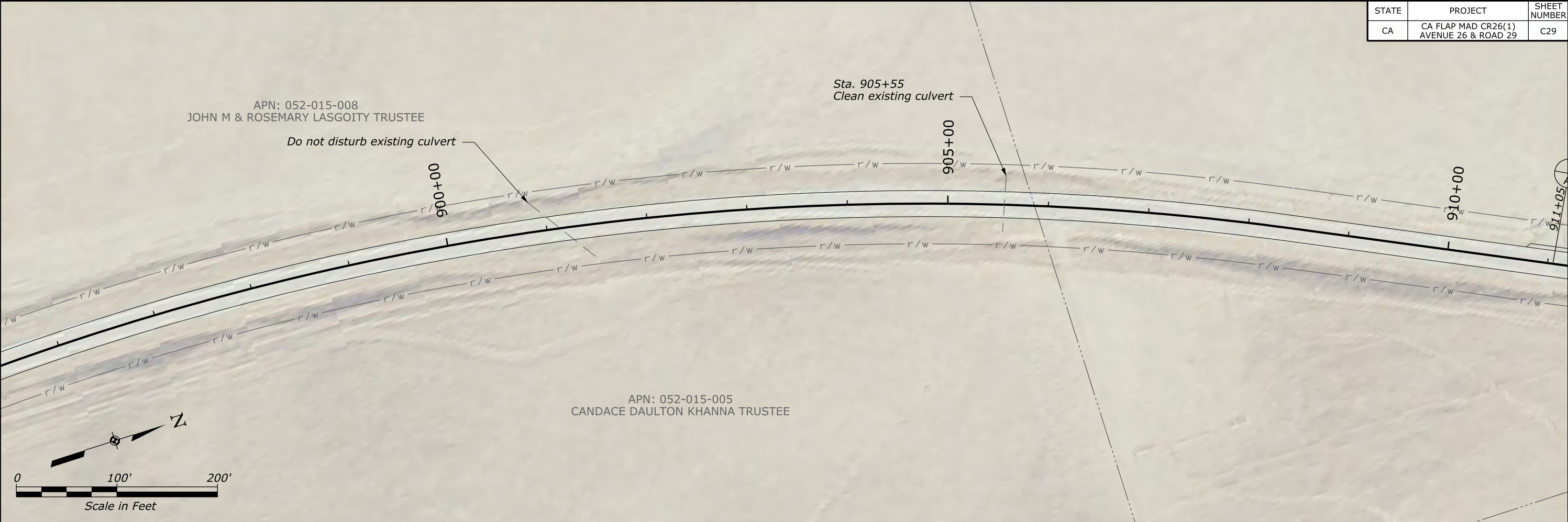


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3/29/2018

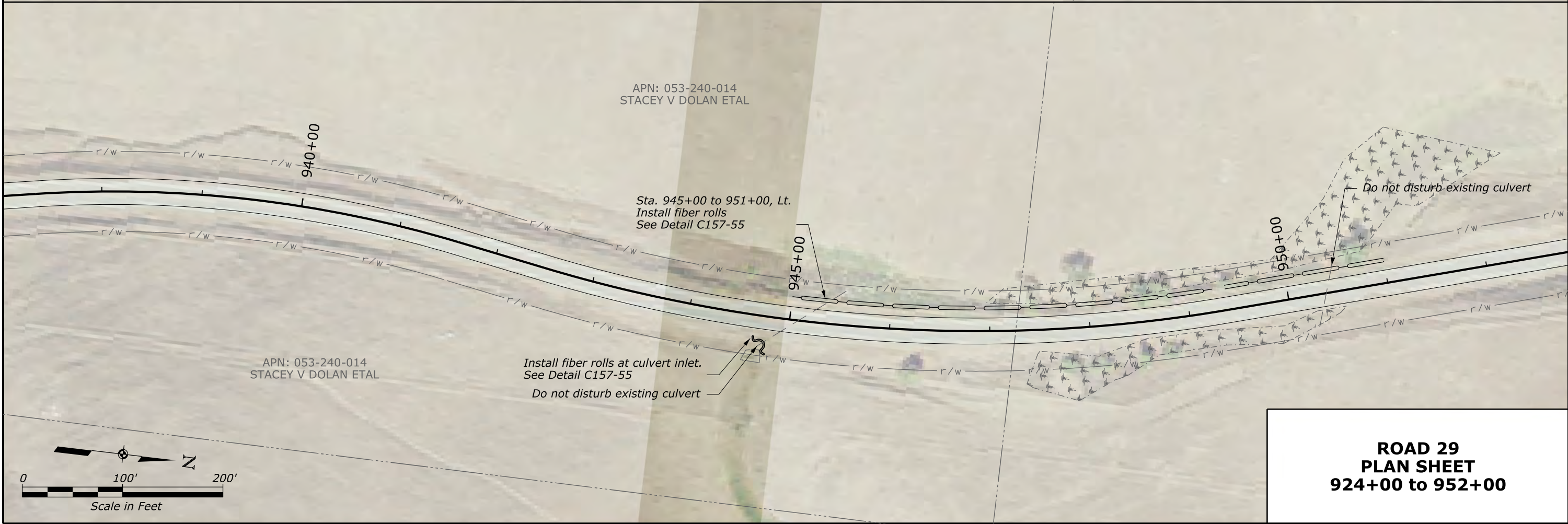
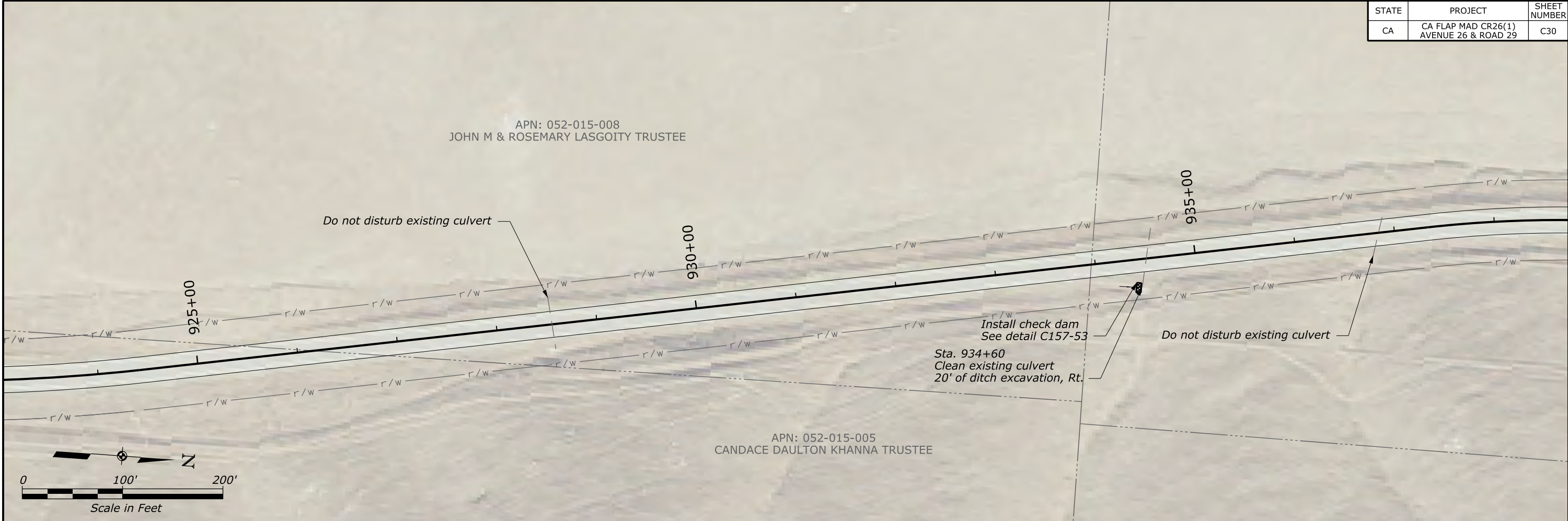
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C29



**ROAD 29  
PLAN SHEET  
896+00 to 924+00**



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C30



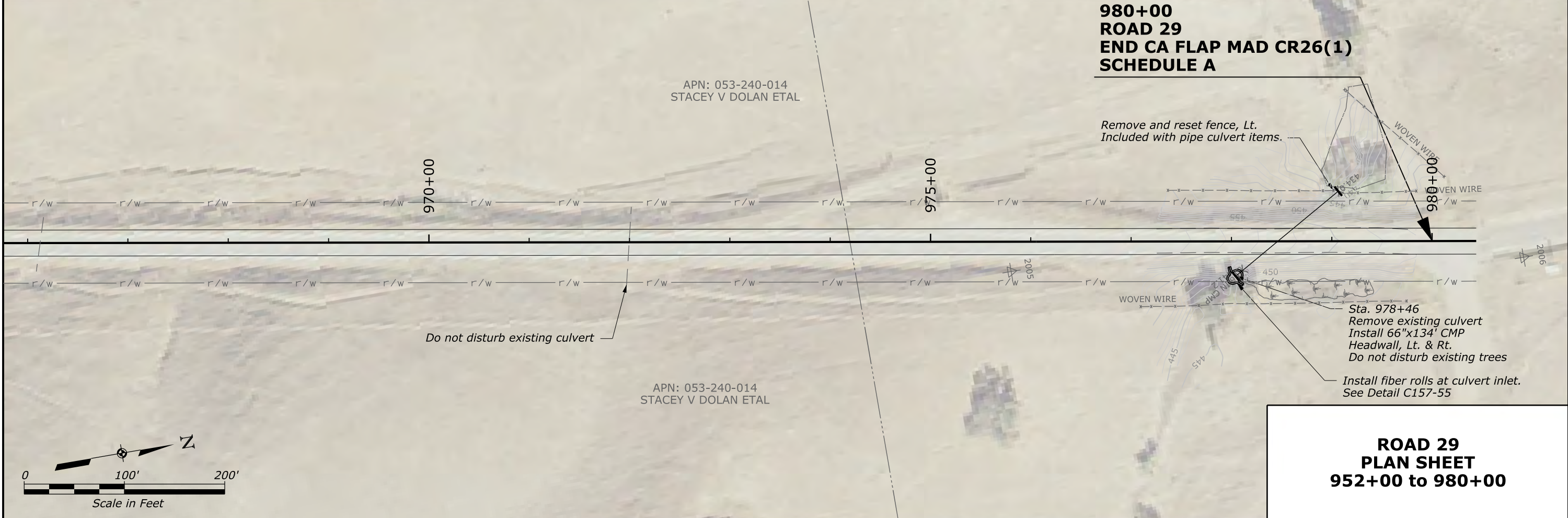


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CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C31





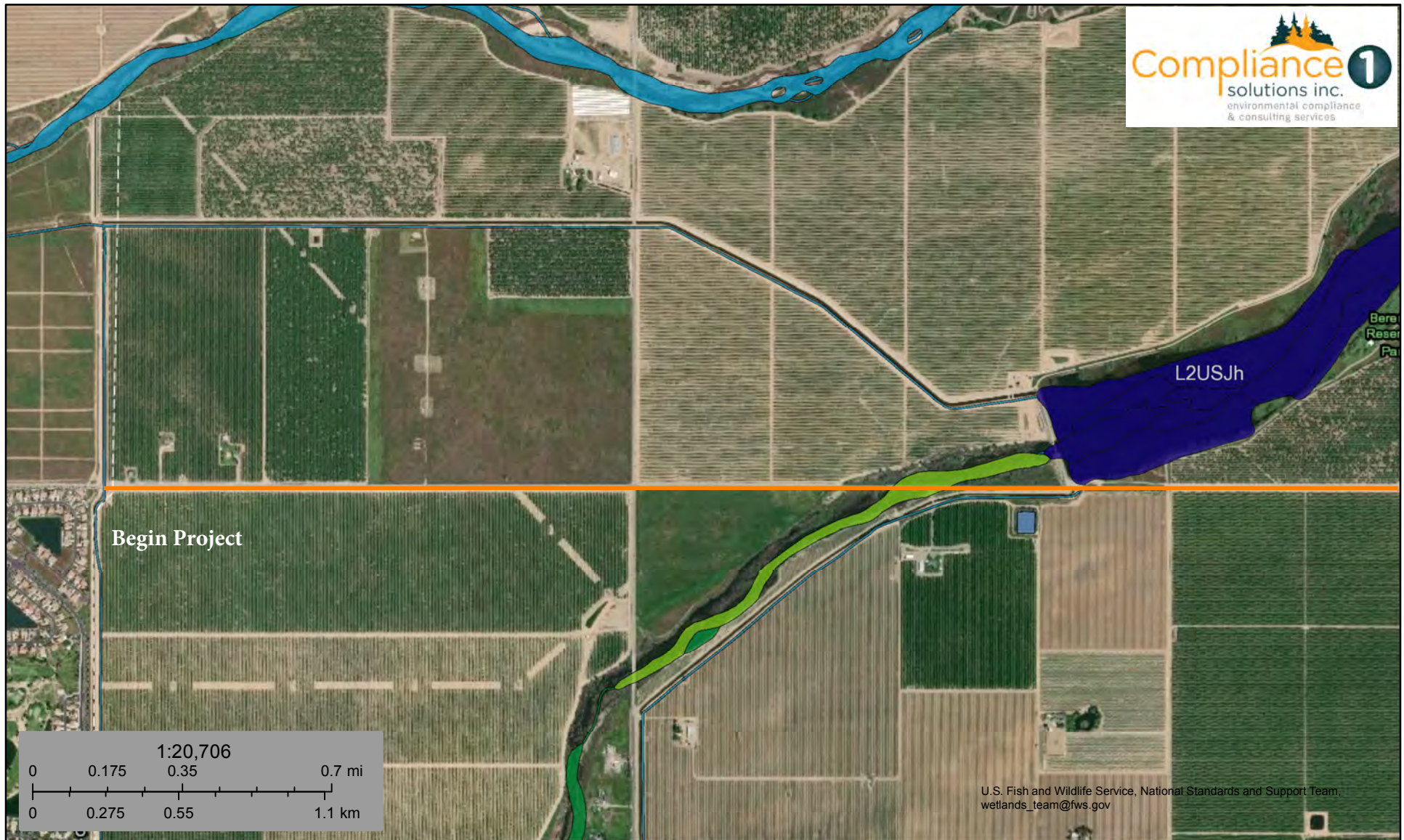
## **APPENDIX B- NATIONAL WETLANDS INVENTORY**



U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



February 14, 2019

### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

Project Running Line

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

— Project Running Line





U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



U.S. Fish and Wildlife Service, National Standards and Support Team  
wetlands\_team@fws.gov

February 14, 2019

### Wetlands

- |                                |                                   |          |
|--------------------------------|-----------------------------------|----------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland       | Lake     |
| Estuarine and Marine Wetland   | Freshwater Forested/Shrub Wetland | Other    |
|                                | Freshwater Pond                   | Riverine |

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Project Running Line

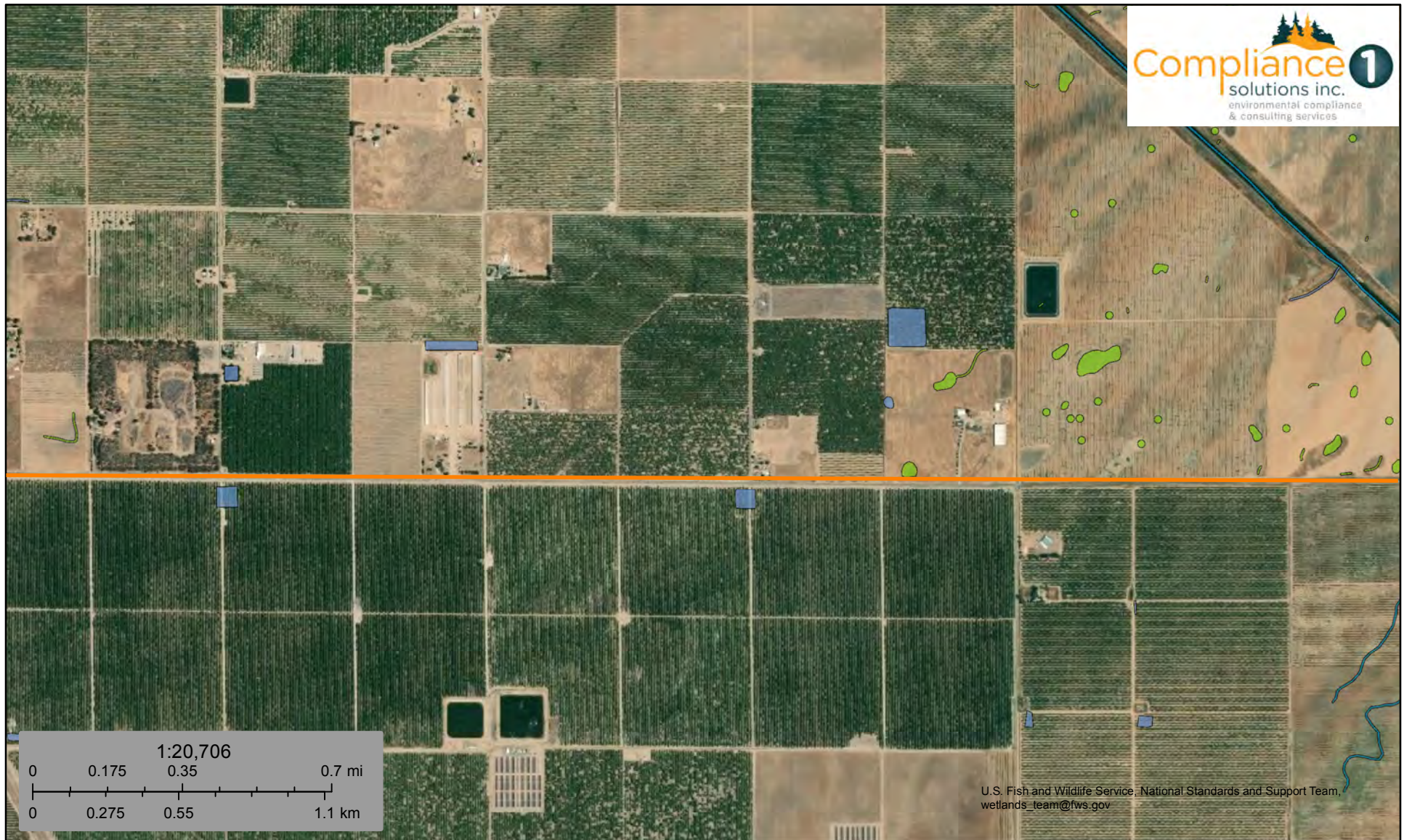




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



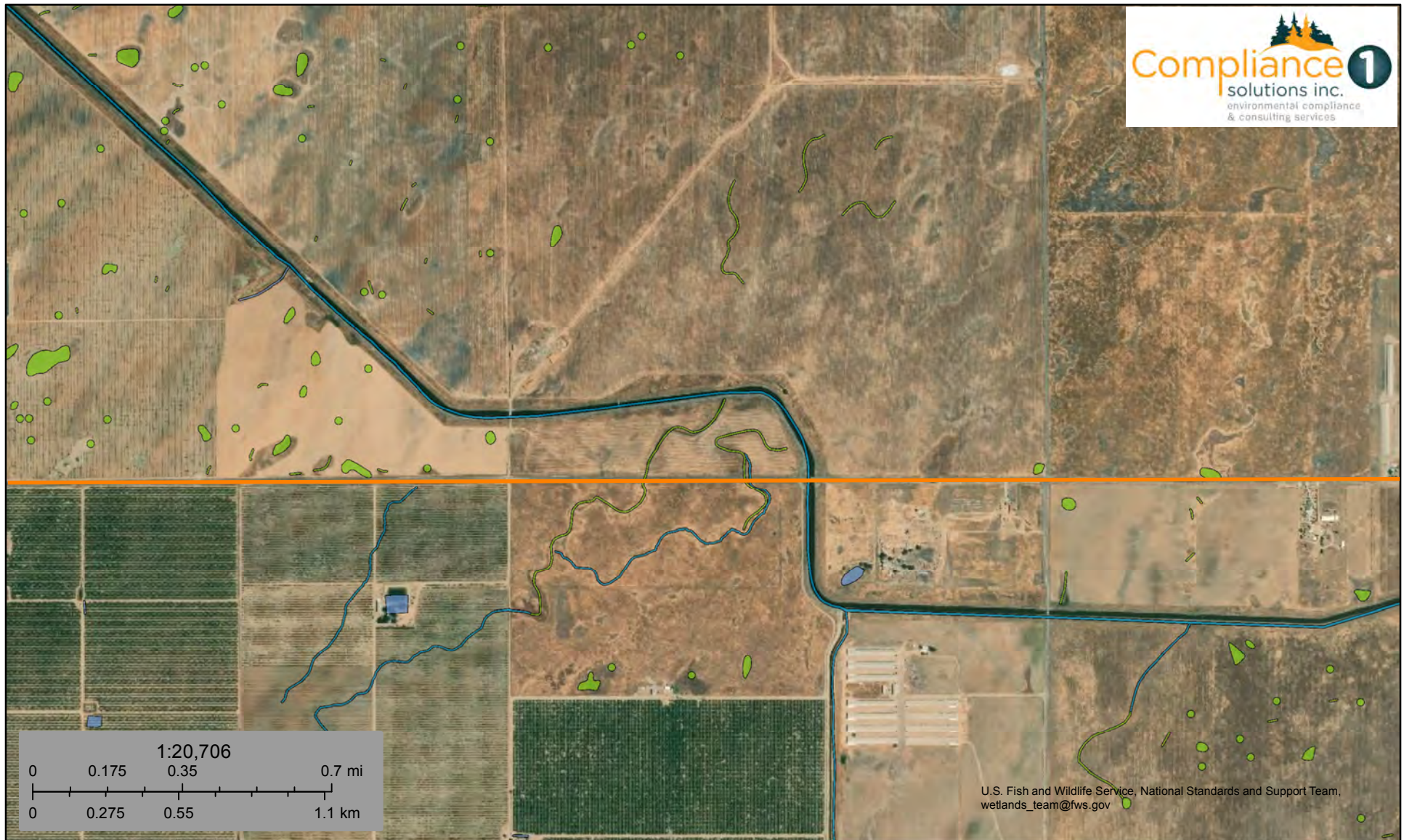




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov

February 14, 2019

### Wetlands

- |                                |                                   |          |
|--------------------------------|-----------------------------------|----------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland       | Lake     |
| Estuarine and Marine Wetland   | Freshwater Forested/Shrub Wetland | Other    |
|                                | Freshwater Pond                   | Riverine |

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Project Running Line

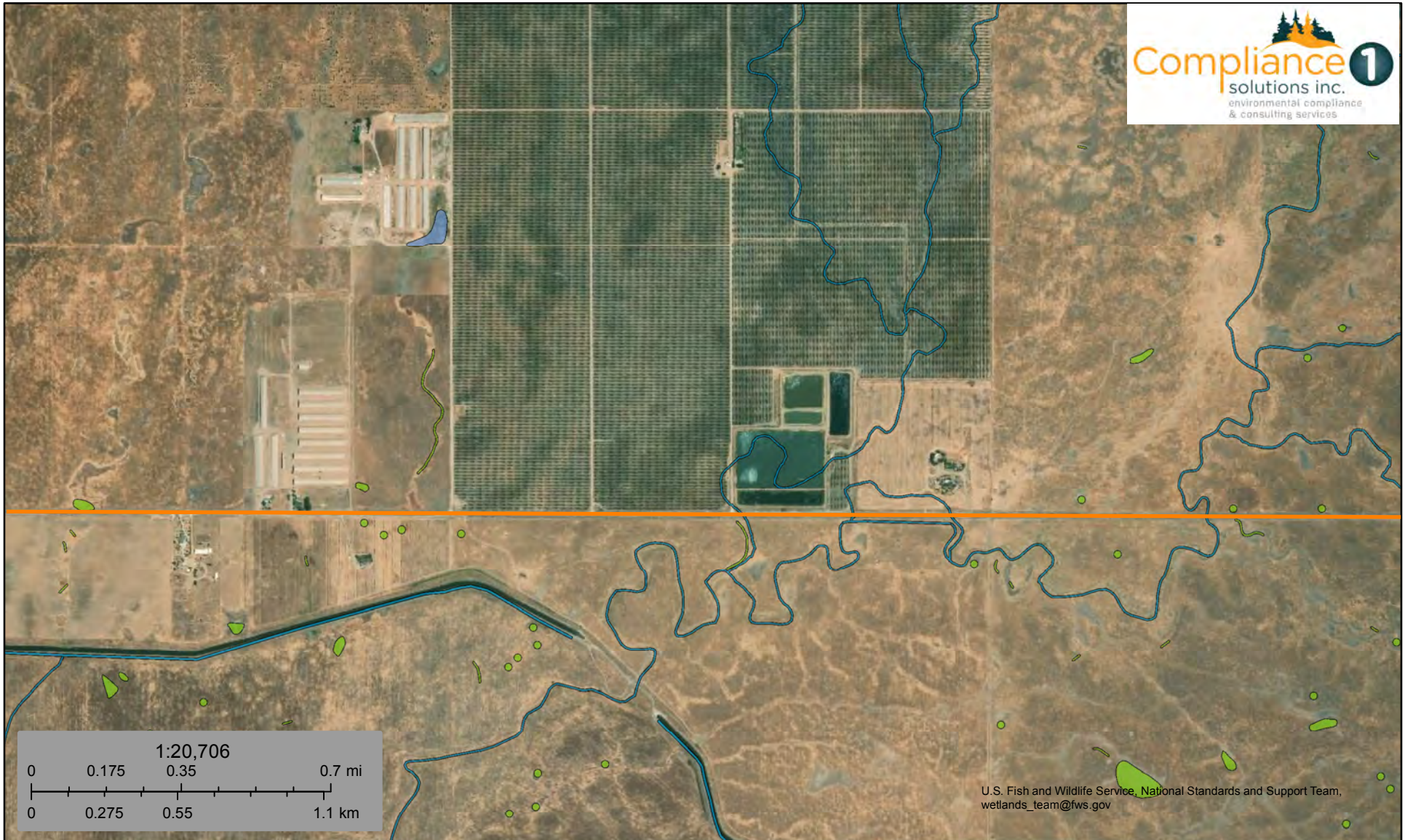




U.S. Fish and Wildlife Service

# National Wetlands Inventory



## APPENDIX B



U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov

February 14, 2019

### Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

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 Project Running Line

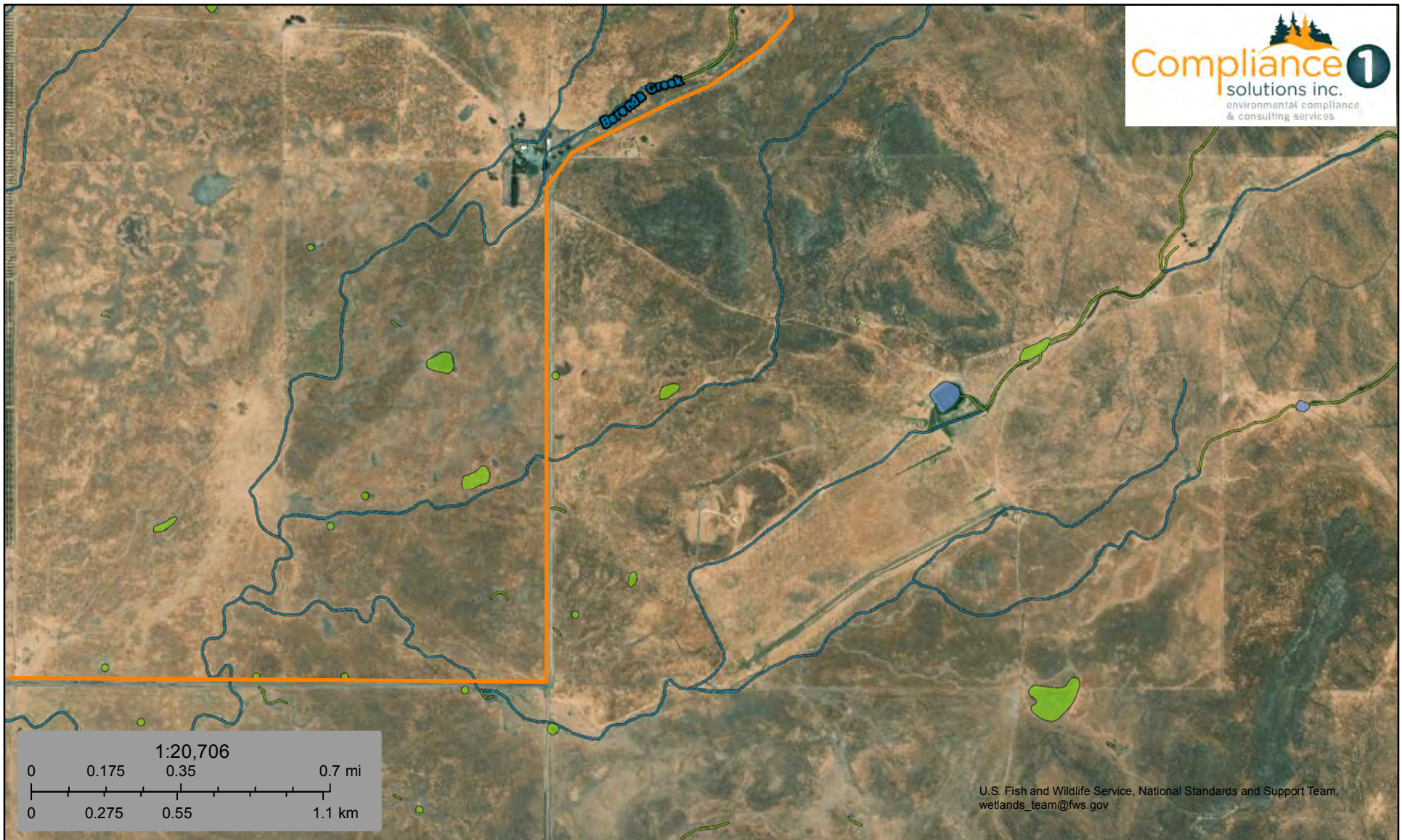




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov

February 14, 2019

### Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

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— Project Running Line

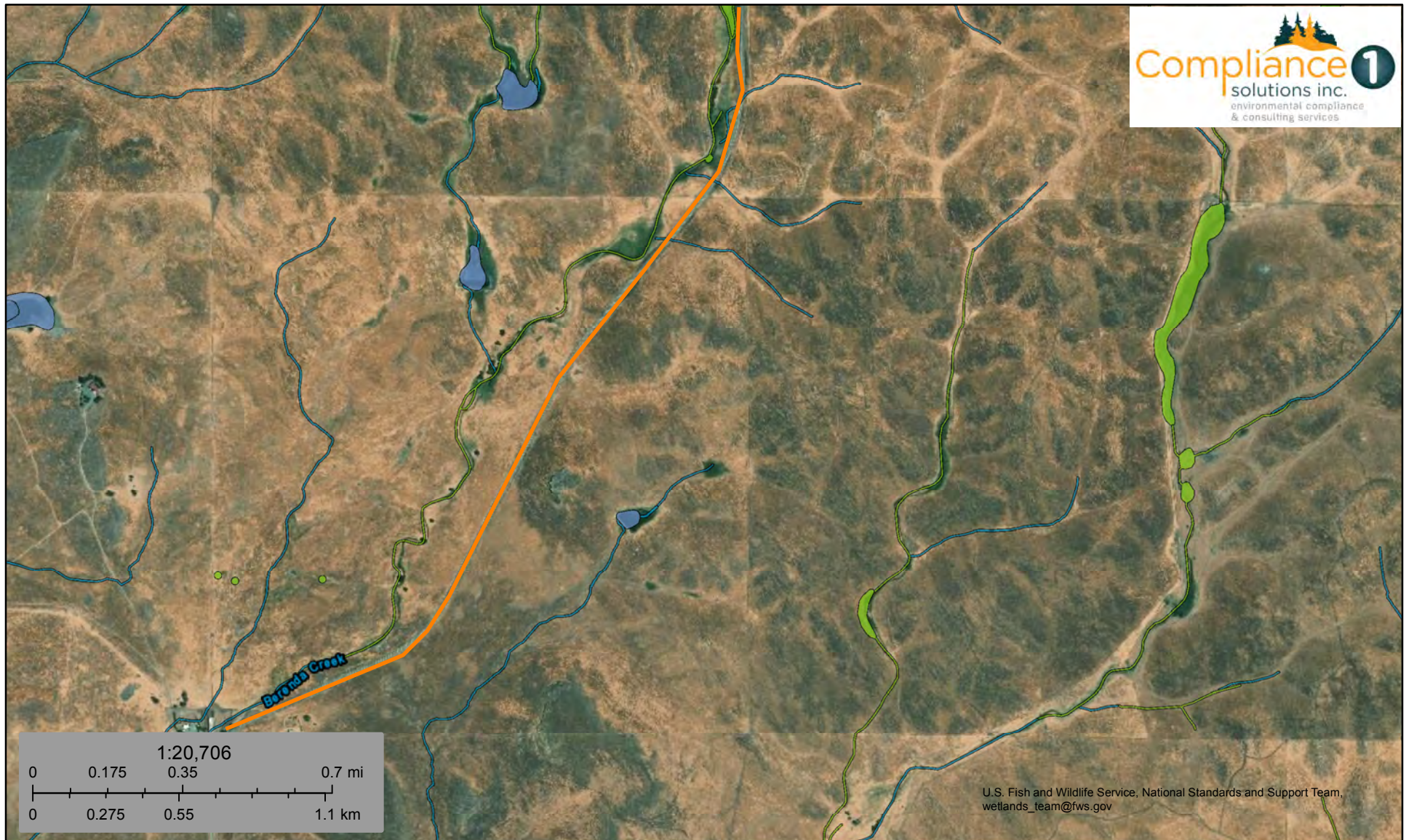




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



February 14, 2019

### Wetlands

- |                                |                                   |       |
|--------------------------------|-----------------------------------|-------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland       | Lake  |
| Estuarine and Marine Wetland   | Freshwater Forested/Shrub Wetland | Other |
| Freshwater Pond                | Riverine                          |       |

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Project Running Line

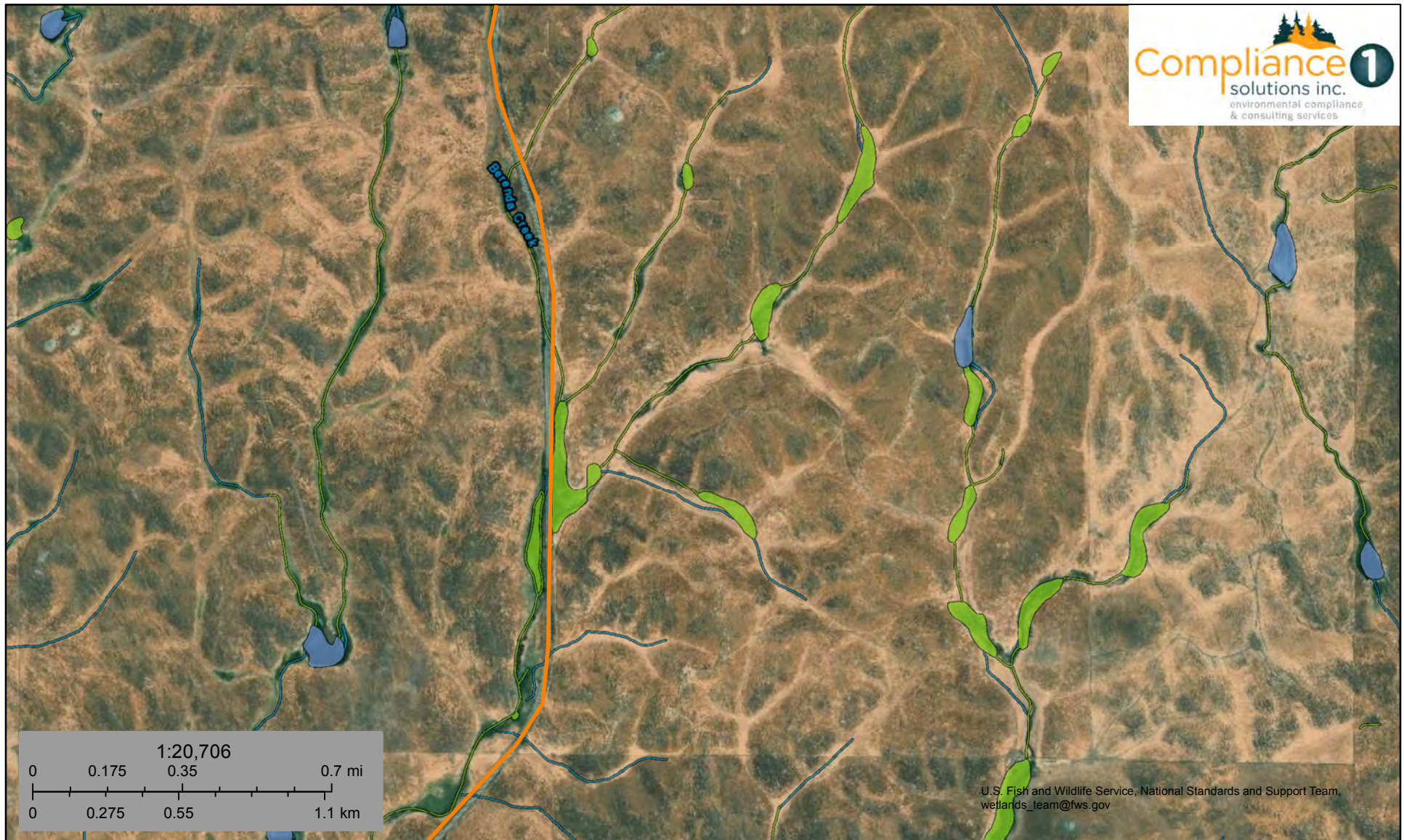




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



February 14, 2019

### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
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— Project Running Line

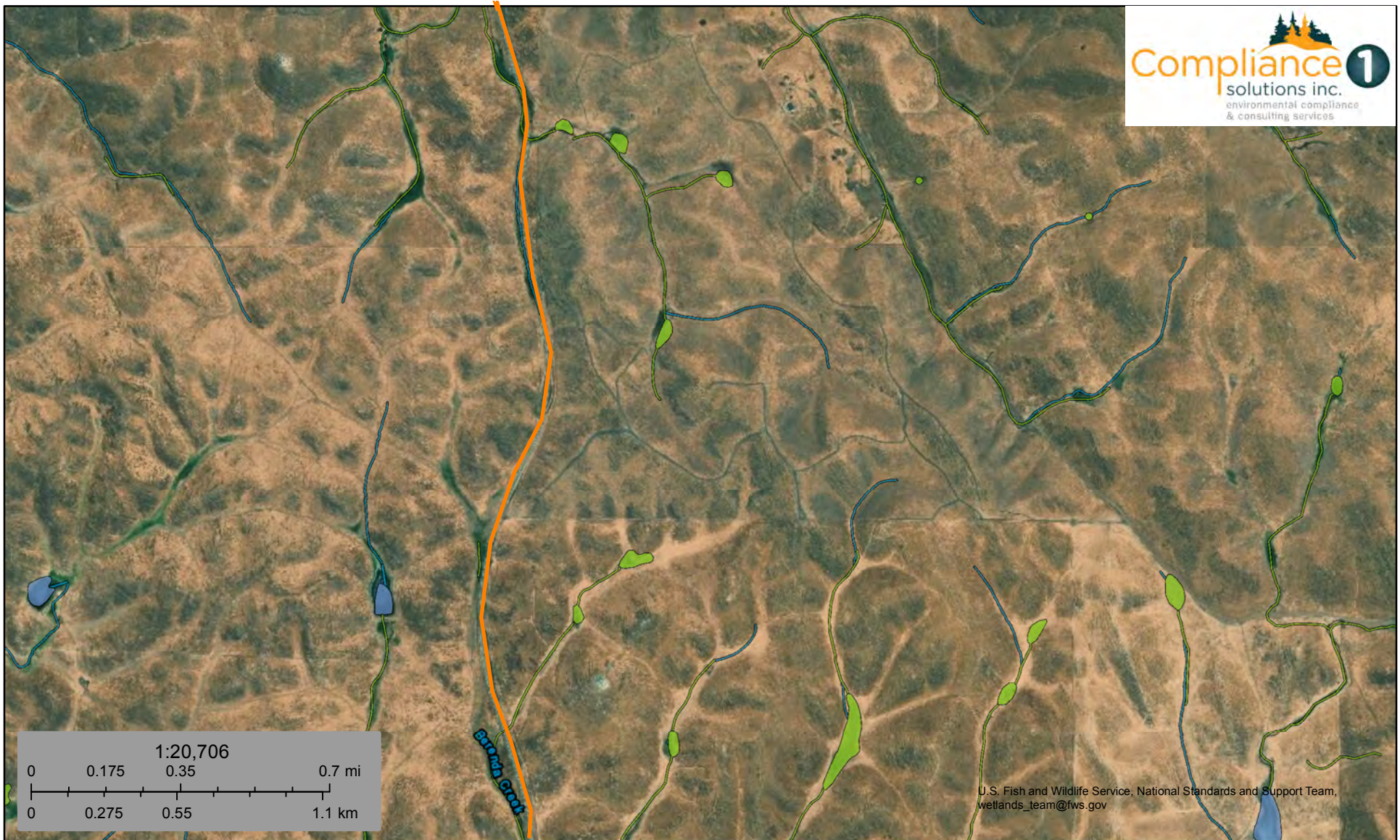




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



February 14, 2019

### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
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— Project Running Line

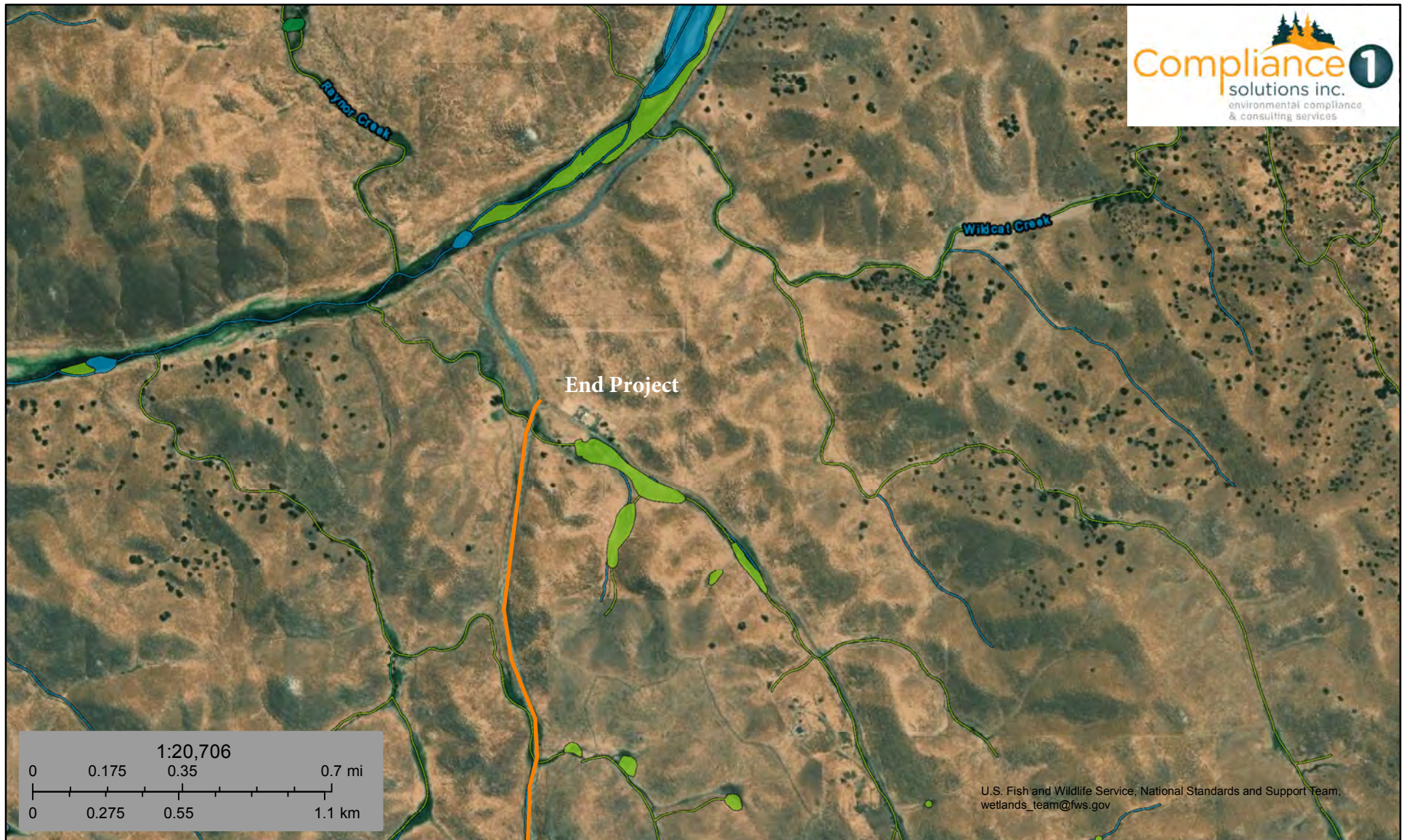




U.S. Fish and Wildlife Service

# National Wetlands Inventory

## APPENDIX B



### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

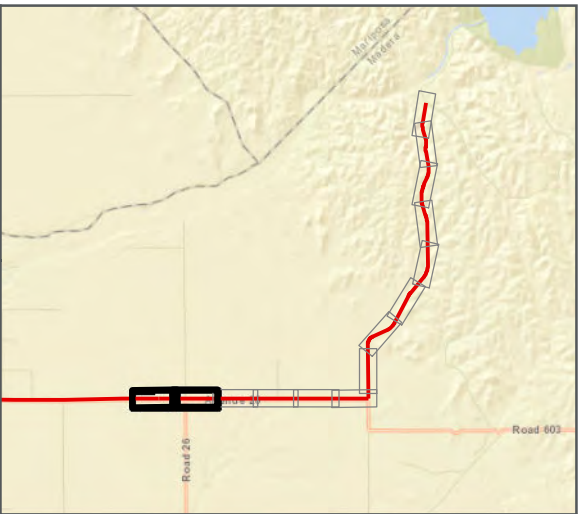
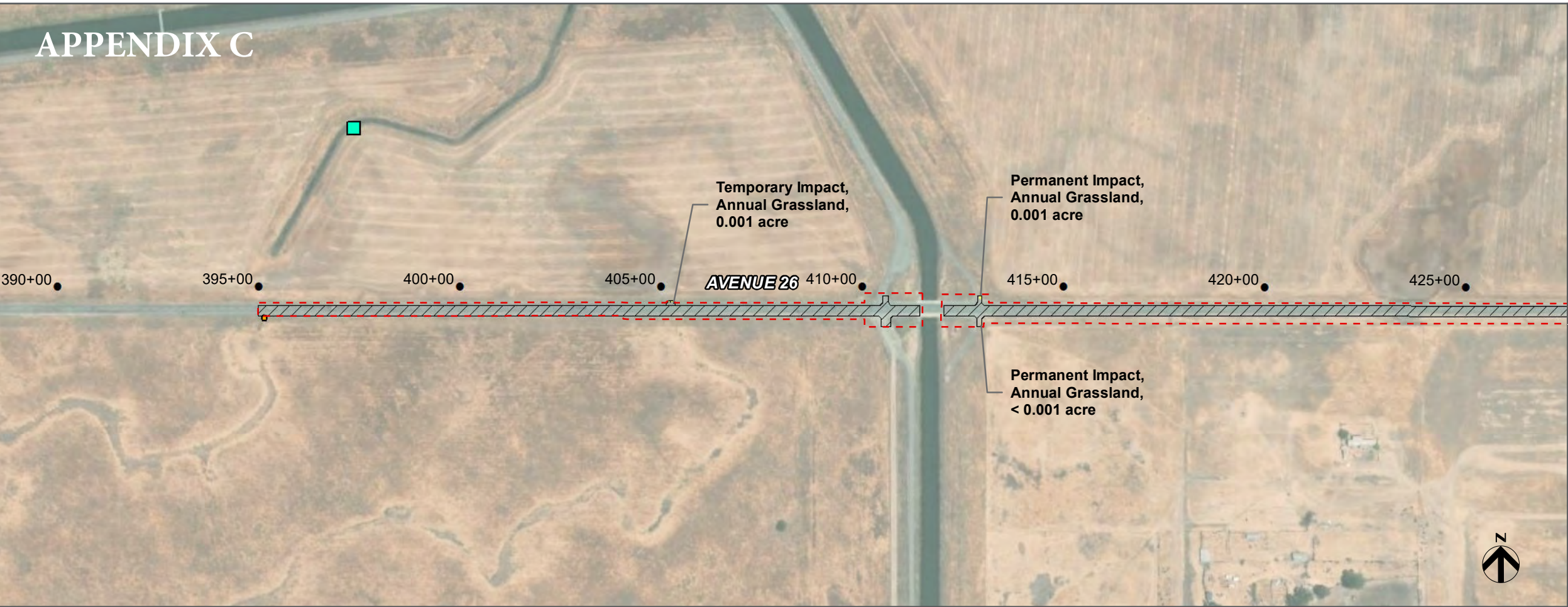
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— Project Running Line

## **APPENDIX C - CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS**



APPENDIX C



**LEGEND**

- Project Stationing
- Potential California Tiger Salamander Breeding Pools
- - - Temporary Workspace

**Impact Area**

- ▨ Permanent Impact
- ▤ Temporary Impact

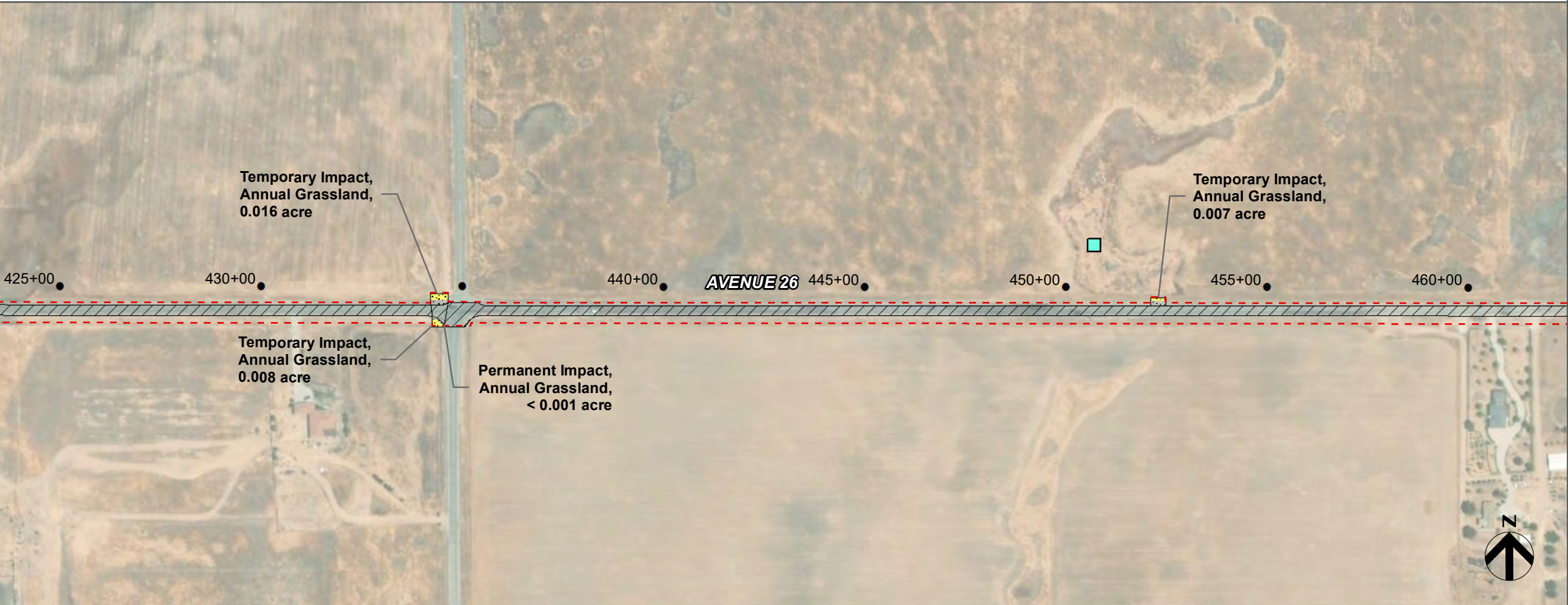
**Vegetation**

- Annual Grassland
- Intermittent Channel
- Seasonal Wetland
- Swale

**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

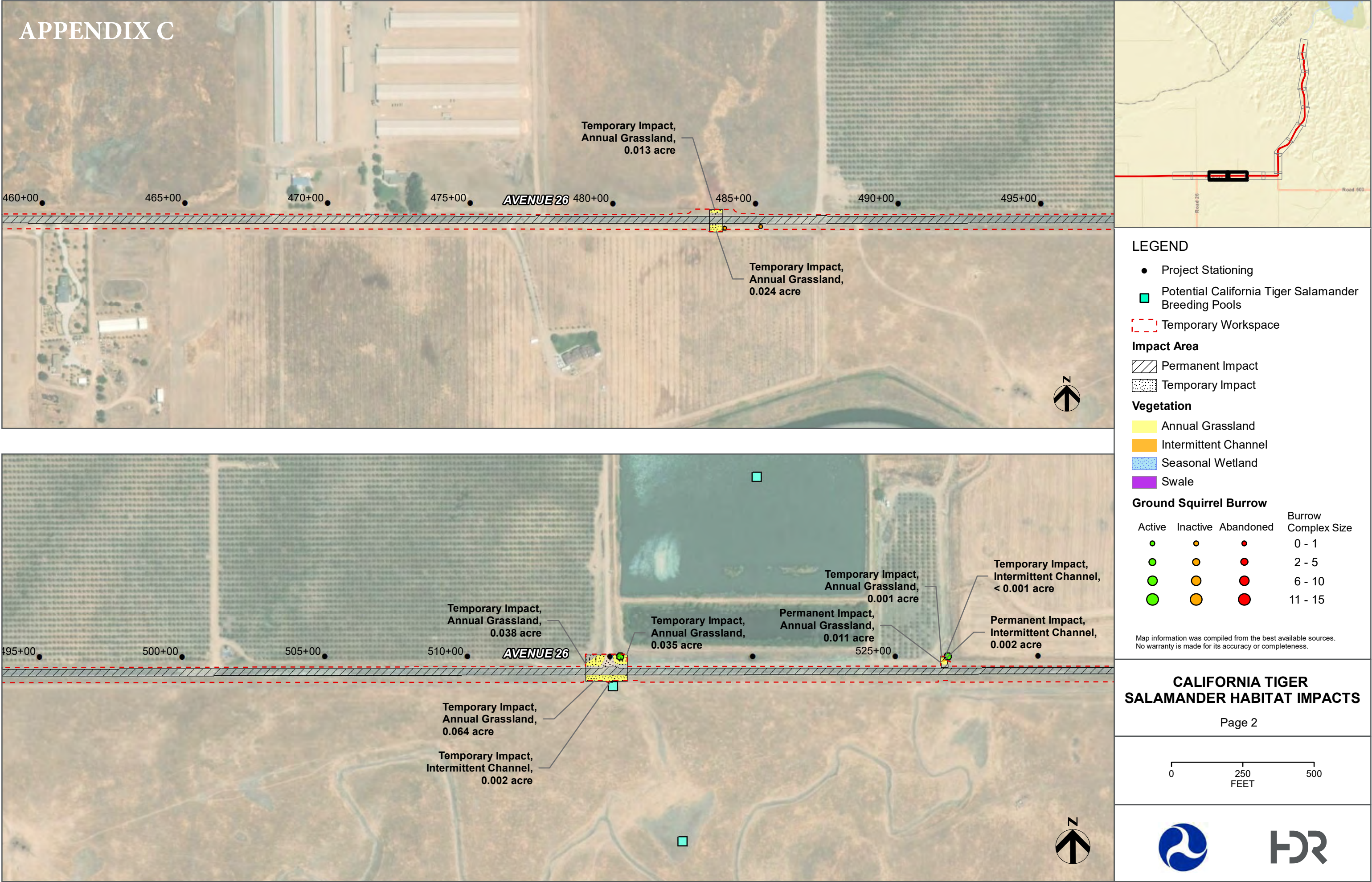
Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.



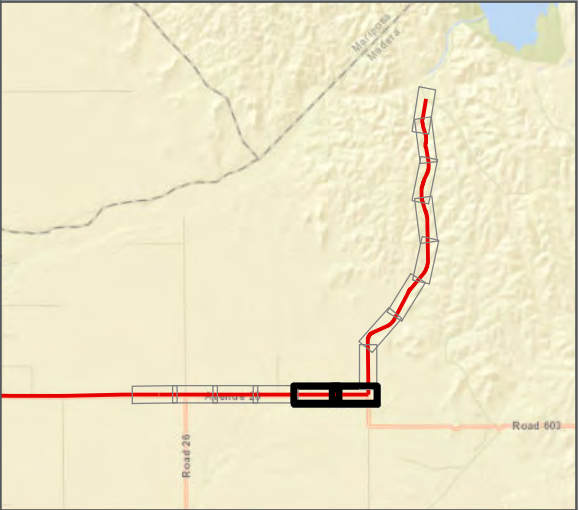
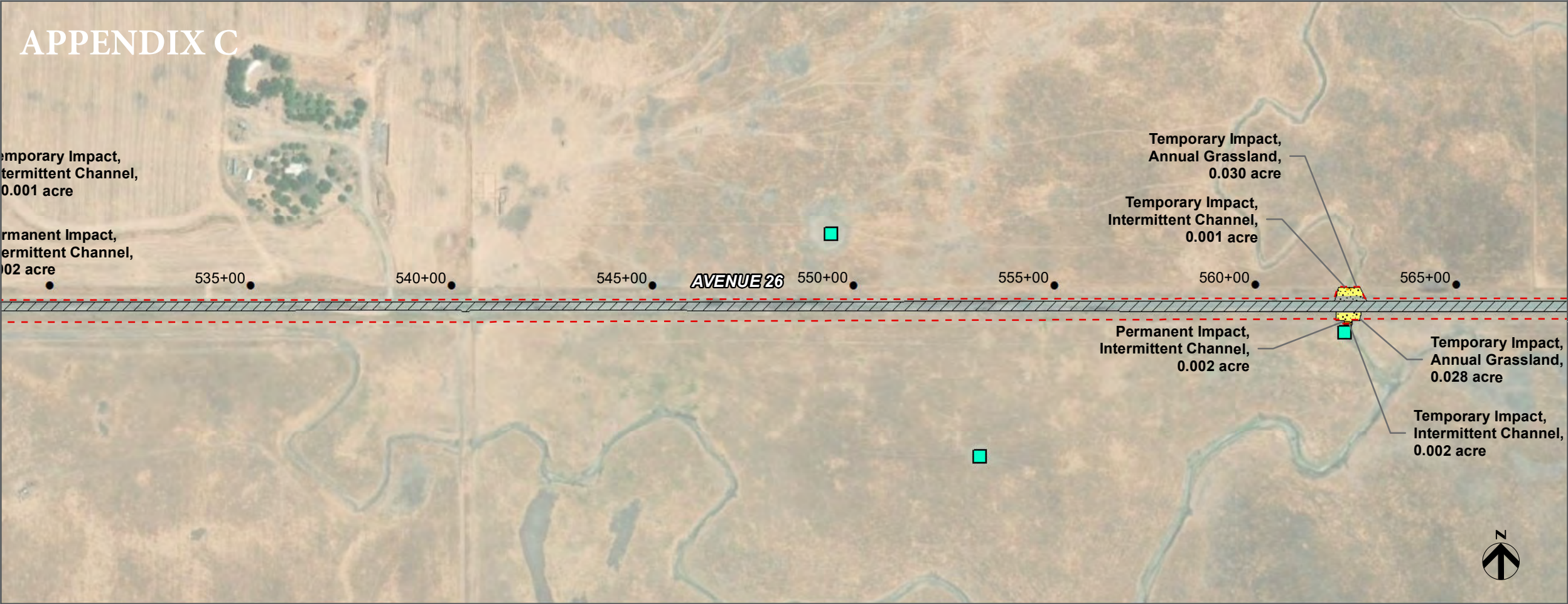
CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS











**LEGEND**

- Project Stationing
- Potential California Tiger Salamander Breeding Pools
- - - Temporary Workspace

**Impact Area**

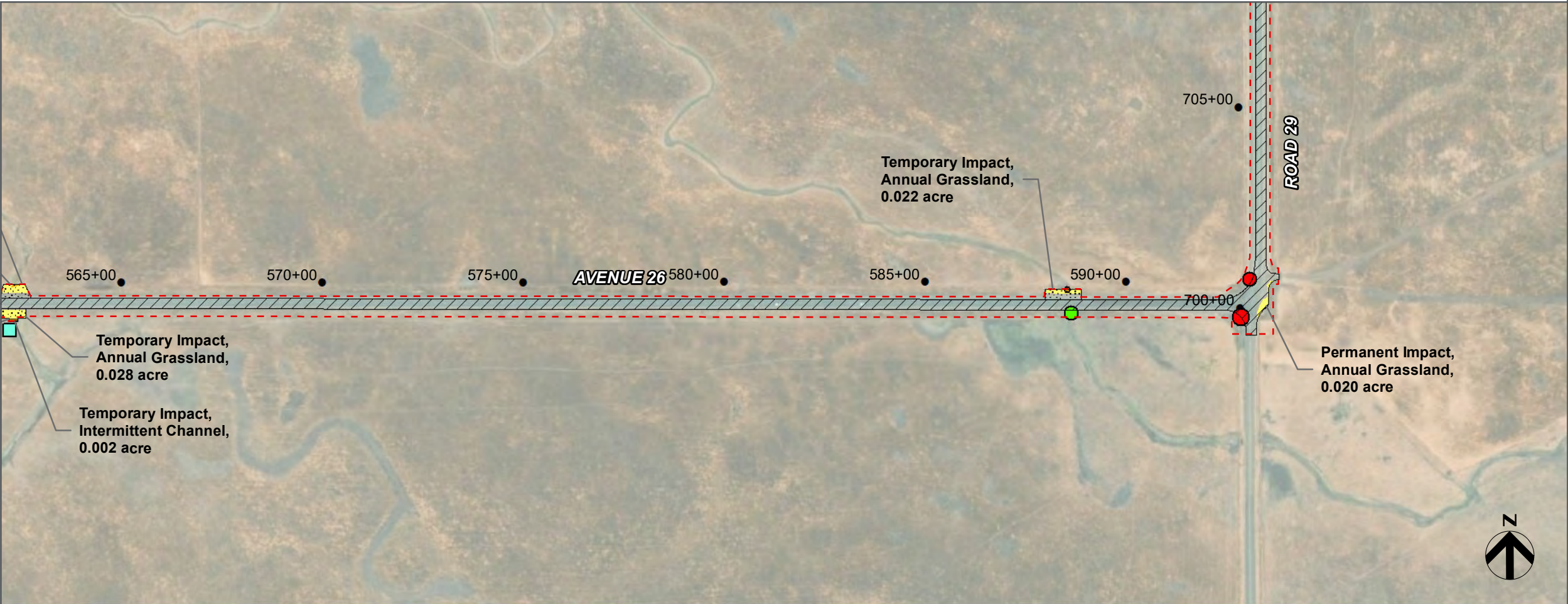
- ▨ Permanent Impact
- ▤ Temporary Impact

**Vegetation**

- Annual Grassland
- Intermittent Channel
- Seasonal Wetland
- Swale

**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15



**CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS**

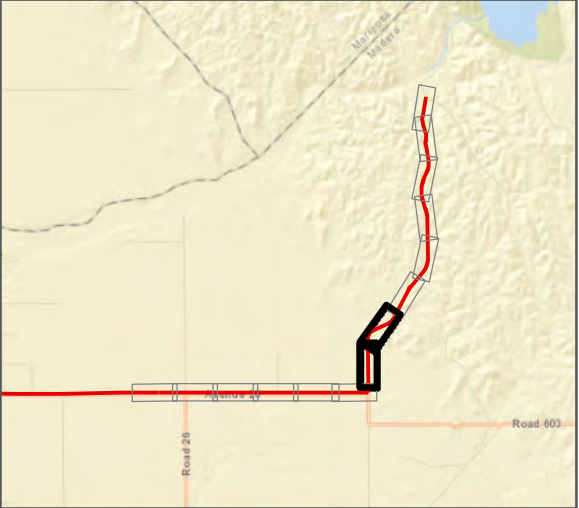
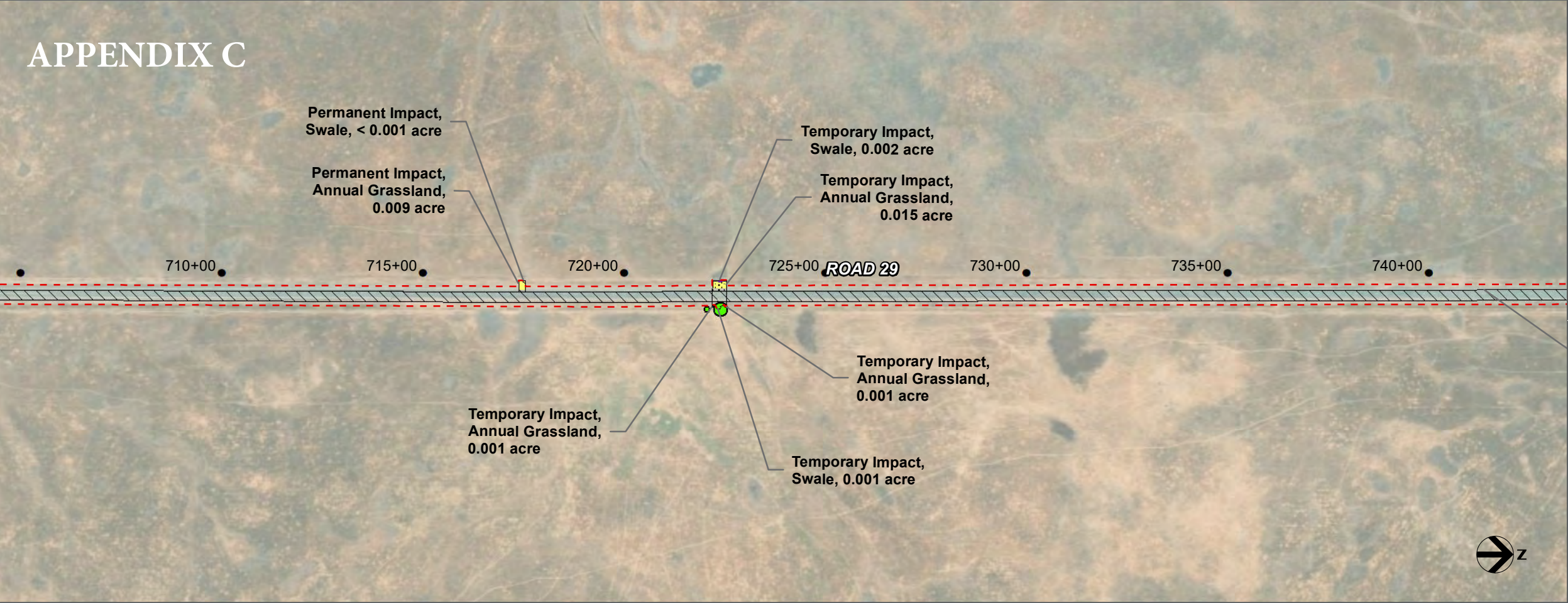
Page 3

0 250 500 FEET





APPENDIX C



**LEGEND**

- Project Stationing
- Potential California Tiger Salamander Breeding Pools
- - - Temporary Workspace

**Impact Area**

- ▨ Permanent Impact
- ▤ Temporary Impact

**Vegetation**

- Annual Grassland
- Intermittent Channel
- Seasonal Wetland
- Swale

**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

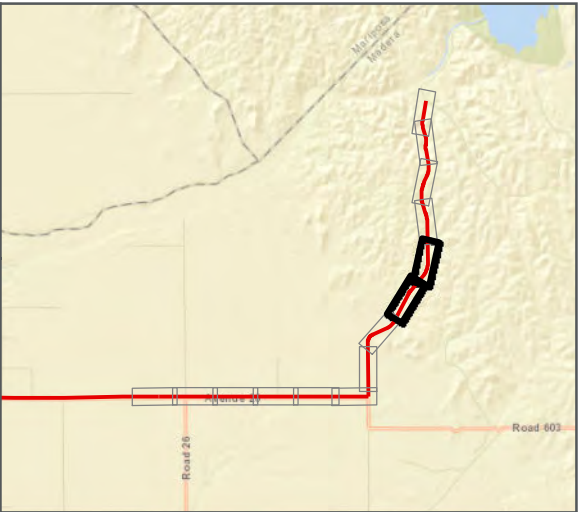


Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

**CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS**







**LEGEND**

- Project Stationing
- Potential California Tiger Salamander Breeding Pools
- - - Temporary Workspace

**Impact Area**

- ▨ Permanent Impact
- ▤ Temporary Impact

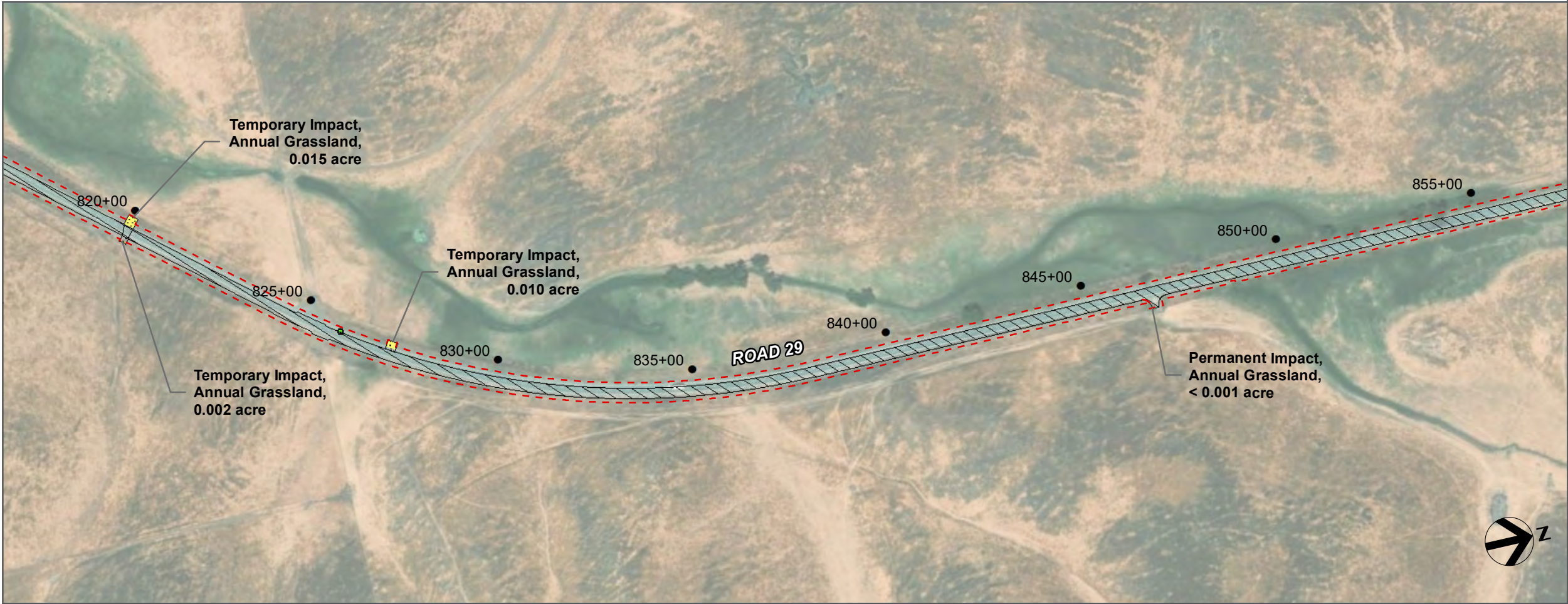
**Vegetation**

- Annual Grassland
- Intermittent Channel
- Seasonal Wetland
- Swale

**Ground Squirrel Burrow**

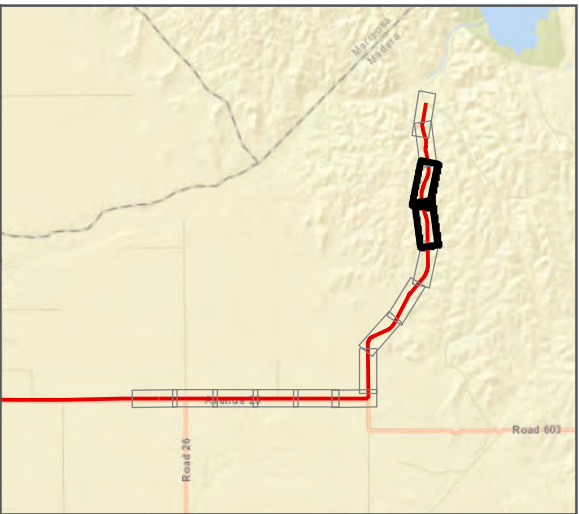
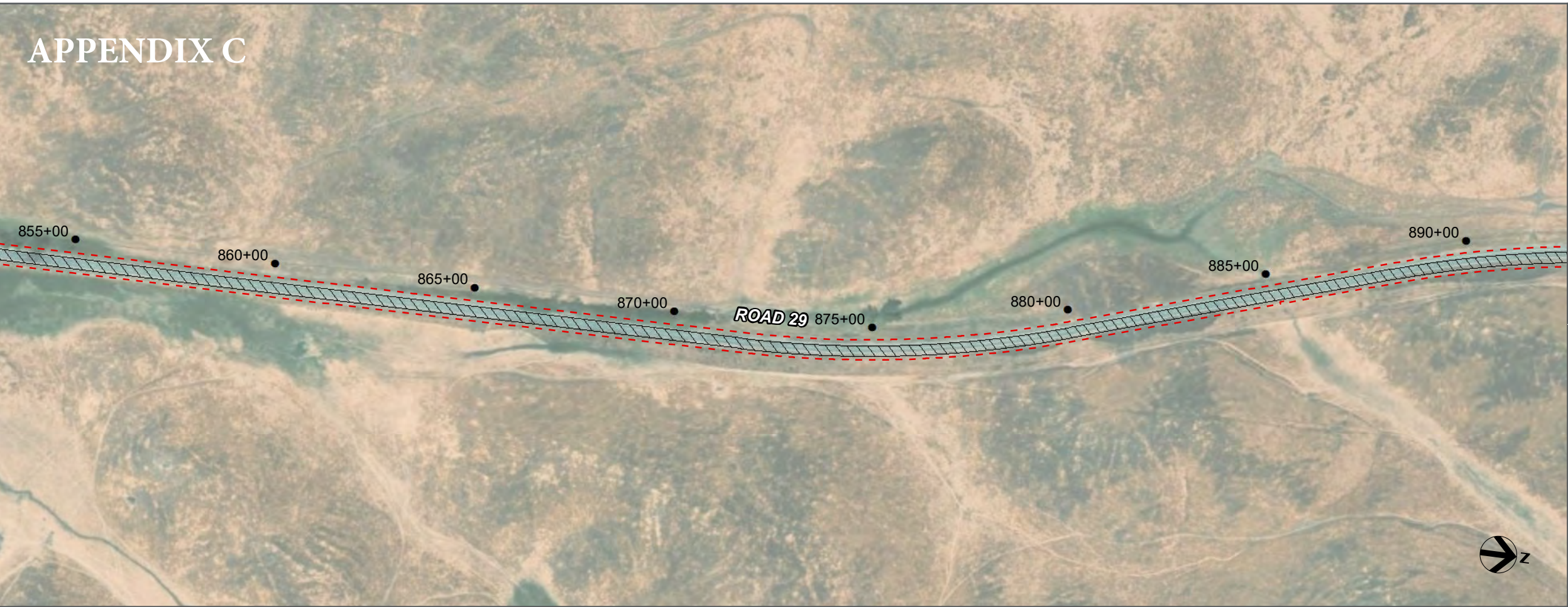
Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

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APPENDIX C



- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
- Impact Area**
- ▨ Permanent Impact
  - ▤ Temporary Impact
- Vegetation**
- Annual Grassland
  - Intermittent Channel
  - Seasonal Wetland
  - Swale



**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

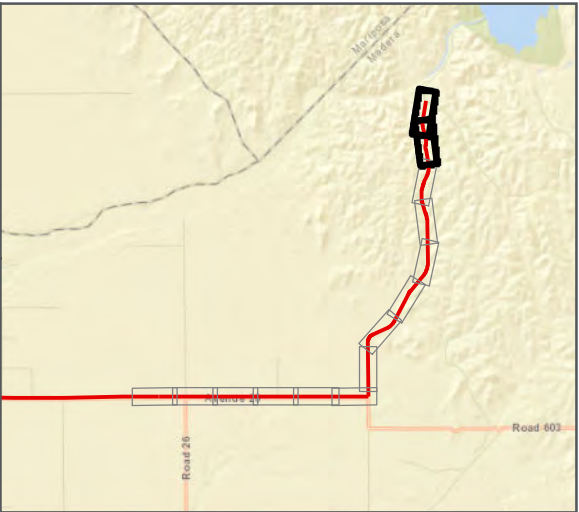
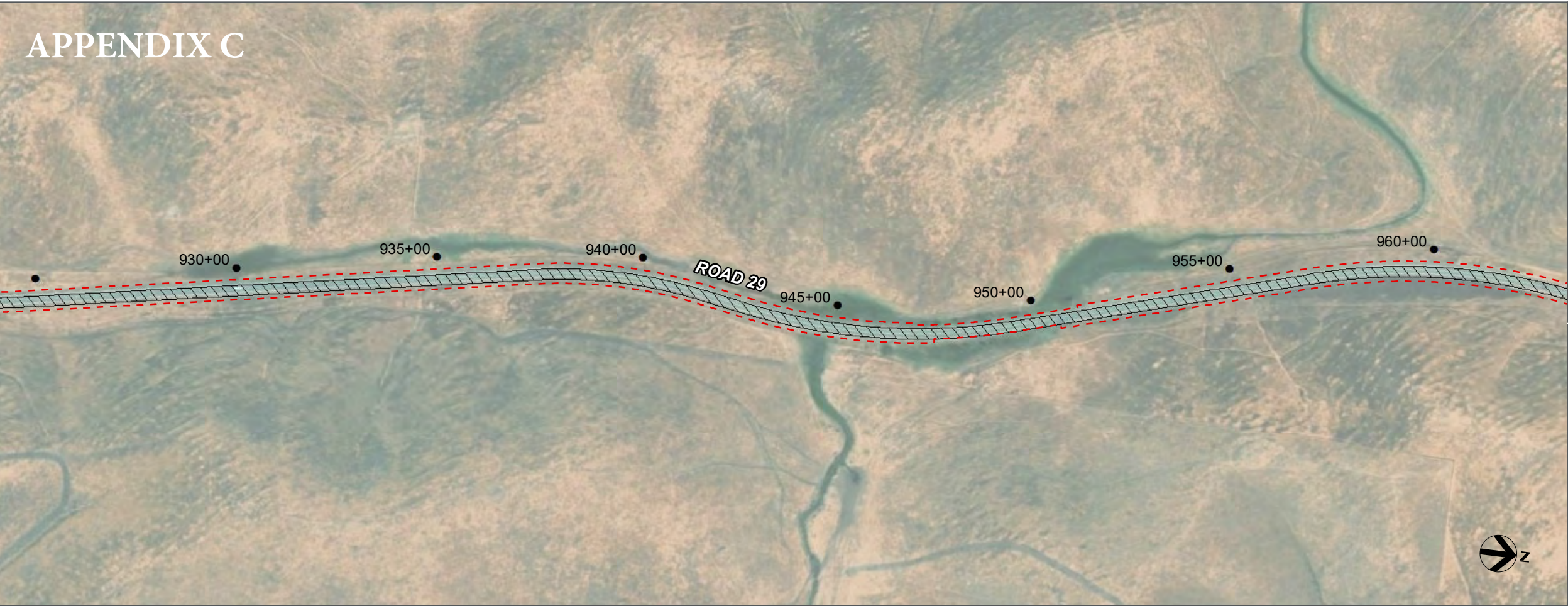
Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS

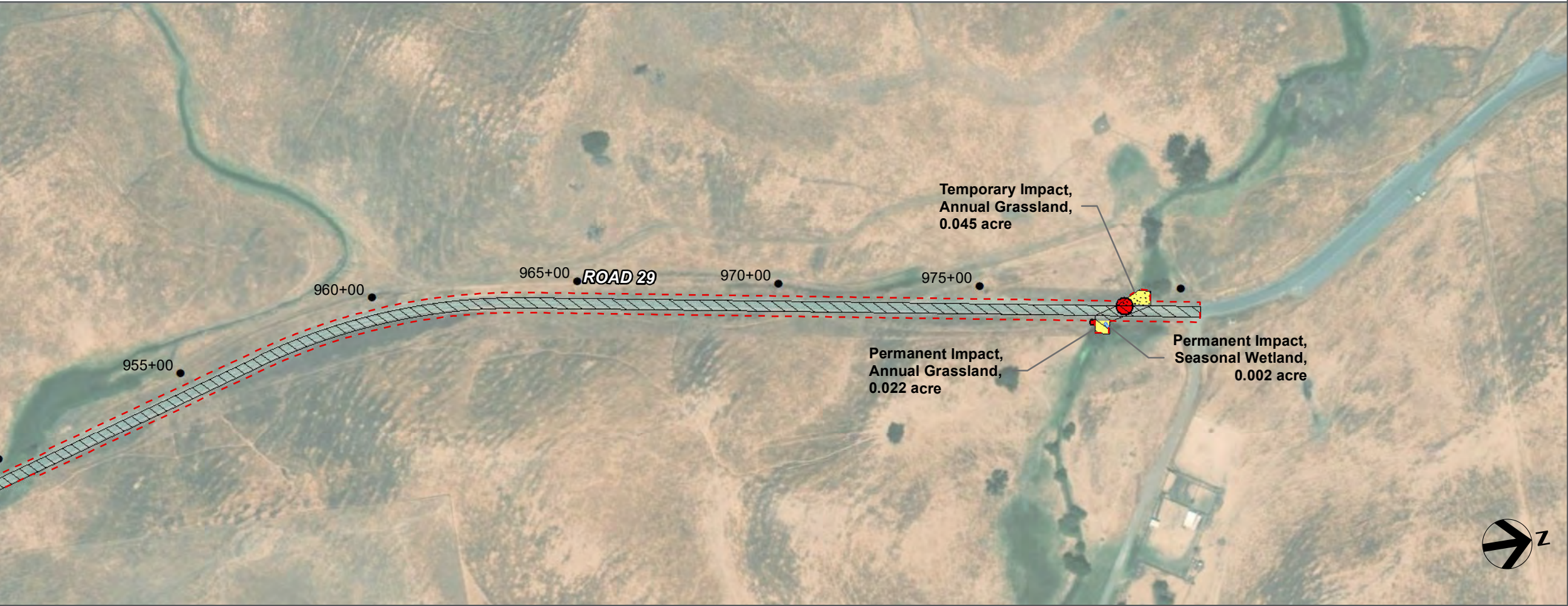




APPENDIX C



- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
- Impact Area**
- ▨ Permanent Impact
  - ▤ Temporary Impact
- Vegetation**
- Annual Grassland
  - Intermittent Channel
  - Seasonal Wetland
  - Swale



**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

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CALIFORNIA TIGER SALAMANDER HABITAT IMPACTS

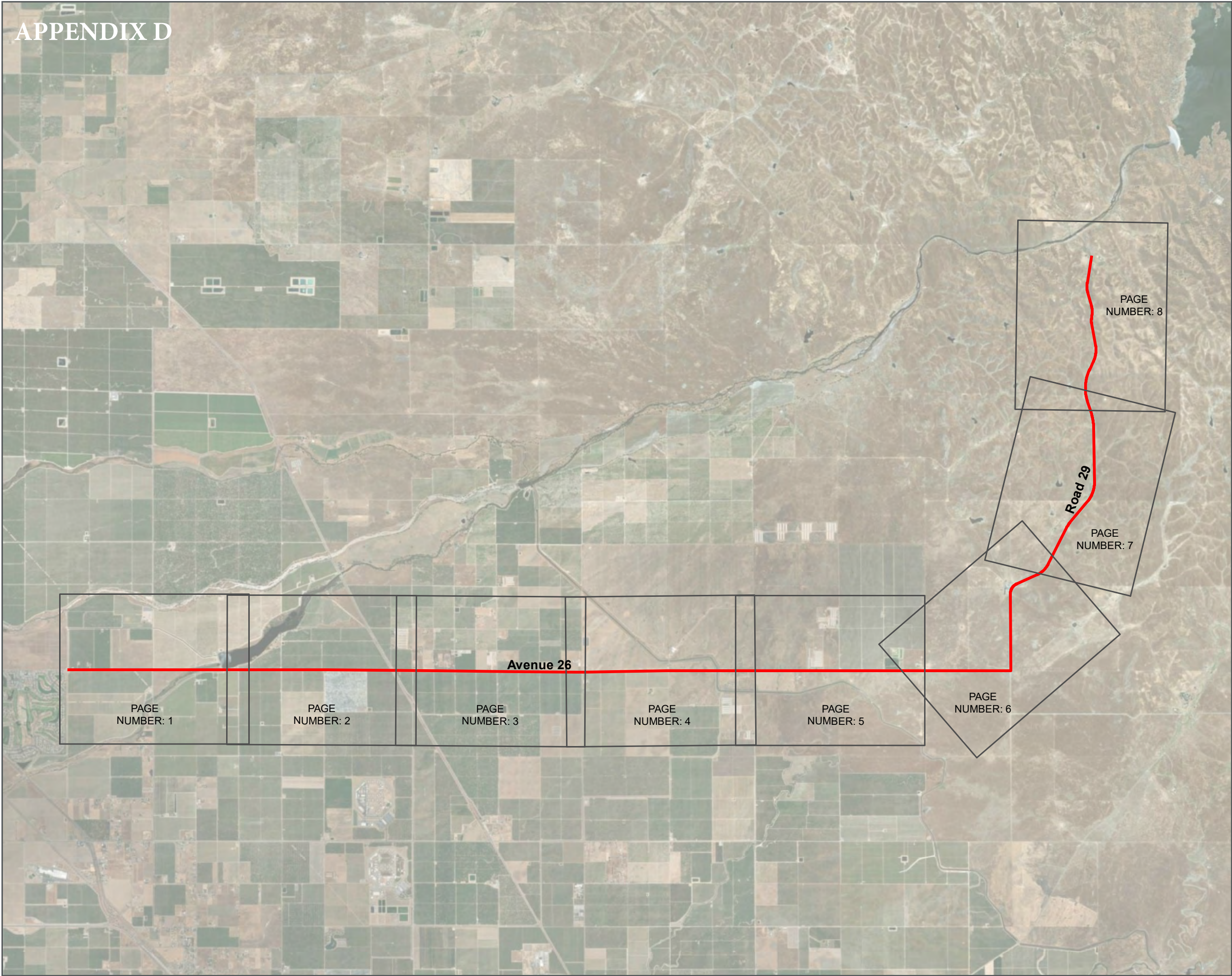




## **APPENDIX D - VEGETATIVE COMMUNITIES**



APPENDIX D

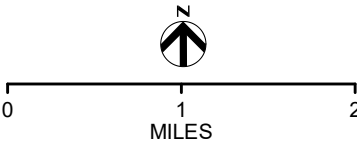


- LEGEND
- Road Centerline
  - Map Index

Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

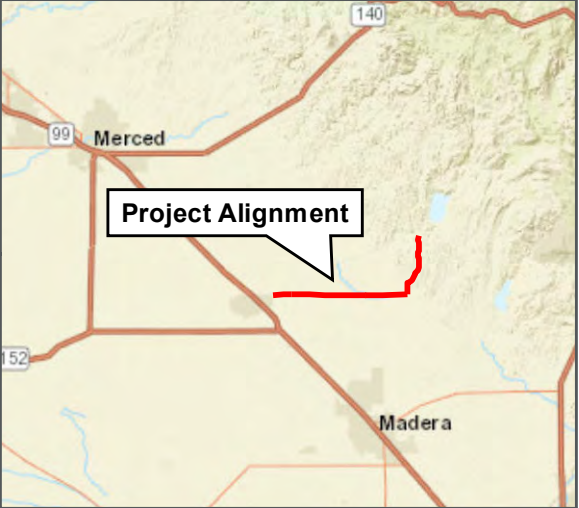
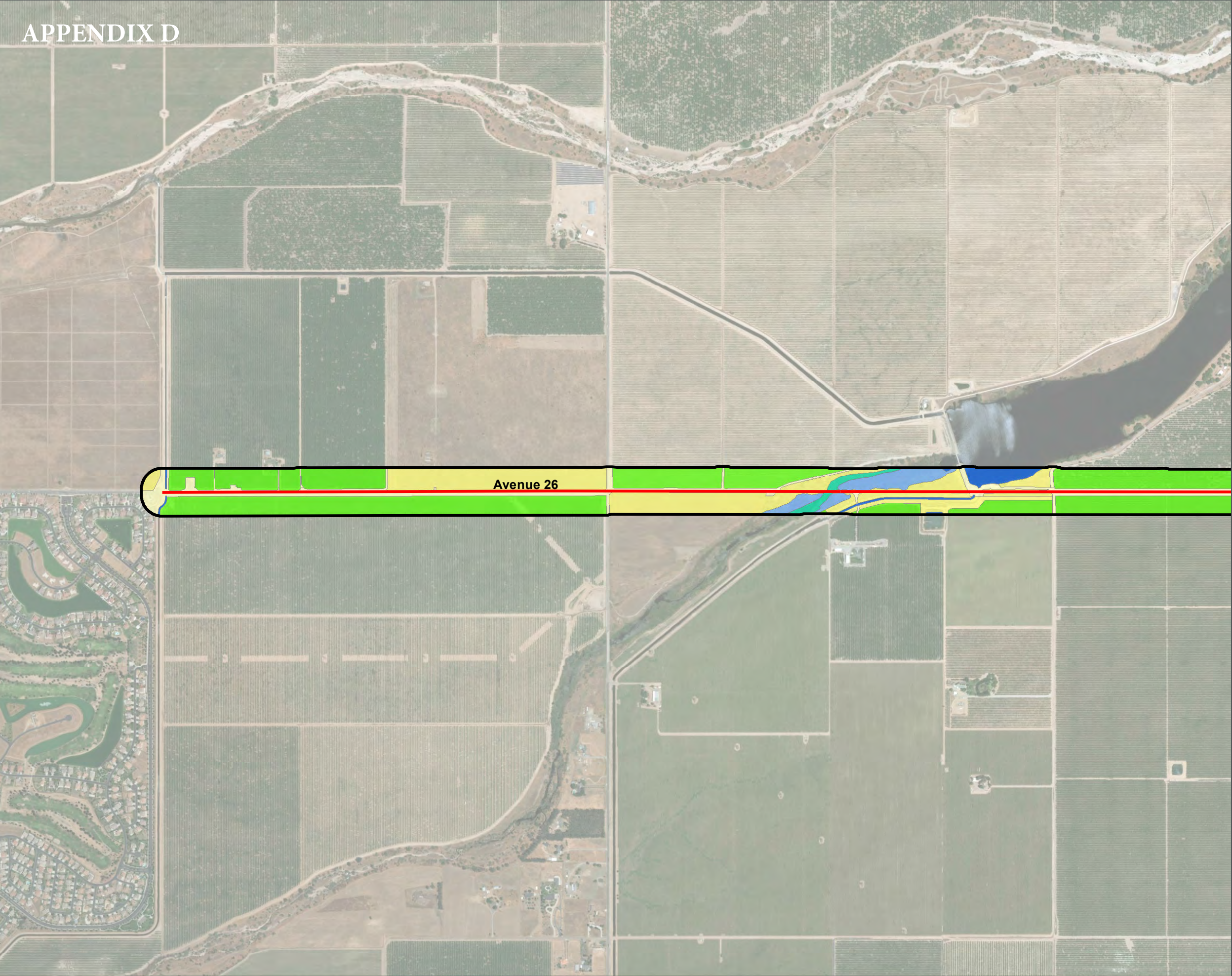
VEGETATION COMMUNITIES

Map Index





APPENDIX D

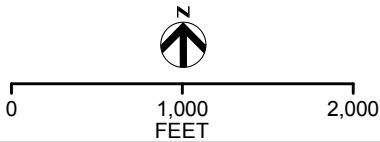


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

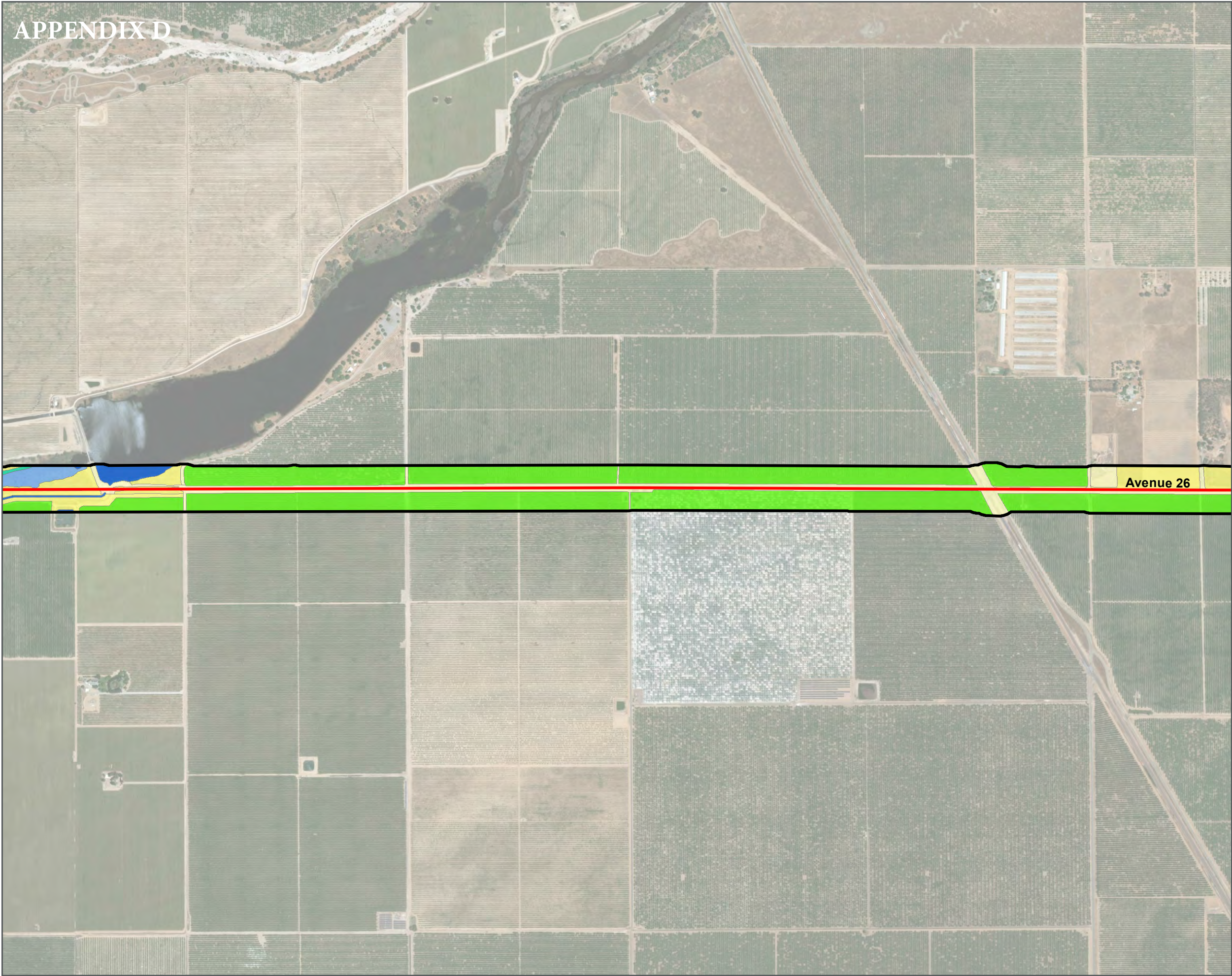
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VEGETATION COMMUNITIES

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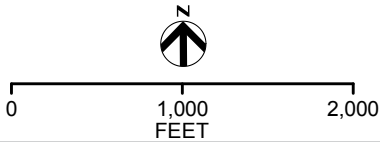


- LEGEND**
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities**
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

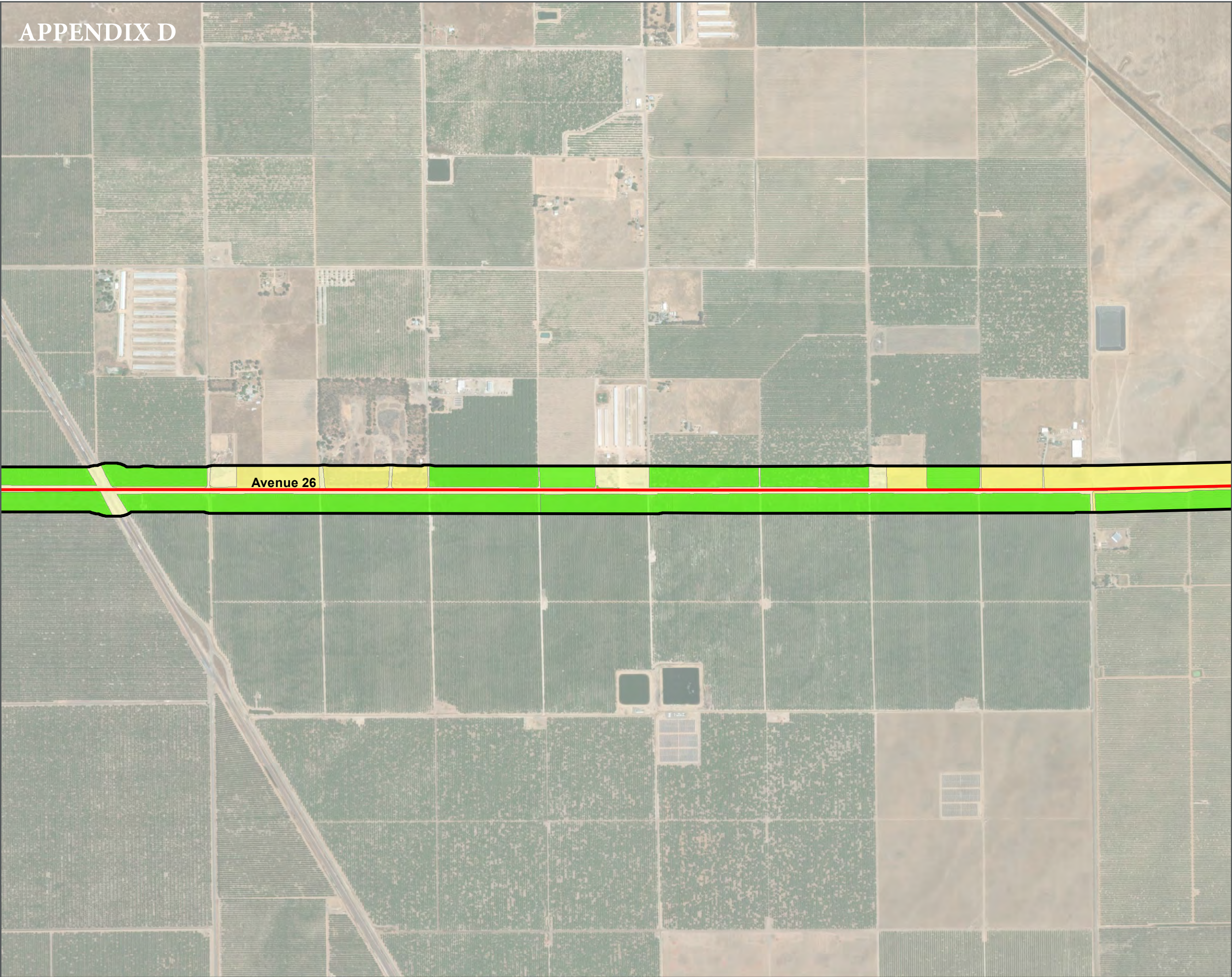
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**VEGETATION COMMUNITIES**

Page Number: 2







APPENDIX D

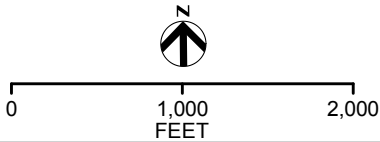


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

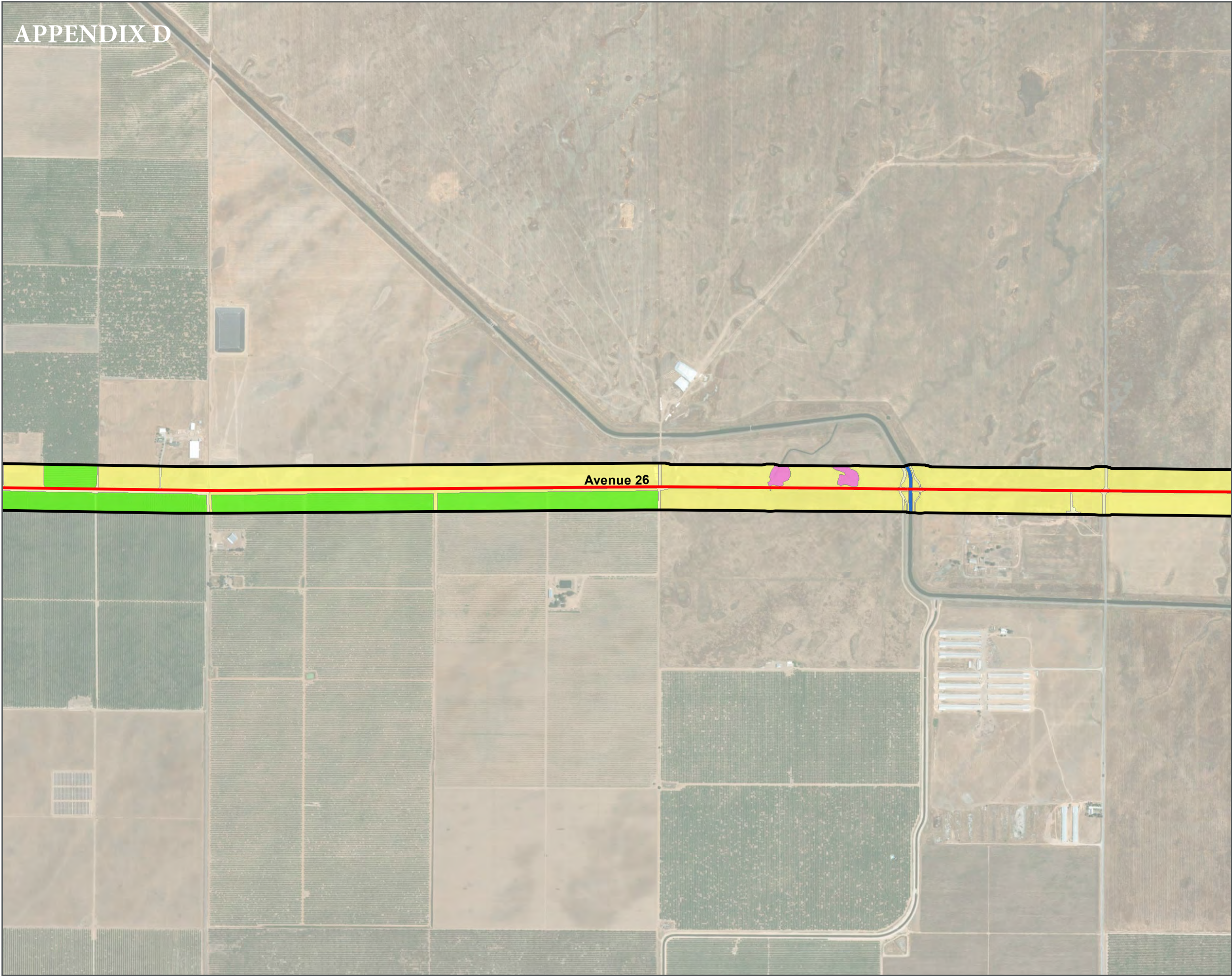
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VEGETATION COMMUNITIES

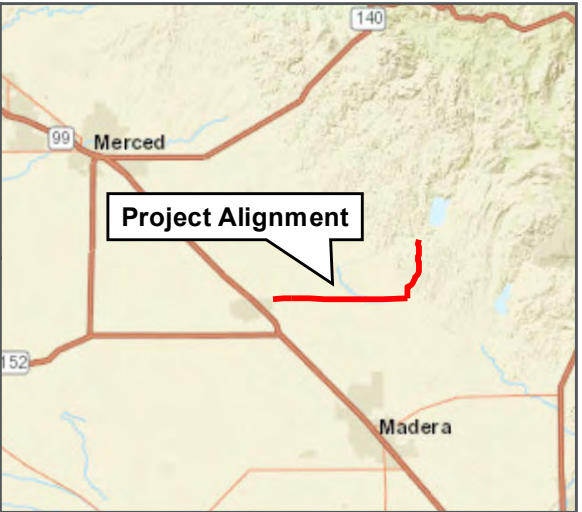
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APPENDIX D

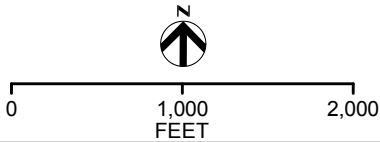


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

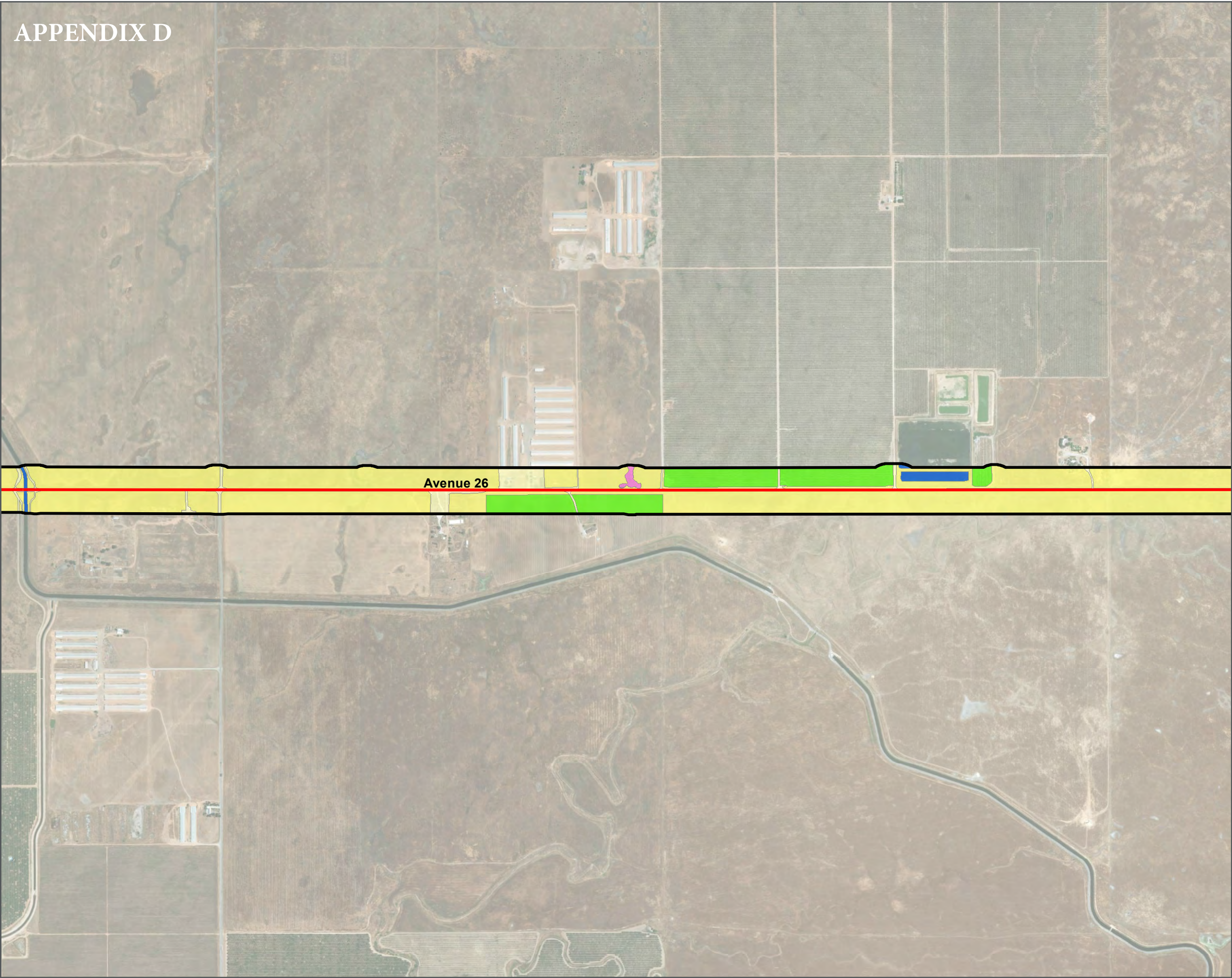
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VEGETATION COMMUNITIES

Page Number: 4





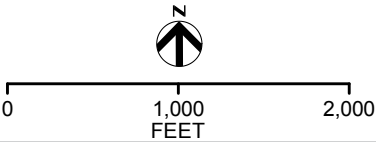


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

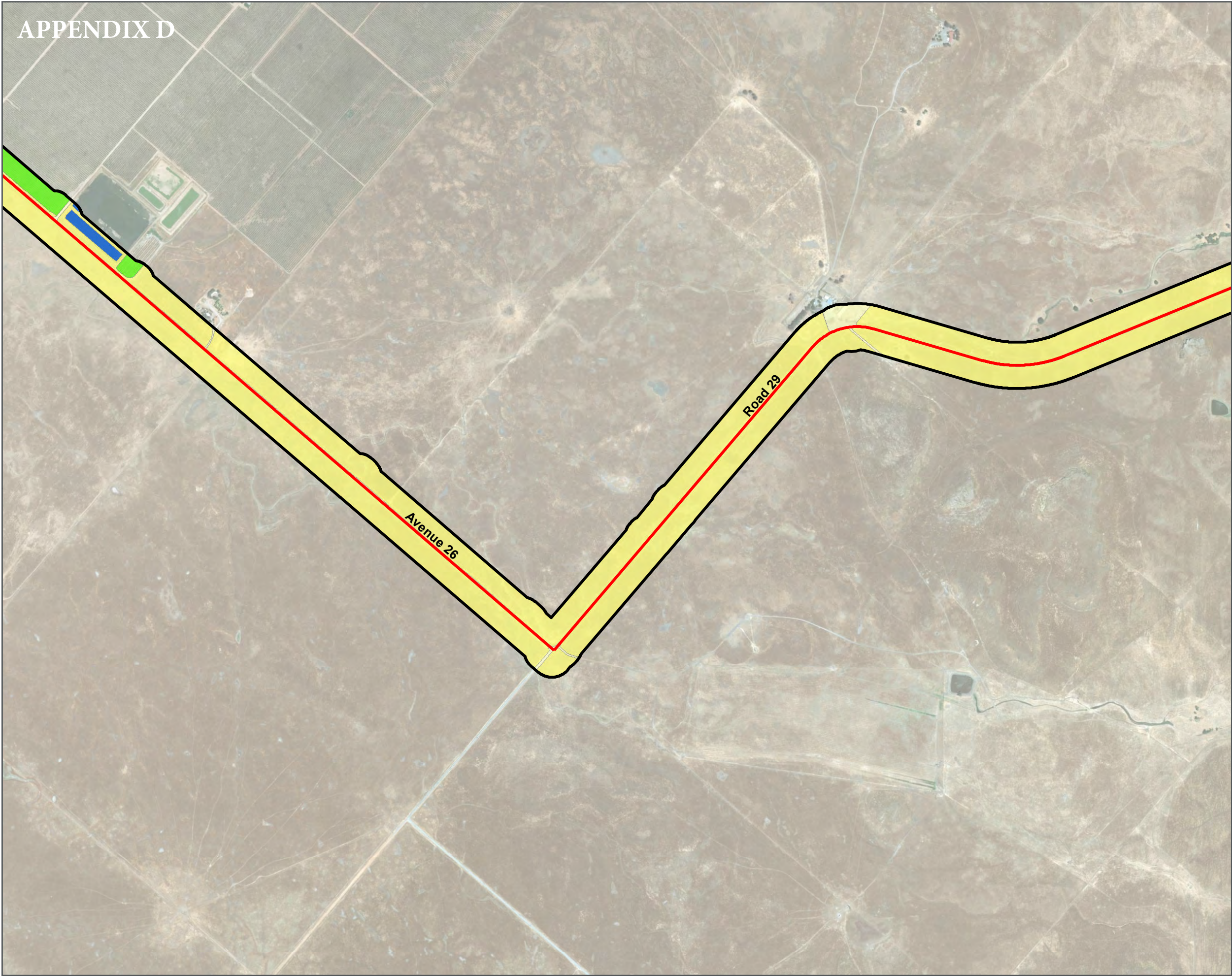
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VEGETATION COMMUNITIES

Page Number: 5





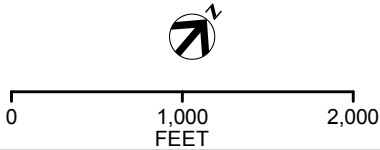


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

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VEGETATION COMMUNITIES

Page Number: 6







APPENDIX D

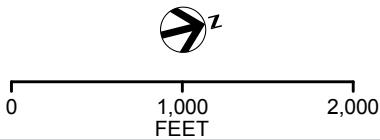


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

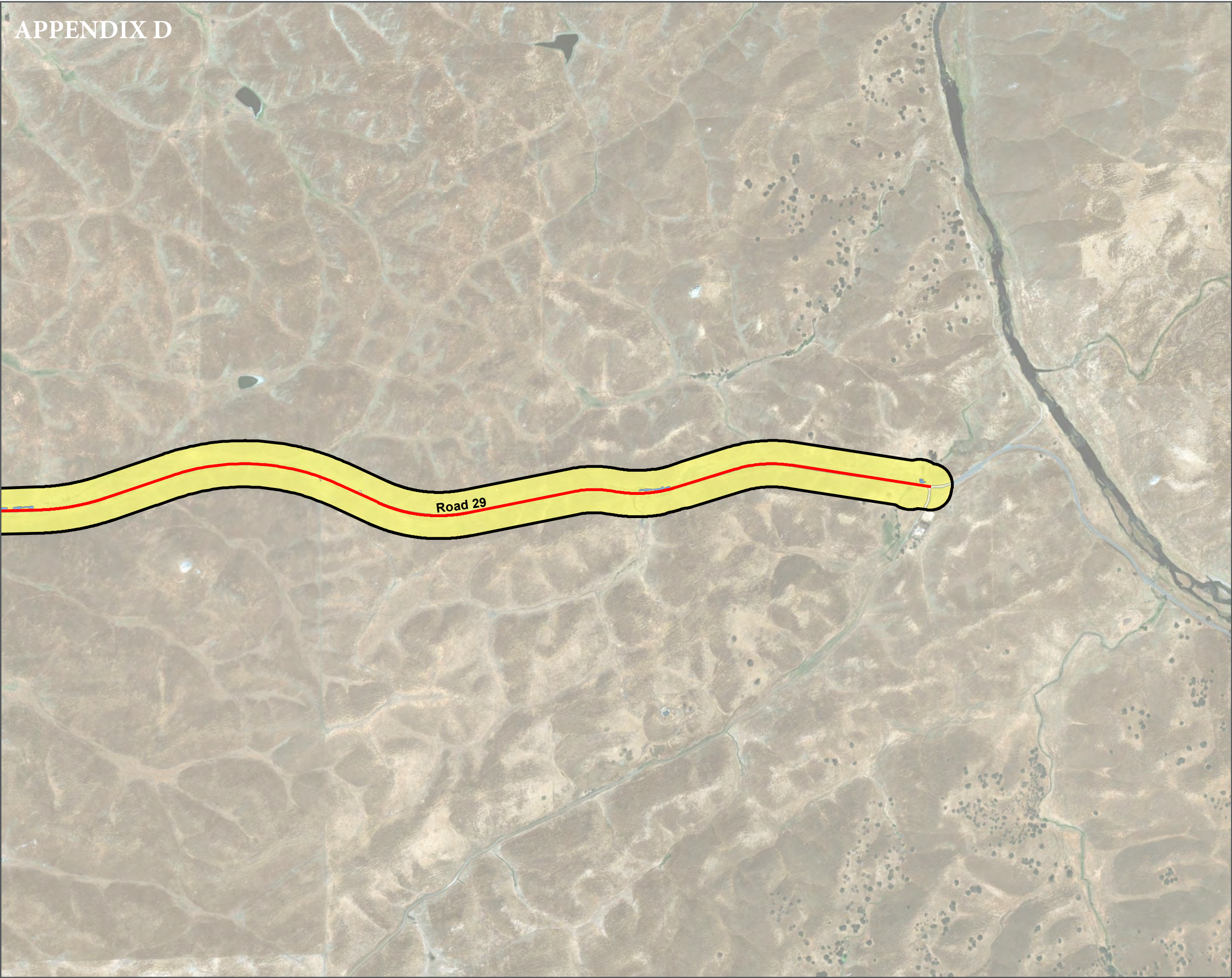
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VEGETATION COMMUNITIES

Page Number: 7







APPENDIX D

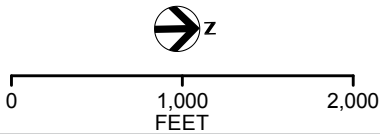


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

Map information was compiled from the best available sources.  
No warranty is made for its accuracy or completeness.

VEGETATION COMMUNITIES

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## **APPENDIX E - SITE PHOTOGRAPHS**

## Appendix E - Site Photographs



**Photo 1:** View of study area near northeastern boundary at Road 29, showing non-native grassland habitat on both sides of the road. Photo taken on east side of Road 29, towards south.



**Photo 2:** View of non-native grassland adjacent to Road 29. Taken from west side of Road 29, towards south.





**Photo 3:** View of typical culvert conveying small amounts of ephemeral flow under Road 29.



**Photo 4:** View of orchard habitat on south side of Avenue 26, showing cleared strip of land in ROW adjacent to paved road. Photo taken towards east.



**Photo 5:** View of inactive agricultural land adjacent to Avenue 26, showing paved road adjacent to non-native grassland/ruderal habitat on shoulder. Photo taken towards east.



**Photo 6:** View of marsh habitat in Berenda Slough, taken from Avenue 26 bridge over Berenda Slough.





**Photograph 1.** Freshwater Marsh habitat in Berenda Slough (Feature B) with riparian trees in the background, beyond the study area. View towards east.



**Photograph 2.** Upland habitat adjacent to Berenda Slough (Feature B), within channel banks on northwest side of bridge. View towards north.





**Photograph 3.** View of Feature D (Califa Canal) at south side of Avenue 26. The concrete drainage was empty at the time of the survey. View facing east.



**Photograph 4.** View of Feature E (Madera Canal) from Avenue 26 towards the north.





**Photograph 5** View of culvert conveying Feature G, under driveway north of Avenue 26. View facing northeast.



**Photograph 6.** View of Feature H from north side of Avenue 26 towards northwest.





**Photograph 7.** Feature I, an ephemeral feature conveyed under Avenue 26 via two 24" CMPs, facing northwest.



**Photograph 8.** View of culvert at south end of Feature N, facing west.





**Photograph 9.** Riparian trees with non-native grasses in understory at north end of Feature N, facing south.



**Photograph 10.** View of Riparian/Wetland vegetation in Feature O, taken from Wetland Data Point 3, facing north.





**Photograph 11.** View of Feature T on east side of Avenue 29, showing culvert with standing water, at location of Soil Pit 4.



**Photograph 12.** View of Feature U showing culvert on east side of Avenue 29. Surrounding vegetation is non-native grassland. View facing north.



## **APPENDIX F - BIOLOGICAL ASSESSMENT**



August 2019

# **BIOLOGICAL ASSESSMENT**

CA FLAP MAD 26(1) et al.

Avenue 26 and Road 29

Rehabilitation Project

Madera County, California



FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

Lead Federal Agency: FHWA

Prepared by:





**Biological Assessment  
CA FLAP MAD 26(1) et al.  
Avenue 26 and Road 29 Rehabilitation Project  
Madera County, California**

*Prepared for:*



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August 2019

# Summary of Findings, Conclusions, and Determinations

The Federal Highway Administration Central Federal Lands Highway Division, in cooperation with Madera County, proposes improvements to approximately 11 miles of Avenue 26 and 5.4 miles of Road 29 in Madera County, California. These are county maintained roads that provide access to Eastman Lake Recreation Area from the City of Chowchilla and State Highway 99. This serves as the primary access to the recreation area for camping, boating, hiking, and fishing activities.

## Federally-Listed Species Impacts and Mitigation

The proposed action is **not likely to adversely affect** fleshy owl's clover (*Castilleja campestris* ssp. *succulenta*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), hairy Orcutt grass (*Orcuttia pilosa*), Greene's tuctoria (*Tuctoria greenei*), and San Joaquin kit fox (*Vulpes macrotis*). However, the proposed action **may affect, is likely to adversely affect** vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), and California tiger salamander (*Ambystoma californiense*).

### Vernal Pool Species

Protocol-level surveys conducted by Live Oak Associates, Inc. in the summer of 2018 and 2019 did not find individuals of fleshy owl's clover, San Joaquin Valley Orcutt grass, hairy Orcutt grass, and Greene's tuctoria; therefore, the proposed action is **not likely to adversely affect** these species. The proposed action **may affect, is likely to adversely affect** vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. The proposed action will result in direct impacts on suitable aquatic habitat for vernal pool crustaceans and the California tiger salamander; as well as, suitable upland habitats for the California tiger salamander. The avoidance, minimization, and conservation measures proposed in this document will be implemented to fully mitigate all impacts associated with the proposed action on vernal pool species. Therefore, the proposed action will not jeopardize the continued existence of these species.

### San Joaquin Kit Fox

The proposed action is **may affect, is not likely to adversely affect** San Joaquin kit fox. The proposed action will fully avoid suitable habitat for this species. No permanent direct impacts on the fox or its habitat will occur; therefore, the proposed action will not jeopardize the continued existence of this species.

### Critical Habitat

No critical habitat for the aforementioned species overlaps with the action area; therefore, no impacts on these species critical habitats will occur as a result of the proposed action.



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# 1.0 Introduction

The purpose of this biological assessment (BA) is to provide technical information and to review the Avenue 26 and Road 29 Rehabilitation Project (proposed action) in sufficient detail to determine to what extent federally threatened, endangered, or candidate species and/or their critical habitats may be affected. Furthermore, the information herein is provided to comply with statutory requirements to use the best scientific and commercial information available when assessing the risks posed to listed and/or proposed species; as well as, designated and/or proposed critical habitat by proposed federal actions.

This BA is prepared in accordance with the legal requirements found in Section 7(a)(2) of the Endangered Species Act and with United States (U.S.) Fish and Wildlife Service (Service) regulation, policy, and guidance. This document presents technical information upon which later decisions regarding the proposed action impacts are developed, and is intended to support the Federal Highway Administration Central Federal Lands Highway Division's (action agency) consultation with the Service.

## 1.1 Location of the Proposed Action

The proposed action is located in California's San Joaquin Valley and runs from the City of Chowchilla to the Eastman Lake Recreation Area (**Figure 1**). It spans a distance of 16.4 miles across the U.S. Geological Survey 7.5-minute quadrangles for Le Grand and Raynor Creek (**Figure 2**). The proposed action spans multiple Sections, Townships, and Ranges that are depicted on **Figure 2**. Land use in the area is predominantly agricultural including vineyard, orchard, and pasture.

## 1.2 Purpose and Need

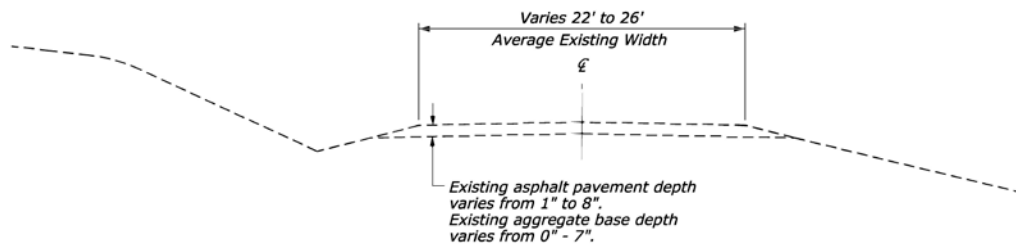
The purpose of the proposed action is to provide a safe and sustainable roadway that will improve access to Eastman Lake Recreation Area by reestablishing a consistent traveled way width and by rehabilitating the pavement. This proposed action is needed to bring the current roadways back to serviceable condition. The roadways have a poor, rough, and uneven riding surface and reduced lane widths due to deterioration. The proposed action includes grading of ditches, minor drainage structures, placement of crushed aggregate base and asphalt pavement, signing, striping, and other safety related features necessary to meet current design practice. Additional guardrail may be required due to obstructions or slopes within the proposed clear zone.

## 1.3 Description of the Proposed Action

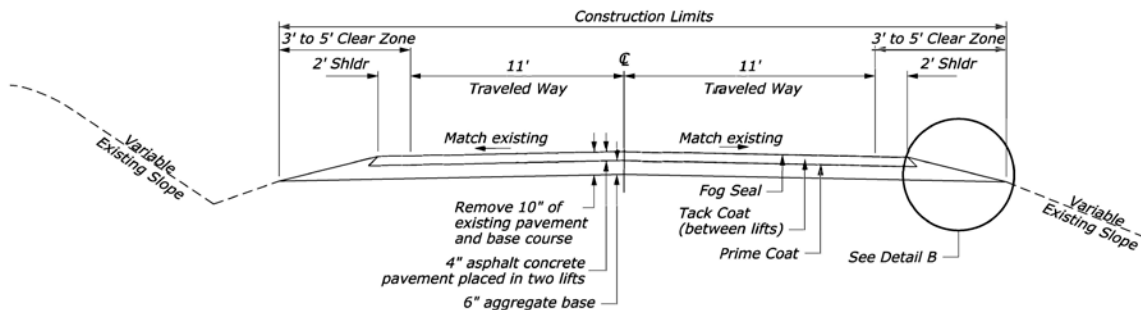
The action agency, in cooperation with Madera County, proposes improvements to approximately 11 miles of Avenue 26 and 5.4 miles of Road 29. These are county maintained roads that provide access to Eastman Lake Recreation Area from the City of Chowchilla and State Highway 99. This serves as the primary access to the recreation area for camping, boating, hiking, and fishing activities.



The proposed action will include pulverization and replacement of the existing asphalt two-lane roadway (**Image 1**) with new aggregate base and asphalt pavement. The existing lane widths vary due to deterioration; therefore, the proposed action will establish two travel lanes, with shoulders with an anticipated total paved width of 26 feet, along 16.4 miles of road (**Image 2**). This will result in the expansion of the existing paved road surface by 5.83 acres. Additionally, the existing asphaltic concrete pavement will be pulverized, aggregate base will be added, the roadway will be regraded to the proposed typical section and compacted, and then new asphaltic concrete pavement will be placed.



**Image 1. Existing Typical Road Prism Cross Section**



**Image 2. Proposed Typical Road Prism Cross Section**

The roadway profile will most likely be raised due to pulverization, the addition of new base, and new asphalt. The road profile will be matched at existing structures via excavation and/or sub-excavation. The pavement safety edge with 4:1 should catch on existing bench or foreslopes. Use of shoulder gravel may be needed to match existing farming pull-off locations. Barrier heights will be maintained at the structures. No special work is anticipated at intersections or driveways.

The existing centerline striping will be replaced, and 6-inch striping will be added to the edgelines for increased visibility. Raised pavement markings will also be installed. All signs will be evaluated and replaced according to California Manual on Uniform Traffic Control Devices guidelines. The proposed speed limit for the roadway would remain 55 miles per hour. There are no speed signs presently installed.

A design exception is anticipated for the clear zone. Object markers will be installed on utility poles. Headwalls will be relocated away from the edge of the road. Bridge terminal sections will be evaluated for improvement to current standards. Mailbox posts will be replaced with crashworthy posts. In addition, some small diameter culverts will be replaced with larger culverts to meet Office of Federal Lands Highway standards, and some culvert ends will be extended outside the clear zone. Please see **Appendix A** for a set of 95 percent complete project design plans for additional project details.

Work in upland habitats that may support California tiger salamander will be completed between April 15 and October 15, 2020; while work in aquatic resources will be completed between May 1 and October 15, 2020. The contractor will be responsible for identifying an off-site staging area that will not impact federally listed species and can be used for equipment staging, materials stockpiling, refueling, and other support needs during construction. No equipment will be staged along the roadway overnight, and any on-site equipment or materials staging during the workday will be sited in areas determined to avoid impacts on federally listed species habitats by the qualified biologist. Lastly, soils excavated during culvert replacement will be temporarily stockpiled in previously disturbed/developed areas deemed appropriate by the qualified biologist, and either hauled off-site to the staging area for temporary stockpiling or backfilled around the culverts prior to the end of each workday. Other than the culvert replacements, no soil excavation will occur as a result of the roadway improvements.

## 1.4 Construction Schedule

Construction is expected to take place in 2020 and is anticipated to last approximately 8 months. Short-term closures may be needed for certain construction milestones. Signing detours would provide alternate access to the community and recreational opportunities at the recreation area.

## 1.5 Interrelated and Interdependent Actions

Section 7 of the Endangered Species Act requires a federal agency to examine the effects of a proposed federal action on federally listed species including direct, indirect, and other effects from activities that are interrelated and interdependent with the action. Interrelated actions are defined as those that are part of a larger action and depend upon the proposed action for their justification. Interdependent actions are defined as those that will not occur but for the proposed action. The proposed action is not interrelated or interdependent on any other actions; therefore, no further analysis of interrelated or interdependent effects is provided.

## 1.6 Action Area

The action area is defined in Title 50 Code of Federal Regulations Section 402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” As a result, the action area has been defined as the construction limits plus a 250 foot buffer. The 250 foot buffer was chosen due to the potential presence of federally listed vernal pool crustaceans in aquatic resources adjacent to the proposed action area, and based on the Service’s standard operating procedure requiring analysis of potential indirect effects on all potential vernal pool crustacean habitat within that distance of proposed development. The Service’s larger 1.24 mile buffer for California tiger salamander was not used

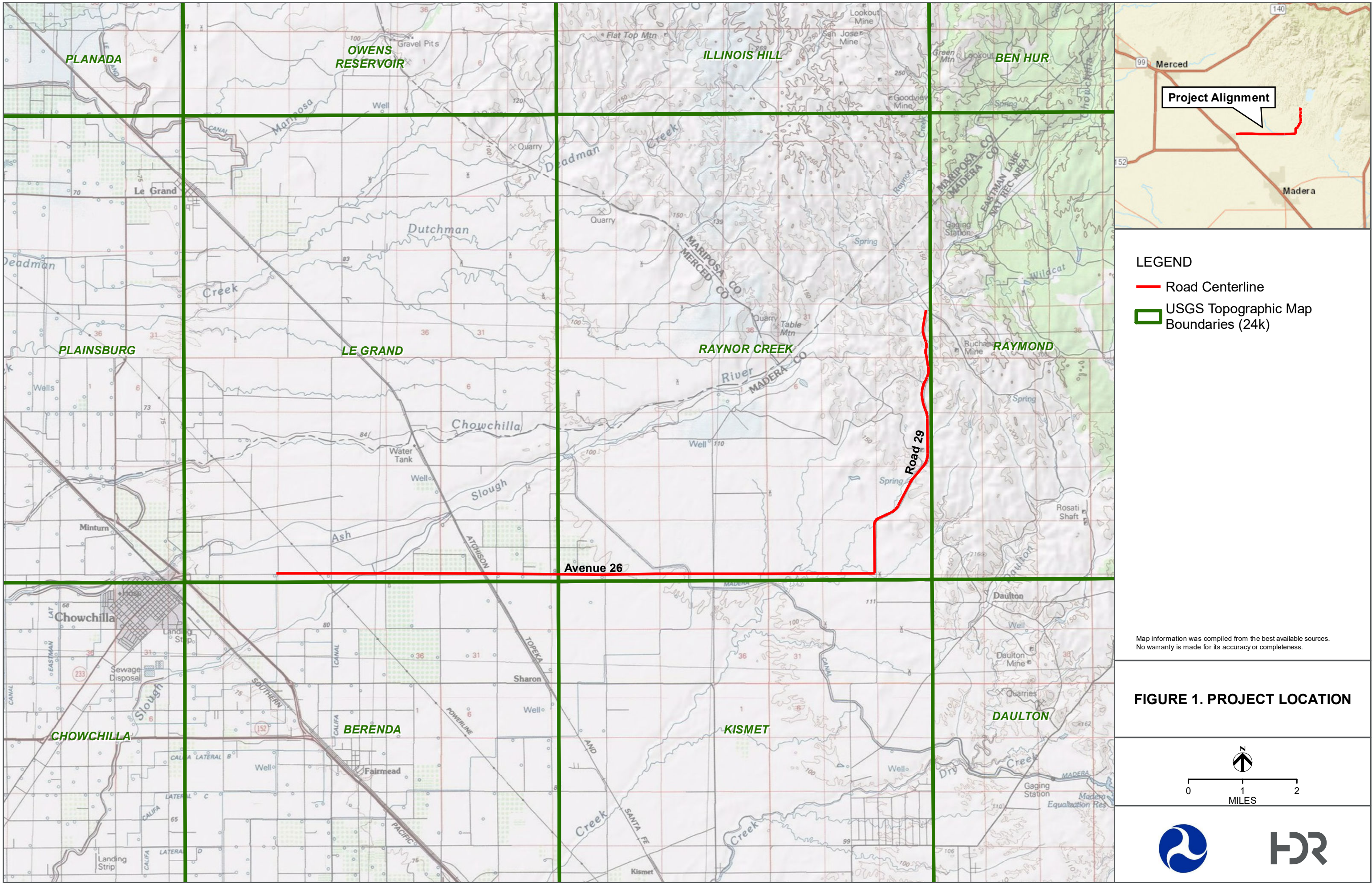


due to a lack of access to properties outside the road right-of-way; however, subsequent discussions on potential impacts on this species will capture suitable breeding pools within 1.24 miles of the proposed action.

## **1.7 Consultation History**

- On January 19, 2017, a list of federally-listed species that could be impacted by the proposed action was requested from the Service's Information, Planning, and Conservation (IPaC) system. A subsequent phone consultation was conducted with the Service on August 1, 2017 to discuss the species list provided through IPaC and potential for impacts on federally-listed species as a result of the proposed action.
- On October 11, 2017, the action agency sent a letter to the Service requesting initiation of informal consultation under Section 7 of the Endangered Species Act, regarding potential effects of the proposed action on federally-listed species.
- On November 28, 2017, Ms. Dana Herman of the Service issued a request for additional information on the proposed action.
- On December 18, 2017, a subsequent phone call with Ms. Dana Herman and Holley Kline, both of the Service, further clarified the request for additional information.
- On May 4, 2018, a revised BA was submitted to Ms. Dana Herman at the Service.
- On June 13, 2018, the action agency held a follow-up conference call with Ms. Dana Herman at the Service to discuss some areas that needed clarification in the revised BA.
- On October 9, 2018, the action agency held a conference call with Ms. Margaret Sepulveda and Ms. Patricia Cole of the Service to provide an overview of the project and discuss project history with Ms. Sepulveda, who replaced Ms. Herman as the designated Service reviewer. Impacts on California tiger salamander habitat were also discussed in relation to the work proposed in the temporary workspace areas, as well as outstanding information needs.

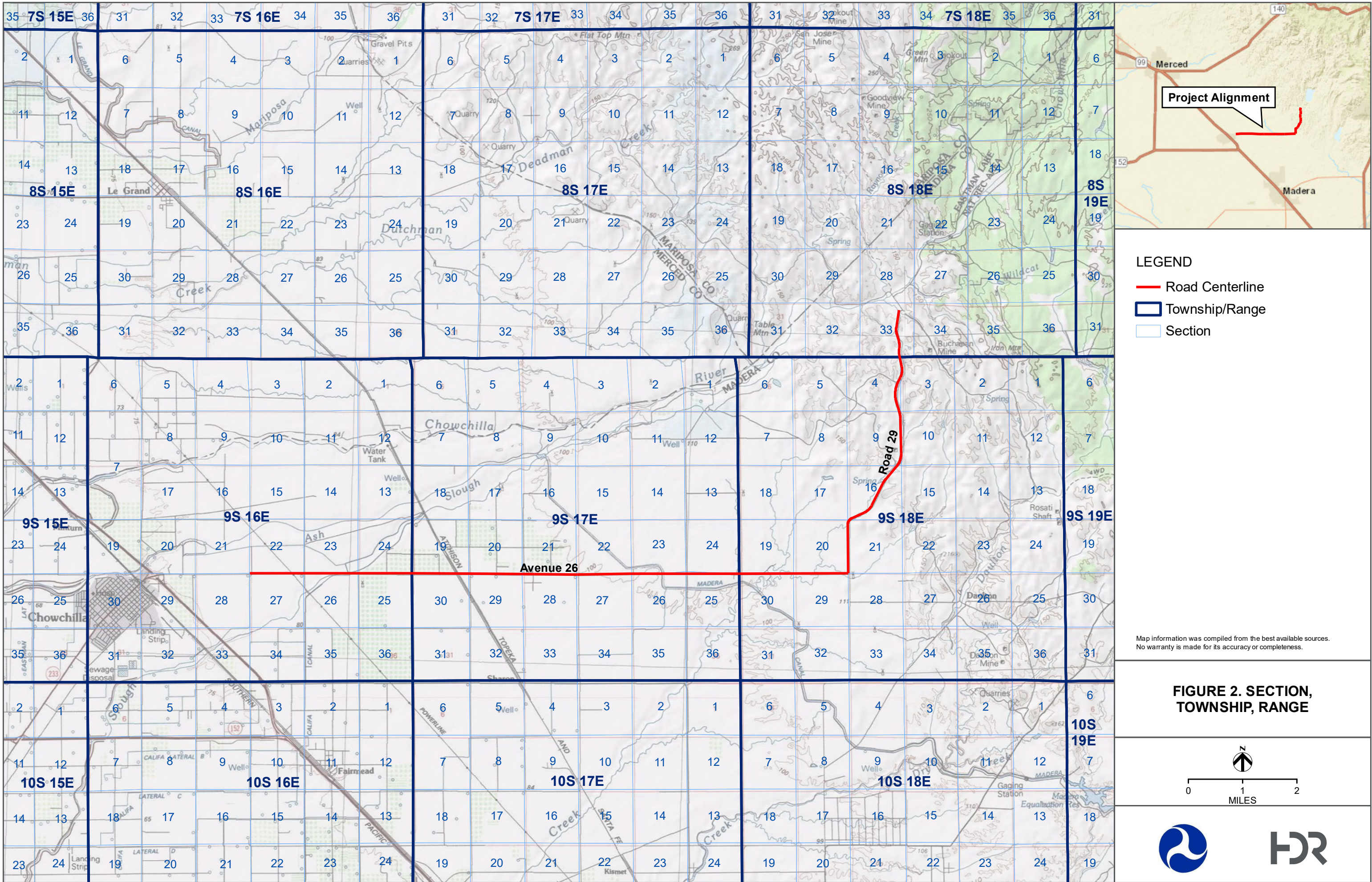






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## 2.0 Study Methods

HDR biologists reviewed the project description and conceptual design plans, performed desktop reviews and database searches, and conducted reconnaissance-level biological surveys to obtain information regarding habitat quality and the potential presence of federally listed plant and wildlife species in the action area. This section summarizes the technical studies performed to date.

### 2.1 Desktop Review

A list of federally protected species and habitats that have the potential to occur in the action area was prepared using information obtained from the Service's (2017a) IPaC database, Critical Habitat Portal (2017b), the California Department of Fish and Wildlife's (CDFW 2017) California Natural Diversity Database (CNDDDB), and the California Native Plant Society's (CNPS 2017) Inventory of Rare and Endangered Plants of California.

A search of the Service's IPaC database was performed to identify species under the Service's jurisdiction that may be affected by the proposed action. In addition, the Service's Critical Habitat Portal was queried to identify designated critical habitat in or adjacent to the action area. The CNDDDB query provided a list of processed and unprocessed occurrences of federally listed species identified in the San Luis Ranch, California, U.S. Geologic Survey 7.5-minute quadrangle and all adjacent quadrangles: Gustine, Stevinson, Arena, Ingomar, Turner Ranch, Volta, Los Banos, and Delta Ranch. The CNPS database was also queried to identify federally listed plant species with the potential to occur in the aforementioned U.S. Geologic Survey quadrangles. Please see **Appendix B** for the raw data returned from the database queries, and **Appendix C** provides a list of California special-status species with the potential to occur in the action area.

### 2.2 Reconnaissance-Level Surveys

HDR biologists Sarah Barrera and Ronell Santos conducted a reconnaissance-level survey, along the entire right-of-way on October 20 and 21, 2016. A follow-up reconnaissance-level survey was conducted by HDR biologists Michael Carbiener and Leslie Parker on January 24, 2018. The purpose of the surveys were to assess the action area for the presence and suitability of potential habitat for federally-listed species. The last survey was conducted by HDR biologists Summer Pardo (Certified Wildlife Biologist) and Leslie Parker on June 20, 2018, to evaluate the culvert replacement locations for the presence of ground squirrel burrows. Areas beyond the right-of-way are on private property and, therefore, inaccessible in the field.

### 2.3 Special-status Plant Surveys

Live Oak Associates, Inc. completed protocol-level surveys for the proposed action to document the absence or onsite distribution of special-status plants, should any be present. The surveys focused on five federal- and/or state listed plants occurring in the vicinity, including succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), hairy Orcutt grass (*Orcuttia pilosa*), Greene's tuctoria (*Tuctoria greenae*), and Boggs lake hedge-hyssop (*Gratiola heterosepala*). Spiny-sepaled button celery, a California Native Plant Society (CNPS) List 1B species, was also included in the survey effort. All six species are primarily associated with vernal pool habitats in California's Central Valley.



During the 2018 and 2019 no individuals of the target species were documented, and habitats were largely found by Live Oak Associates, Inc. to be unsuitable to extremely marginal for all target species save the spiny-sepaed button celery. Other than the latter, the wetland plant community within onsite aquatic features did not represent the plant community with which any of the target species would be associated. Furthermore, the dense vegetation growth in some areas and scouring creek flows in other areas created unsuitable habitat conditions for these species. Please refer to **Appendix D**

## 2.4 Impact Assessment

The impact assessment is based on the project description, the environmental setting; and on federal regulatory requirements regarding impacts on biological resources. In addition, the impact analysis utilized data collected from the desktop review, reconnaissance level surveys, habitat mapping, and federally listed species assessments. In this impact assessment, if information about the presence of a particular species was unknown, but suitable habitat was present, a conservative approach was applied by inferring species presence in the action area until preconstruction surveys determine otherwise. Impacts on specific biological resources are identified and appropriate avoidance, minimization, compensation, and/or mitigation measures are discussed further in Section 4.0.

## 2.5 Limitations that may Influence Results

Not all lands in the action area were accessible during the reconnaissance-level surveys; therefore, suitability of these habitats for federally-listed species was analyzed using the results of the reconnaissance surveys, desktop analysis, and local knowledge. The presence of federally listed species is inferred in suitable habitat in the action area until preconstruction surveys are completed, as necessary.

## 3.0 Environmental Setting

This chapter describes the region in which the proposed action will occur, including a description of the area's topography, vegetation, aquatic resources, and level of human or natural disturbance.

### 3.1 Description of Existing Biological and Physical Conditions

The following descriptions of the existing physical conditions and vegetative communities are described in relation to the action area boundaries. The action area was used as the limit for biological studies conducted in support of the proposed action and will be used when determining potential impacts on federally listed species as described in Section 4.0.

### 3.2 Physical Conditions

The action area ranges in elevation from approximately 250 feet above mean sea level at the western end near Chowchilla, to approximately 600 feet above mean sea level at the eastern end. The climate is moderate, with average temperatures ranging seasonally from approximately 48 to 80 degrees Fahrenheit, with an average precipitation of 12 inches (U.S. Department of Agriculture 2018). Berenda Slough intersects the action area approximately 3 miles east of Chowchilla, and Madera Canal intersects the action area, approximately 6 miles east of Berenda Slough. The portion of the action area from Chowchilla to the Madera Canal is largely dominated by intensive agricultural operations that involve significant and ongoing alteration and land management such as vineyards and orchards. East of Madera Canal the land use changes to a less intensive agricultural use, pasture for cattle grazing.

### 3.3 Vegetation Communities

Vegetative communities are assemblages of plant species that occur in the same area and are defined by species composition and relative abundance. The action area consists of a mix of upland and aquatic communities. The upland portion of the proposed action contains a mix of developed lands and natural vegetative communities that are highly disturbed. The vegetative communities present include agriculture, annual grassland, freshwater marsh, intermittent channel, open water, riparian, seasonal wetland, swale, and vernal pool. Each vegetative community is described below and is based on reconnaissance-level surveys, as well as descriptions obtained from the CDFW's *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). The map set provided in **Appendix E** depicts the vegetation communities in the action area.

#### 3.3.1 Agriculture

This community consists of annual cropland and orchards. All native vegetation within these areas has been removed. Weed management is regularly conducted, understory plants are cleared in orchards, and these lands are artificially irrigated.



### 3.3.2 Annual Grassland

Annual grassland habitat in the action area is characterized by a matrix of nonnative annual grasses, nonnative herbaceous species, and ruderal species. Typical nonnative annual grasses include ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), barley (*Hordeum marinum*), and Italian rye grass (*Festuca perennis*). Common nonnative herbaceous species include turkey-mullein (*Croton setiger*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), mustards (*Brassica* spp.), and wild radish (*Raphanus sativa*). Many native annual and perennial herbaceous species may also be associated with this plant community, but these species were not evident or readily identifiable during the reconnaissance-level field surveys.

### 3.3.3 Developed/Bare Ground

Developed land is comprised of areas of intensive use, with much of the land constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Within this cover type, developed areas are typically comprised of paved roadways, man-made structures, adjacent lands that are unvegetated, or landscaped with a variety of ornamental (typically non-native/exotic) plants. The developed/bare ground cover type occurs throughout the action area, associated with paved roads, dirt access roads, unpaved road shoulders, and residences.

### 3.3.4 Freshwater Marsh

Freshwater marsh is characterized by erect, rooted herbaceous hydrophytes generally dominated by cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.). This habitat is flooded frequently so that the roots of vegetation are saturated or submerged in water. Vegetation is generally about 6 feet tall and may vary from small clumps of vegetation to large areas. Within the action area, this community is dominated by narrowleaf cattail (*Typha angustifolia*) and is most prominent in Berenda Slough.

### 3.3.5 Intermittent Channel

Intermittent channels typically have flowing water during portions of the year when groundwater provides water for stream flow. Runoff from rainfall is a supplemental source of water for stream flows. During the dry months, these features typically do not have flowing water. The intermittent channel in the action area is unvegetated and associated with a channelized agricultural drainage ditch that runs through an orchard to the north.

### 3.3.6 Open Water

Open water includes irrigation canals and drainage ditches constructed for water management for adjacent agriculture and managed wetlands. Several of these convey water diverted from or discharged into natural watercourses.

### 3.3.7 Riparian

Riparian habitat occurs on the banks of Berenda Slough and in two drainages adjacent to Road 29. Riparian habitat in the action area consists of Fremont cottonwood (*Populus fremontii*) and willows (*Salix* spp.) with little or no understory.

### 3.3.8 Seasonal Wetland

Seasonal wetlands are topographically low, seasonally wet areas occurring in the higher elevation portions of the action area. Common associates found in this community include curly dock (*Rumex crispus*), cocklebur (*Xanthium* sp.), willow herb (*Epilobium* sp.), and rush (*Juncus* sp.).

### 3.3.9 Swale

Swales are defined as linear drainage features that fall somewhere between ephemeral channel and wetland. The swales in the action area are dominated by barley (*Hordeum* spp.) and appear to convey water between wetlands during high water events. The dominance of a predominately upland plant species suggests the hydroperiod of these features is not long enough to support hydrophytic vegetation.

### 3.3.10 Vernal Pool

Vernal pools are areas that are ephemeral wet as a result of the accumulation of surface water and rainwater in depressional areas. Several vernal pools are scattered throughout the grassland portions of the action area and are dominated by low-growing hydrophytic vegetation and seasonal hydrology. Species observed during surveys include barley, spike rush (*Eleocharis* spp.), Carter's buttercup (*Ranunculus bonariensis*), watercress (*Nasturtium officinale*), coyote thistle (*Eryngium* sp.) and fiddle dock (*Rumex pulcher*). The vegetation communities maps provided in **Appendix E** only capture the large vernal pools in the action area; however, the annual grasslands, east of Road 24, contain numerous complexes of small vernal pools and swales.

## 3.4 Wildlife Corridors

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to a) sustain species with specific foraging requirements, b) preserve a species' distribution potential, and c) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

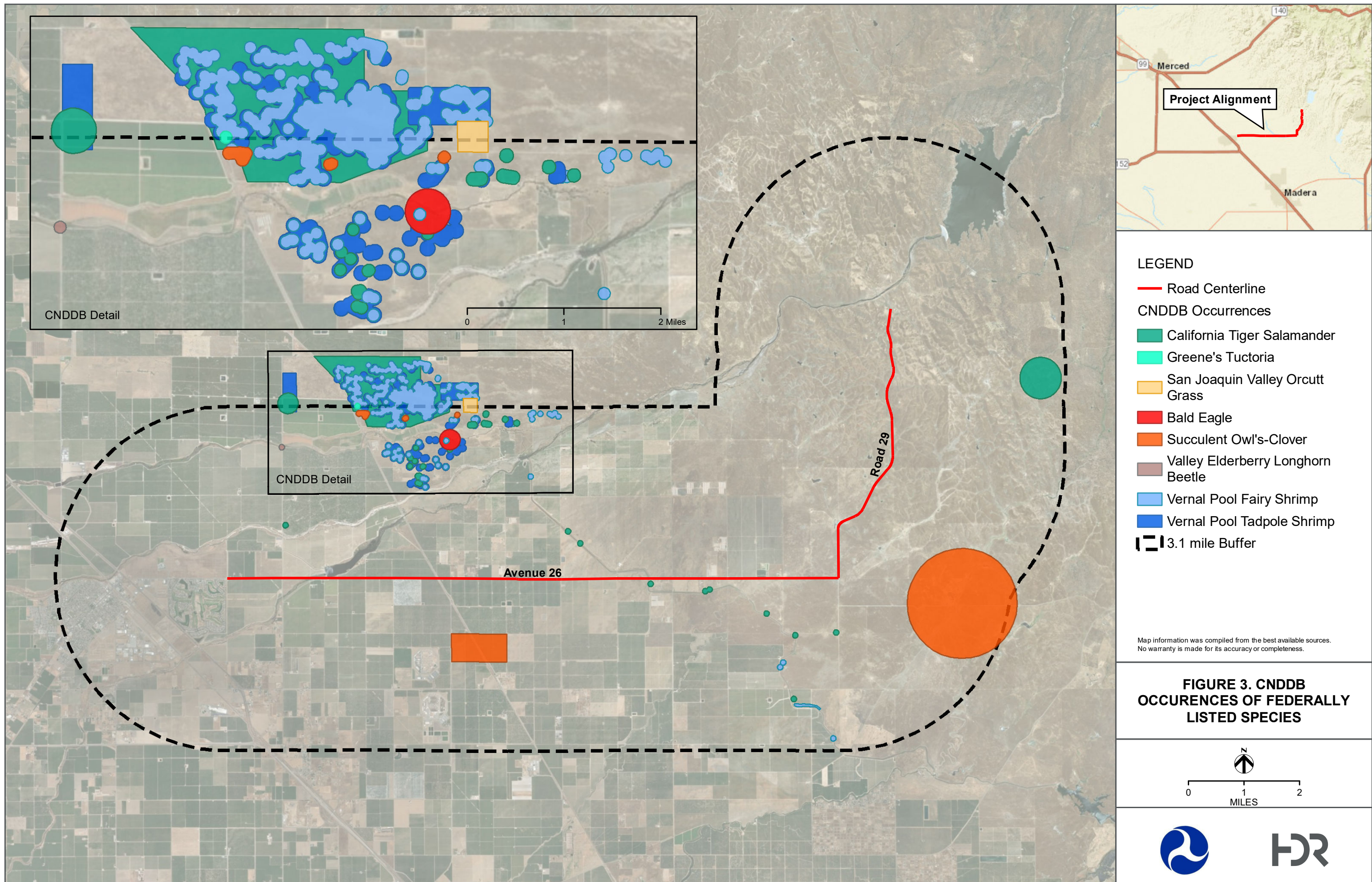
Available data on wildlife corridors and linkages were accessed via the CDFW (2017) BIOS 5 Viewer. Data reviewed included the following BIOS layers: Wildlife Linkages – San Joaquin Valley [ds417], Wildlife Corridors – San Joaquin Valley [ds 423], Essential Connectivity Areas [ds620], Natural Landscape Blocks [ds621], and Missing Linkages in California [ds420]. The proposed action intersects both a wildlife corridor identified in the San Joaquin Valley [ds 423] dataset and the Essential Connectivity Areas [ds 620] layers. However, the proposed action will be restricted to the existing right-of-way and roadbed; and does not include any improvements, such as installation of concrete barriers, that will result in a net change in permeability of the existing roadway. Additionally, avoidance and minimization measures will be implemented to limit disturbances to migratory wildlife during construction. As a result, the proposed action is not likely to adversely affect wildlife corridors.



### 3.5 Listed and Proposed Species Potentially in the Action Area

The results of the database queries identified several federally listed species and critical habitats with the potential to be impacted by the proposed action. **Figure 3** depicts CNDDDB occurrence data for federally listed species within 3.1 miles of the action area; and **Table 1** provides a summary of all species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the proposed action.







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Table 1 Listed, Proposed Species and Critical Habitat Potentially Occurring or Known to Occur in the Action Area

Scientific Name	Common Name	Federal Status	General Habitat Characteristics	Impacts Analyzed	Rationale
<b>Plants</b>					
<i>Castilleja campestris</i> ssp. <i>succulenta</i>	fleshy owl's clover	FT	Acidic vernal pools. Elev: 164-2,461 feet. Blooms: Apr-May (CNPS 2017).	N	Not documented during protocol-level surveys ( <b>Appendix D</b> ).
<i>Neostapfia colusana</i>	Colusa grass	FT	Large, adobe vernal pools. Elev: 16-656 feet. Blooms: May-Aug (CNPS 2017).	N	Not known from Madera County. Closest known population is near Merced, roughly 13 miles north of action area (CDFW 2017).
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	FT	Vernal pools. Elev: 33-2,477 feet. Blooms: Apr-Sep (CNPS 2017).	N	Not documented during protocol-level surveys ( <b>Appendix D</b> ).
<i>Orcuttia pilosa</i>	hairy Orcutt grass	FE	Vernal pools. Elev: 151-656 feet. Blooms: May-Sep (CNPS 2017).	N	Not documented during protocol-level surveys ( <b>Appendix D</b> ).
<i>Tuctoria greenei</i>	Greene's tuctoria	FE	Vernal pools. Elev: 98-3,510 feet. Blooms: May-Sep (CNPS 2017).	N	Not documented during protocol-level surveys ( <b>Appendix D</b> ).



Scientific Name	Common Name	Federal Status	General Habitat Characteristics	Impacts Analyzed	Rationale
<b>Invertebrates</b>					
<i>Branchinecta conservatio</i>	conservancy fairy shrimp	FE	Vernal pools, often large and turbid pools (Service 2005).	N	Associated with large playa like vernal pools (Service 2005), which are absent from the action area. Nearest occurrence is a little over 15 miles west-northwest of the action area (CDFW 2017).
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	Found only in vernal pools and vernal pool-like habitats. Distributed throughout the Central Valley (Service 2005).	Y	Vernal pools in action area may provide suitable habitat for this species.
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	Dependent on host plant, elderberry ( <i>Sambucus</i> spp.), which generally grows in riparian woodlands and upland habitats of the Central Valley. Current beetle distribution in Central Valley ranges from Shasta County to Fresno County (Service 1999).	N	Host plant elderberry shrub not present in action area. No shrubs observed during site surveys.
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	FE	Wide variety of ephemeral wetland habitats (vernal pools). Distributed throughout Central Valley and San Francisco Bay Area (Service 2005).	Y	Vernal pools in action area may provide suitable habitat for this species.

Scientific Name	Common Name	Federal Status	General Habitat Characteristics	Impacts Analyzed	Rationale
<b>Fishes</b>					
<i>Hypomesus transpacificus</i>	delta smelt	FT	Distribution includes the Sacramento River below Isleton, San Joaquin River below Mossdale, and Suisun Bay. Spawning areas include the Sacramento River below Sacramento, Mokelumne River system, Cache Slough, the Delta, and Montezuma Slough (Service 1996).	N	Suitable habitat not present, and outside known range.
<b>Amphibians</b>					
<i>Ambystoma californiense</i>	California tiger salamander	FT	Breeding ponds are usually fish-free and ephemeral. Ponds form in winter and dry in summer. May also breed in slow streams and semi-permanent waters, including cattle ponds. Needs both suitable upland habitat and breeding ponds. Mostly fossorial and often utilizes mole/ground squirrel burrows. Typical habitat associations include grassland, oak savanna, and edges of mixed woodland and lower elevation coniferous forest (Nafis 2017).	Y	Suitable breeding pools are present in the action area. Adjacent uplands provide upland cover and movement habitat.



Scientific Name	Common Name	Federal Status	General Habitat Characteristics	Impacts Analyzed	Rationale
<i>Rana draytonii</i>	California red-legged frog	FT	Ponds/streams in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover in lowlands or foothills. Breeding habitat includes permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for estivation when the wetlands are dry. From sea level to 5,000 feet (Nafis 2017). Occurs along the Coast Ranges from Mendocino County south and in portions of the Sierra Nevada and Cascades ranges (CDFW 2017).	N	Outside species range. Closest populations are associated with hills on the western edge of the Central Valley (CDFW 2017).
<b>Reptiles</b>					
<i>Gambelia sila</i>	blunt-nosed leopard lizard	FE	Semiarid grasslands, alkali flats, and washes. Flat areas with open space for running, avoids densely vegetated areas. Uses mammal dens and burrows for cover and shelter. The number of available burrows will determine the size of this lizard's population in an area (Nafis 2017).	N	Suitable habitat not present. No occurrences in vicinity of action area (CDFW 2017).

Scientific Name	Common Name	Federal Status	General Habitat Characteristics	Impacts Analyzed	Rationale
<i>Thamnophis gigas</i>	giant garter snake	FT	Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November- mid March). Ranges in the Central Valley from Butte County to Buena Vista Lake in Kern County (Service 2012).	N	Outside species range. Species is associated with western Central Valley at lower elevations, closer to the San Joaquin River, where it is more marshy (CDFW 2017)
<b>Mammals</b>					
<i>Dipodomys nitratoides exilis</i>	Fresno kangaroo rat	FE	Sands and saline sandy soils in chenopod scrub and grassland communities. Associated with alkali sink communities between 200 and 300 feet in elevation (Service 1998).	N	Outside species range. Northernmost record species is approximately 15 miles south of the action area, closer to Fresno (CDFW 2017).
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE	Occur in desert-like habitats characterized by sparse or absent shrub cover, sparse ground cover, and short vegetative structure. Areas having open, level, sandy ground (Service 2010).	Y	The action area provides suitable habitat for this species; however, closest known occurrence is more than 7 miles north in Le Grand (CDFW 2017).



Key
(FC) Federal Candidate
(FD) Federally Delisted
(FE) Federal Endangered
(FT) Federal Threatened
(PT) Proposed Threatened
(X) Federally Designated Critical Habitat

## 4.0 Effects of the Proposed Action

This section of the BA discusses impacts on federally listed or candidate species that have the potential to occur in the action area. Potential effects on species are based on the current project description and engineered construction drawings; likelihood of each species to occur within the action area; and each species' biological growth, reproduction, feeding, resting, and cover requirements, as appropriate. Each species is discussed in terms of habitat suitability; designated critical habitat; expected or potential effects of the proposed action on the species; avoidance, minimization, and/or compensatory measures proposed to avoid or reduce impacts on the species; as well as cumulative effects on species when considered with other proposed, completed, or reasonably foreseeable projects in the vicinity of the action area.

Effects of the proposed action on plant and wildlife species can be direct, indirect, permanent, and/or temporary. Direct impacts are those caused by the proposed action and occur at the time of construction or implementation. Indirect impacts are those that are caused by the proposed action and are reasonably certain to occur, but at a later time. Permanent impacts are defined as those that will result in the permanent loss of habitat due to conversion to an urban or other unsuitable land use type for the federally listed species under consideration. Temporary impacts are largely associated with vegetation clearing and grubbing necessary to complete the proposed action; however, these areas will be returned to the pre-construction contours, to the greatest extent feasible, and will be reseeded with appropriate native seed mix.

**Table 2** provides a summary of the culvert work by station along with a description of potential impacts on species habitats. These impacts are analyzed with regards to federally listed and candidate species below.

Table 2      Summary of Culvert Replacement Work

Station	Action	Aquatic Resource	Impact Summary
317+05	Culvert and headwall replacement.	Vernal Pool	Permanent and temporary impacts on vernal pool habitat.
405+17	Replace Culvert	Vernal Pool	Adjusted design limits to avoid impacts on vernal pool habitat.
423+60	Culvert Cleaning	Vernal Pool	Adjusted design limits to avoid impacts on vernal pool species habitat.
434+30	Replace Culvert and Install End Sections	Annual Grassland	Permanent and temporary impacts on annual grassland habitat.
452+20	Replace Culvert	Vernal Pool	Temporary impacts on vernal pool habitat.
483+53	Replace Culvert	Vernal Pool	Adjusted design limits to avoid impacts on vernal pool habitat. Temporary impacts on annual grassland habitat.



Station	Action	Aquatic Resource	Impact Summary
514+70	Install Headwall	Intermittent Channel	Temporary impacts on intermittent channel and annual grassland habitat.
526+60	Install End Section	Intermittent Channel	Permanent and temporary impacts on annual grassland and intermittent channel habitat.
562+25	Install Headwalls	Intermittent Channel	Permanent and temporary impacts on annual grassland and intermittent channel habitat.
588+40	Culvert Cleaning, ditch excavation on North	Intermittent Channel	Temporary impacts on annual grassland habitat.
717+40	Install Rip Rap Apron	Swale	Permanent impacts on swale and annual grassland habitat.
722+30	Install Headwalls	Swale	Temporary impacts on swale and annual grassland habitat.
820+00	Install Rip Rap Apron	Swale	Temporary impacts on annual grassland habitat.
827+30	Install Rip Rap Apron	Seasonal Wetland	Temporary impacts on annual grassland habitat.
978+46	Replace Culvert	Seasonal Wetland	Permanent impacts on seasonal wetland and annual grassland habitat. Temporary impacts on annual grassland habitat.

## 4.1 Federally Listed and Candidate Species

Based on the results of the database queries and studies conducted to date the following species are analyzed in this BA: vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and San Joaquin kit fox. For the purposes of this analysis both vernal pool crustacean species and the California tiger salamander are included in one Vernal Pool Species guild given their utilization of the same ecological niche. The San Joaquin kit fox will be analyzed separately. According to the results of the database searches, surveys, and historical records, no other federally listed species or candidate species have the potential to occur in the action area.

### 4.1.1 Vernal Pool Species

Vernal pool fairy shrimp and vernal pool tadpole shrimp are associated with small to large vernal pools that range from the more typical bowl-like depressions to seasonal swales, and have both long (several months) and short (3-4 weeks) inundation periods. The California tiger salamander is primarily associated with annual grassland and open woodland habitats with multiple breeding ponds and a healthy small burrowing mammal population, such as California ground squirrel (*Otospermophilus beecheyi*) and/or Botta's pocket gopher (*Thomomys bottae*). While California tiger salamander is adapted to breeding in natural vernal pools and ponds, they are now more

frequently associated with livestock ponds and other modified ephemeral and permanent ponds (Service 2017c).

## SURVEY RESULTS

Protocol-level surveys for federally listed vernal pool crustaceans species have not been performed to date; however, the reconnaissance surveys identified suitable habitat in the action area, as a result presence is inferred. Protocol-level surveys for California tiger salamander have also not been performed to date; however, the reconnaissance surveys identified numerous ground squirrel burrows within the road rights-of-way and the desktop review revealed the presence of multiple suitable breeding pools within 1.24 miles of the proposed action footprint (**Figure 4**). The annual grassland communities east of Road 29 contain healthy populations of ground squirrels and, therefore, provide suitable upland refugia for this species. Suitable breeding pools were evaluated primarily via desktop review using Google Earth (2018) current and historic aerial imagery. In addition, evaluation of breeding ponds that were adjacent to Avenue 26 and Road 29 were visually assessed during the reconnaissance level surveys.

There are three factors that influence the suitability of aquatic resources for California tiger salamander breeding: inundation period, amount of emergent vegetation, and predation (Ford et al. 2013). Breeding sites for the salamander need to remain inundated into May to allow for successful metamorphosis; however, pools that remain inundated into July or August are ideal (Ford et al. 2013). Breeding pool suitability was initially evaluated by identifying pools in the action area that showed signs of inundation on Google Earth (2018) aerial imagery dated April 25, 2011 and March 31, 2017, as these were the two best rain years in the recent past. The majority of the pools identified on **Figure 4** did not show signs of inundation on the August 7, 2017 aerial image (Google Earth 2018); however, it is assumed that the inundation period for the mapped pools would be long enough to support salamander breeding. In addition, the reconnaissance surveys identified positive indicators for salamander breeding at the identified locations such as a high water mark that suggests adequate depth and duration of inundation, lack of emergent vegetation, and an ephemeral hydroperiod that would preclude the establishment of healthy predator populations such as American bullfrogs (*Lithobates catesbeianus*). Based on the results of the breeding pool analysis, it is assumed that the identified pools possess the necessary characteristics to support California tiger salamander breeding.

Annual grassland habitats west of Road 29 are highly disturbed due to annual discing, surrounded by orchards or other intensive agricultural uses, and lack suitable breeding pools; therefore, these habitats were not considered suitable for the species. California tiger salamander presence is inferred for the aforementioned suitable habitats in the action area.

## CRITICAL HABITAT

Critical habitat for vernal pool crustacean species does not intersect the action area; however, there are two critical habitat units for these species in the vicinity of the action area, one to the north and one to the southeast. No impacts on vernal pool crustacean critical habitat will occur as a result of the proposed action.

Critical habitat for the California tiger salamander does not intersect the action area; however, there is a critical habitat unit located approximately 2.5 miles due east of the intersection of Road



29 and Road 607, which is at the east end of the proposed action; however, no impacts on California tiger salamander critical habitat will occur as a result of the proposed action.

### EFFECTS OF THE PROPOSED ACTION

The proposed action will result in direct permanent and temporary impacts on suitable aquatic habitat for vernal pool crustaceans and the California tiger salamander, as well as suitable California tiger salamander upland habitat. **Table 3** provides a summary of impacts on vegetation communities by components of the proposed action, and provides a correlating station number for ease of comparison with the impact maps provided in **Appendix F**. The map series provided in **Appendix F** depicts the location, extent, and amount of impacts on vernal pool species habitat anticipated from the proposed action.

Table 3 Summary of Vegetation Community Impacts

Nearest Station	Vegetation Community	Impact Type	Impact Acreage
317+05	Annual Grassland	Permanent Impact	0.0002
434+30	Annual Grassland	Permanent Impact	0.000002
526+60	Annual Grassland	Permanent Impact	0.0111
562+25	Annual Grassland	Permanent Impact	0.0006
717+40	Annual Grassland	Permanent Impact	0.0093
978+46	Annual Grassland	Permanent Impact	0.0222
N/A	Roadway	Permanent Impact	0.0369
<b>Total Annual Grassland Permanent Impact</b>			<b>0.0804</b>
317+05	Annual Grassland	Temporary Impact	0.0010
405+17	Annual Grassland	Temporary Impact	0.0013
434+30	Annual Grassland	Temporary Impact	0.0248
452+20	Annual Grassland	Temporary Impact	0.0057
483+53	Annual Grassland	Temporary Impact	0.0374
514+70	Annual Grassland	Temporary Impact	0.1409
526+60	Annual Grassland	Temporary Impact	0.0014
562+25	Annual Grassland	Temporary Impact	0.0578
588+40	Annual Grassland	Temporary Impact	0.0218
722+30	Annual Grassland	Temporary Impact	0.0177
820+00	Annual Grassland	Temporary Impact	0.0163
827+30	Annual Grassland	Temporary Impact	0.0095
978+46	Annual Grassland	Temporary Impact	0.0448
<b>Total Annual Grassland Temporary Impacts</b>			<b>0.3804</b>
N/A	Developed	Permanent Impact	5.5385
N/A	Disturbed	Permanent Impact	0.2461
<b>Total Developed/Disturbed Permanent Impacts</b>			<b>5.7846</b>
405+17	Developed	Temporary Impact	0.0025
405+17	Disturbed	Temporary Impact	0.0010

Nearest Station	Vegetation Community	Impact Type	Impact Acreage
<b>Total Developed/Disturbed Temporary Impacts</b>			<b>0.0035</b>
526+60	Intermittent Channel	Permanent Impact	0.0020
562+25	Intermittent Channel	Permanent Impact	0.0015
<b>Total Intermittent Channel Permanent Impacts</b>			<b>0.0035</b>
514+70	Intermittent Channel	Temporary Impact	0.0015
526+60	Intermittent Channel	Temporary Impact	0.0001
562+25	Intermittent Channel	Temporary Impact	0.0030
<b>Total Intermittent Channel Temporary Impacts</b>			<b>0.0046</b>
317+05	Vernal Pool	Permanent Impact	0.0002
717+40	Swale	Permanent Impact	0.00006
978+46	Seasonal Wetland	Permanent Impact	0.0024
<b>Total Wetland Permanent Impacts</b>			<b>0.0027</b>
317+05	Vernal Pool	Temporary Impact	0.0020
452+20	Vernal Pool	Temporary Impact	0.0016
722+30	Swale	Temporary Impact	0.0030
<b>Total Wetland Temporary Impacts</b>			<b>0.0066</b>

For the purposes of this analysis, all aquatic habitats (intermittent channel, seasonal wetland, swale, and vernal pool) are considered suitable for all vernal pool species. As a result, the proposed action will result in 0.006 acre of permanent impact on suitable aquatic habitat for vernal pool species, and 0.011 acre of temporary impact. The proposed action will also result in permanent impacts on 0.0804 acre and temporary impact on 0.3804 acre of annual grassland habitats that could provide upland refugia for the California tiger salamander.

Impacts on annual grassland habitat could impact ground squirrel and other small burrows that could provide refuge for California tiger salamanders; however, due to the dynamic nature of ground squirrel burrow complex occupation and extent, the number of burrows that may be impacted by the proposed action has not been quantified. The map series in **Appendix F** also depicts the location and activity status of the ground squirrel burrow complexes mapped during the reconnaissance surveys. Burrow complexes were classified as active, inactive, and abandoned. A complex was deemed active if there was evidence of fresh soils at any of the burrow entrances and/or ground squirrels were observed using the complex. A status of inactive was assigned if the burrows were covered in spider webs, entrances were partially collapsed, and/or leaf litter and other debris were observed in the entrances. A complex was deemed abandoned if the burrow entrances in the complex were completely collapsed.

Excavation of all burrows that will be directly impacted by the proposed action, and relocation of any California tiger salamander individuals will also result in take of the species, if encountered. Effects of the excavation and relocation activities on California tiger salamander could include:

- Crushing or injury during excavation activities.



- Desiccation due to exposure to heat and stress during relocation holding times, and/or at the relocation site due to translocation out of natal population.
- Increased susceptibility to disease and predation at relocation site.
- Reduced fecundity resulting from translocation out of migration range to natal breeding pond.<sup>1</sup>
- Genetic loss due to exposure to non-native barred tiger salamanders (*Ambystoma mavortium*).

It is not possible to quantify the level of take in the form of number of salamanders that could be killed/injured as a result of burrow excavation and relocation at this time; however, prior to initiation of ground disturbing activities, a qualified biologist will map the location and number of burrows that will be directly impacted by the proposed action, and oversee relocation efforts in accordance with the avoidance and minimization measures identified below.

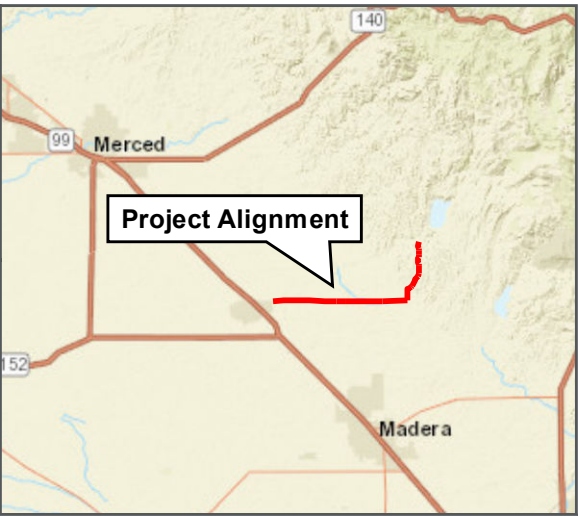
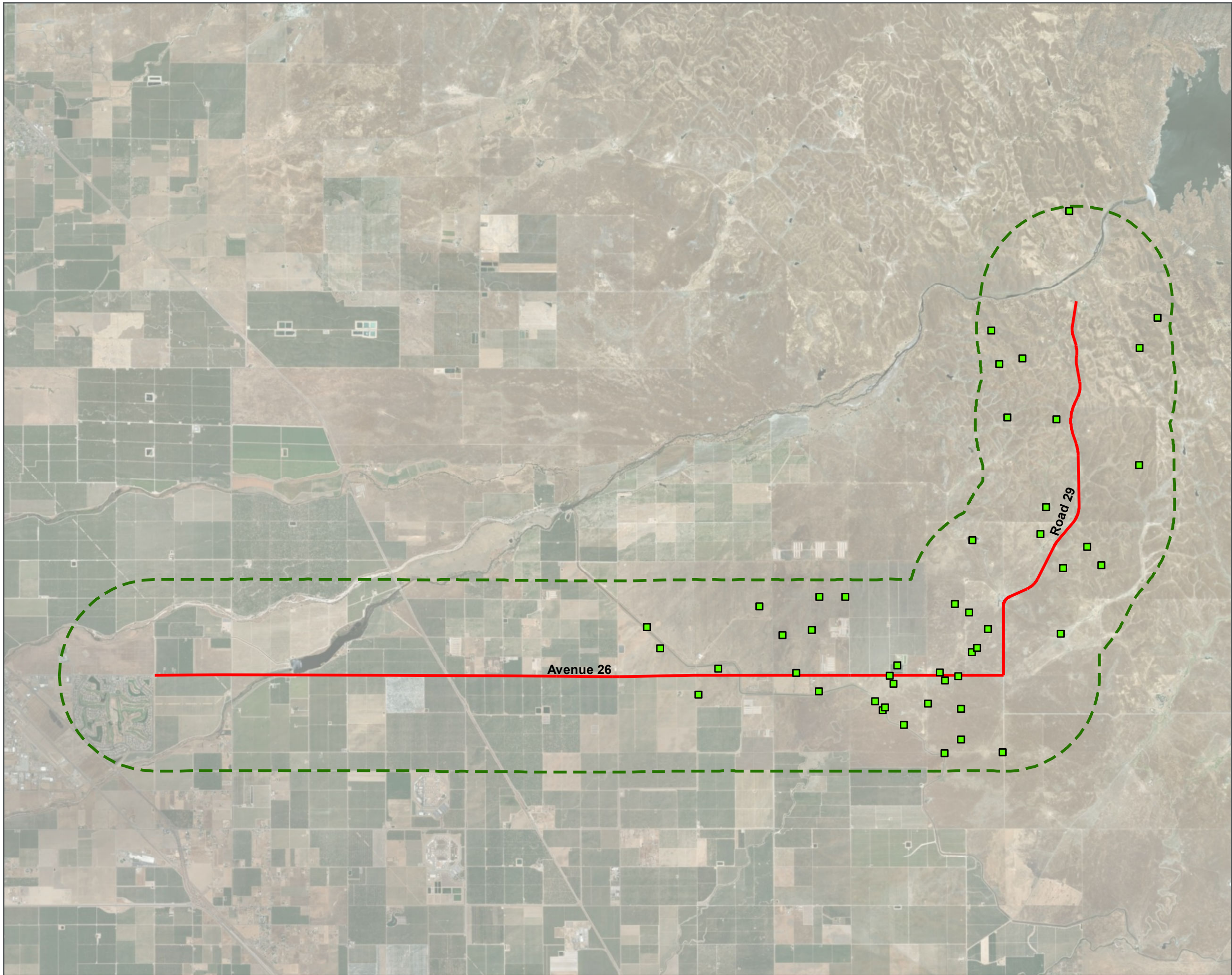
### COMPENSATORY MITIGATION

In order to offset 0.006 acre of permanent impact on vernal pool species aquatic habitats (0.0035 acre intermittent channel and 0.0027 acre wetland), and 0.804 acre of permanent impact on annual grassland habitat that could support California tiger salamander. The action agency is proposing to purchase 2.43 credits from a Service-approved mitigation bank such as Deadman Creek, which amounts to a 3:1 compensatory mitigation ratio (3 acres of mitigation for every 1 acre of impact). To offset the temporal loss of small mammal burrows due to grading and compaction associated with the culvert improvements, the action agency is proposing to purchase 0.2 California tiger salamander credits from a Service-approved bank such as Deadman Creek. This amounts to a 0.5:1 compensatory mitigation ratio for impacts on 0.38 acre of impacts on suitable annual grassland habitat. No compensatory mitigation is proposed for temporary impacts on aquatic habitats for vernal pool species, as all work will occur over one dry season and no impacts to the hard pan underlying the vernal pools will occur; therefore, these aquatic resources will not experience any temporal loss in hydrologic function (i.e, they will wet up the following season). As a result, a total of 2.63 credits from a Service-approved mitigation bank such as Deadman Creek will be purchased to fully mitigate for permanent impacts on vernal pool species habitat.

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<sup>1</sup> Documented to have high site fidelity to natal ponds and terrestrial habitats as adults (Service 2017c).





- LEGEND
- Potential California Tiger Salamander Breeding Pools
  - Road Centerline
  - 1.24 mile Buffer

Map information was compiled from the best available sources.  
No warranty is made for its accuracy or completeness.

**FIGURE 4. POTENTIAL CALIFORNIA TIGER SALAMANDER BREEDING POOLS**





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The 0.5:1 compensatory mitigation ratio for temporary impacts on suitable California tiger salamander upland habitat was selected based on the recolonization rates of California ground squirrels back into complexes that had been previously disturbed. In studies conducted to determine the efficacy of ground squirrel burrow destruction as a control measure in agricultural areas it was found that, even with significant efforts to remove ground squirrel populations from the study areas prior to burrow destruction, squirrel populations had returned to half the original populations numbers in the disturbed complexes within 5 months of burrow destruction (Salmon et al. 1987, Gilson and Salmon 1990). These same studies also documented high site fidelity for the locations of previous burrow complexes, and appear to prefer to reestablish an old complex over constructing a new burrow complex (Salmon et al. 1987, Gilson and Salmon 1990). Based on these findings, it is anticipated that temporarily impacted portions of ground squirrel burrow complexes would be reestablished within 1 year of project completion due to the presence of an abundant and healthy ground squirrel population in the action area; therefore, only one season of impact on suitable upland California tiger salamander habitat would occur. In addition, the presence of numerous burrows outside the construction footprint provides adequate refugia for salamanders in the interim thereby reducing the potential for any measurable effect on California tiger salamander breeding success in the action area.

#### **AVOIDANCE AND MINIMIZATION MEASURES**

The following measures are recommended to avoid and minimize impacts on vernal pool species during construction.

- The action agency will retain a qualified biologist to be onsite during initial ground-disturbing activities and thereafter as needed. Qualifications of the biologist(s) will be presented to the Service prior to the start of construction. The biologist will keep copies of applicable permits in their possession when onsite. The biologist will be given the authority to:
  - Communicate either verbally, by telephone, email or hardcopy with all project personnel to minimize take of federally listed species and oversee implementation of the permit requirements; and
  - Coordinate with the construction manager to minimize take of federally listed species, or if he/she determines that any permit requirements are not fully implemented. The Service will be notified by telephone (916-414-6544) and/or email (patricia\_cole@fws.gov) within 24 hours if take of any federally listed species occurs.
- Construction personnel will receive a worker environmental awareness training. This training instructs workers to recognize special-status species, their habitat(s), as well as other environmentally sensitive areas.
- The action agency will install exclusionary silt fencing, or some other suitable exclusionary fencing material such as ERTEC, that will serve to preclude wildlife from entering the work area, limit the transport of sediment into adjacent aquatic resources during construction, and prevent construction access into adjacent environmentally sensitive areas. Fencing



will be placed at the edge of the temporary workspace in areas adjacent to aquatic resources to be avoided. A fencing plan will be developed and submitted to the Service, via email prior to the initiation of ground disturbing activities. The biological monitor will inspect the exclusionary fencing on a weekly basis to identify areas that are in need of repair by the contractor, and document that all necessary repairs are made within 48 hours. Pedestrian and vehicular traffic into habitat excluded by the fencing will be prohibited during construction.

- For work occurring within 250 feet of aquatic resources, the action agency will conduct site activities when the vernal pools are dry, typically after May 1 and before October 31. Work will be postponed if there is a 50 percent or greater chance of half an inch or more of rain as predicted by the local National Oceanic and Atmospheric Administration weather forecast. If such a rain event starts occurring onsite during ongoing work, work will be postponed within these areas until the rain ceases and the hourly rain forecast drops below 50 percent. After the rain event begins, work will resume only after rain has ceased and the project stormwater pollution prevention inspector, biologist, or construction manager confirms site conditions will not cause project site runoff into adjacent aquatic resources. As necessary, additional best management practices such as fiber roll or silt fence will be installed to minimize potential for runoff into adjacent aquatic resources.
- Construction activities that would disturb soil within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is lower potential for an individual to enter the work area.
- Plastic monofilament netting (erosion control matting) or similar material will not be used for the proposed action because California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Within the portion of the construction limits that includes potential California tiger salamander habitat, as defined by the qualified biologist, the limits of all work areas including staging, construction, parking, and access routes will be flagged by the contractor, under the supervision of the qualified biologist, prior to disturbance. In addition, the qualified biologist will survey the temporary workspace areas, where the contractor is proposing to stage/park construction equipment and vehicles, no more than two weeks in advance of construction to map and flag for avoidance burrows that could support California tiger salamanders. All activity will be confined to within the marked areas.
- The qualified biologist(s) and/or all work personnel will visually inspect for California tiger salamanders under and around vehicles and equipment prior to use.
- All temporarily impacted habitats will be returned to the pre-construction contours, to the greatest extent feasible, and reseeded with appropriate native seed mix and/or salvaged topsoil.

- The contractor will immediately contact the qualified biologist(s) in the event that California tiger salamander is observed within a construction zone, and will suspend construction activities within a 50-foot radius of the animal until it leaves the site voluntarily or the approved relocation plan has been implemented.
- The qualified biologist(s) will have the authority to handle California tiger salamanders. If an individual of this species is observed in an area to be affected by project activities, and cannot leave the work area of its own volition, the biologist will capture and relocate the animal to nearby suitable habitat out of harm's way, as defined by the Service-approved relocation plan.
- Disturbances to habitats of listed species will be minimized to the extent practicable. Vehicle traffic will be restricted to established roads and designated areas and utilize previously disturbed areas to the extent practicable. Vehicle use areas will be included in preconstruction surveys.
- All construction and staging will be located within the existing state and county rights of way.

#### **CALIFORNIA TIGER SALAMANDER EXCAVATION AND RELOCATION PLAN**

The objective of this plan is to relocate all California tiger salamanders from areas of anticipated disturbance associated with the culvert replacement work to suitable habitat within pre-determined relocation areas. The relocation effort and associated construction monitoring will be supervised by a qualified biologist. Before initiating ground disturbing activities, the qualified biologist shall survey the areas proposed for ground disturbance around each culvert location, along with a 100-foot buffer for areas within the road right-of-way for the presence of small mammal burrows. All burrows identified during these surveys will be mapped using a GPS unit with sub-meter accuracy. A map of the documented burrow locations, and those proposed for excavation, will be submitted to the Service before initiating relocation activities. All burrows that cannot be avoided by at least 50 feet shall be excavated by hand, where feasible. Mechanical excavation may be used if hand excavation is not feasible.

To prevent injury to California tiger salamanders during excavation, a backhoe with a smooth edge bucket must be used. A backhoe operator with previous experience or training in excavating wildlife burrows is recommended. At a minimum, the qualified biologist should have experience and training in appropriate methodologies for wildlife burrow excavation. A flexible tube, hose, or section of PVC pipe must be inserted into the burrow to ensure that the burrow path is not lost, and to indicate the distance to the end or turn in the burrow. Throughout the excavation process, the qualified biologist will frequently inspect the burrow to ensure that a salamander has not moved to a position where it might be injured by the backhoe or shovel. The last 1-2 feet of the burrow will be excavated by hand using shovels and small hand spades. Burrow excavation will not be deemed complete until the burrow terminus is reached and all side chambers are found and completely excavated. No burrows will be left partially excavated at the end of the day.

If a California tiger salamander is encountered, the qualified biologist will don food-grade plastic gloves, dampen the gloves with bottled water, pick up the individual, and place it in a sterilized



plastic container possessing air holes and containing a sponge that has been dampened with bottled water. The container and sponge will not be reused after the initial use for transporting captured California tiger salamanders. The container will then be placed in a sterilized insulated cooler that will be kept in a shaded location. The cooler will be kept cool with ice that will not be in direct contact with any California tiger salamanders. As soon as possible (no more than 8 hours after the collection), the qualified biologist will release the captured California tiger salamanders into a single suitable pocket gopher or ground squirrel burrow within the pre-determined relocation area. No more than one California tiger salamanders will be released at each suitable burrow, and the qualified biologist will ensure that all individuals released into rodent burrows will have safely moved down the burrow entrance under their own power (i.e., disappear out of sight).

The qualified biologist will use a handheld GPS unit to obtain coordinates for the locations where each California tiger salamander is collected and released, will photograph the locations of collection and release, and will record her/his name and the date and times. The age, condition, diagnostic markings, sex (where possible), general condition and health of each individual collected will also be recorded. Each collected California tiger salamander will also be photographed. These data will be submitted to the Service daily during the relocation effort, including a quantification of any individuals that may have been killed during the effort. A final excavation and relocation findings report will be also prepared and submitted to the Service within 30 days of completion of the relocation activities that will summarize all data collected during the relocation effort. Any injured California tiger salamanders will be taken to Fresno Wildlife Rescue and Rehabilitation in Clovis, or another Service-approved appropriate rehabilitation center, within 8 hours of discovery.

In order to minimize the potential for adverse effects on California tiger salamander due to relocation activities, it is proposed that individuals encountered during excavation or other construction activities be relocated as close to the original location found as possible.<sup>2</sup> Based on average dispersal distances of 1,844 feet (Service 2017c), it is proposed that any individuals encountered be relocated to suitable burrow habitat within 1,500 feet of the observed location, to a portion of the roadway where construction activities have been completed. All lands adjacent to the action area are zoned as agricultural and no residential, commercial, or industrial development is anticipated to occur in these areas; therefore, relocating individuals to suitable habitat along the road right-of-way will afford encountered California tiger salamanders the opportunity to remain with their local population and within range of their natal breeding pond. If, however, this approach is not agreeable to the Service, a suitable off-site relocation area will be identified within Madera County, through coordination with the Service, prior to initiation of construction activities. If off-site relocation is preferred, a modified excavation and relocation plan will be prepared and submitted to the Service 30 days before initiation of excavation and relocation activities for review and approval.

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<sup>2</sup> Compliant with Service-approved recovery actions (2017c).

## CUMULATIVE EFFECTS

Implementation of the avoidance and minimization measures outlined above will minimize direct and indirect impacts on vernal pool species that may be encountered within the action area to the greatest extent feasible. The combination of the compensatory mitigation proposal and California tiger salamander relocation plan will fully mitigate impacts on vernal pool species; therefore, the proposed action will not substantially contribute to cumulative impacts on vernal pool species.

### 4.1.2 San Joaquin Kit Fox

San Joaquin kit fox prefer semi-desert areas of the Southern San Joaquin Valley and surrounding foothills, as well as the arid and alkaline foothill region on the western edge of the San Joaquin Valley that support healthy populations of kangaroo rats (*Dipodomys* spp.). Agricultural lands do not provide suitable habitat for the kit fox for a number of reasons including low prey abundance; regular inundation due to irrigation that precludes establishment, maintenance, and use of earthen dens; as well as, the increased presence of red fox and dogs in these areas that compete with and/or kill kit fox (Service 2010).

## SURVEY RESULTS

Protocol-level surveys for kit fox have not been performed to date. The action area is not located within either a core or satellite recovery area, as identified in the Service's 2010 *5-year Review*; nor have any occurrences been documented within 5 miles of the action area (CDFW 2017). The eastern end of the action area does, however, overlap with a linkage area (Service 2010).

## CRITICAL HABITAT

The Service has not designated critical habitat for this species to date. Additionally, the proposed action is not located within a core or satellite recovery area for San Joaquin kit fox; however, a small portion of the eastern end of the action area may intersect with a linkage area as identified on Figure 1A-C of the Service's San Joaquin Kit Fox 5-Year Review: Summary and Evaluation (2010).

## EFFECTS OF THE PROPOSED ACTION

San Joaquin kit fox have not been documented in the action area; therefore, this species is not anticipated to occur. The proposed action will be restricted to the existing roadbed and culverts; and does not include any improvements, such as installation of concrete barriers, that will result in a net change in permeability of the existing roadway. As a result of these data, the proposed action is not anticipated to result in direct or indirect impacts on San Joaquin kit fox or their movements.

## COMPENSATORY MITIGATION

None proposed

## AVOIDANCE AND MINIMIZATION MEASURES

In addition to the biological monitor, worker environmental awareness training, and restoration of temporarily affected habitats outlined under the Vernal Pool Species section, the following avoidance and minimization measures are proposed to reduce the likelihood of impacts on kit fox moving through the action area.



- Project-related vehicles will observe a daytime speed limit of 20 miles per hour throughout the site in all project areas, except on Avenue 26 and Road 29 where the posted speed limit would apply; this is particularly important at night when kit foxes are most active. Night-time construction will be minimized to the extent possible. However if it does occur, then the speed limit will be reduced to 10 miles per hour, except on Avenue 26 and Road 29 where the posted speed limit would apply. Off-road traffic outside of designated construction areas will be prohibited.
- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service will be contacted by telephone (916-414-6544) and/or email (patricia\_cole@fws.gov) within 24 hours.
- Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe will not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a week from a construction or project site.
- No firearms will be allowed on the project site.
- No pets, such as dogs or cats, will be permitted on the construction site to prevent harassment, mortality of kit foxes, or destruction of dens.
- Use of rodenticides and herbicides in construction areas will be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide will be used because of a proven lower risk to kit fox.

### **CUMULATIVE EFFECTS**

The proposed action will not substantially contribute to cumulative impacts on San Joaquin kit fox.

## 5.0 Conclusions and Determinations

The determination of effect for each federally listed species that may occur in the action area is provided below. Determinations are based on potential for the species to occur; the potential impacts on the species as a result of project implementation; along with the proposed avoidance and minimization measures for each species. The potential determination categories are as follows: no effect; may affect, not likely to adversely affect; or may affect, likely to adversely affect.

### 5.1 Vernal Pool Species

The proposed action ***may affect, is likely to adversely affect*** the vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. The proposed action has been designed to avoid, though may result in direct impacts on, suitable habitat for these species. However, the avoidance and minimization measures proposed in this document will be implemented to avoid direct and indirect impacts on vernal pool species habitat outside of the proposed action footprint; therefore, the proposed action will not jeopardize the continued existence of these species.

### 5.2 San Joaquin Kit Fox

The proposed action is ***not likely to adversely affect*** the San Joaquin kit fox. The proposed action will fully avoid suitable habitat for this species. No permanent direct impacts on the fox or its habitat will occur; therefore, the proposed action will not jeopardize the continued existence of this species.

### 5.3 Critical Habitat

No critical habitat for the aforementioned species overlaps with the action area; therefore, no impacts on these species critical habitats will occur as a result of the proposed action.



## 6.0 Literature Cited

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## **Appendix A. Project Plan Sheets**



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ABBREVIATIONS

<b>℄</b>	centerline
<b>Δ</b>	curve delta
<b>Ø</b>	diameter
<b>A</b>	abut.
ADT	average daily traffic
aggr.	aggregate
AH	ahead
alt.	alternate
appr.	approach
asph.	asphalt
<b>B</b>	b.f.
beg.	beginning, begin
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
<b>C</b>	CBC
c-c	center to center
clr.	clear
CMP	corrugated metal pipe
Co.	county
col.	column
conc.	concrete
constr.	construction
constr. jt.	construction joint
cont.	continuous
corr.	corrugated
cr.	creek
CS	point of curve to spiral
ctrs.	centers
CTSM	contingent sum
culv.	culvert
<b>D</b>	decr.
DHV	design hour volume
DI	drop inlet
dia. or D	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
Dist.	district
DLC	donation land claim
dwg(s).	drawing(s)
<b>E</b>	E
e	superelevation rate
El. 94.066	elevation with number
elev.	elevation
emb.	embankment
engr(s).	Engineer(s)
EOP	edge of pavement
EQ or eq.	equation
ER	edge of road
et al	and others
et ux	and wife
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
ext.	exterior
<b>F</b>	f.f.
Fed.	federal
FES	flared end section
fin.	finish
ftg.	footing
<b>G</b>	ga.
galv.	gauge (gauge)
gdr.	galvanized
girder	girder
<b>H</b>	hdwl.
HES	headwall
hex.	homestead entry survey
horiz.	hexagon
HW	horizontal
hwy.	high water
<b>I</b>	ID
incl.	highway
incr.	inside diameter
int.	inclusive, including
int.	increment
<b>J</b>	jt.
jt.	interior
	joint

<b>L</b>	L	length of curve
	lam.	lamination
	lat.	latitude
	long.	longitudinal
	LPSM	lump sum
	Lt. or LT	left
	LW	low water
<b>M</b>	mag.	magnetic
	maint.	maintenance
	matl.	material
	max.	maximum
	min.	minimum
	mon.	monument
	mtn(s).	mountain(s)
<b>N</b>	N	north
	NC	normal crown
	neg.	negative
	no. or #	number
<b>O</b>	o.c.	on centers
	o.f.	other face
	OD	outside diameter
<b>P</b>	PC	point of curve
	PCC	point of compound curve
	perf.	perforate
	PI	point of intersection
	pl.	plate
	POC	point on curve
	POS	point on spiral
	POT	point on tangent
	proj.	project
	psi	pounds per square inch
	PT	point of tangent
	pvmt.	pavement
<b>Q</b>	quant., Qty	quantities
<b>R</b>	R	radius
	R.	range
	R/W	right-of-way
	rd.	road
	rdwy.	roadway
	reconst.	reconstruction
	reinf.	reinforcement
	reqd.	required
	res.	reservoir
	Res.	Reservation
	ret. wall	retaining wall
	RH	reference hub
	Rt. or RT	right
	rte.	route
<b>S</b>	S	south
	SADT	seasonal average daily traffic
	SC	point of spiral to curve
	sec.	section
	shldr.	shoulder
	spa.	spacing, Spaces or Spaced
	spec.	specification
	st.	street
	ST	point of spiral to tangent
	sta.	station
	std.	standard
	stiff.	stiffener
	str.	straight
	struc.	structural
	sym.	symmetrical
<b>T</b>	T	tangent length
	T.	township
	tan.	tangent
	TBM	temporary bench mark
	TCE	temporary construction easement
	transv.	transverse
	TS	point of tangent to spiral
	typ.	typical
<b>V</b>	V	design speed
	vert.	vertical
	vph	vehicles per hour
	VPI	vertical point of intersection
<b>W</b>	W	west

DRAINAGE SYMBOLS

Ditch (Existing, Proposed)

Flow Arrow

Drainage or Small Creek

Lake, Pond or Reservoir

Large Creek

Wetland

River

Spring

Bridge (Existing, Proposed)

Box Culvert (Existing, Proposed)

Pipe Culvert (Existing, Proposed)

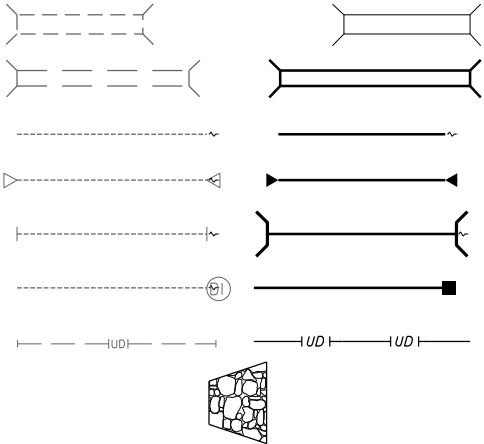
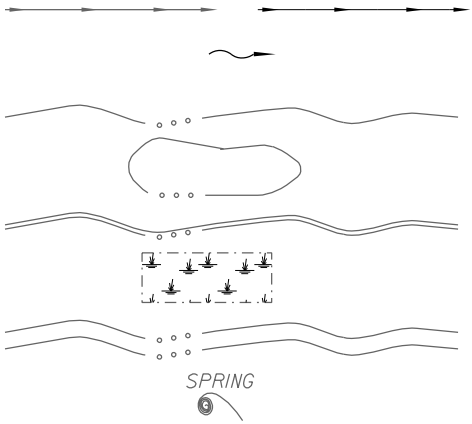
With End Sections (Existing, Proposed)

With Headwalls (Existing, Proposed)

With Drop Inlet (Existing, Proposed)

Underdrain (Existing, Proposed)

Riprap Apron (Proposed)



EROSION & SEDIMENT CONTROL SYMBOLS

Bonded Fiber Matrix Mulching

Check Dam

Diversion Berm

Rolled Erosion Control Product

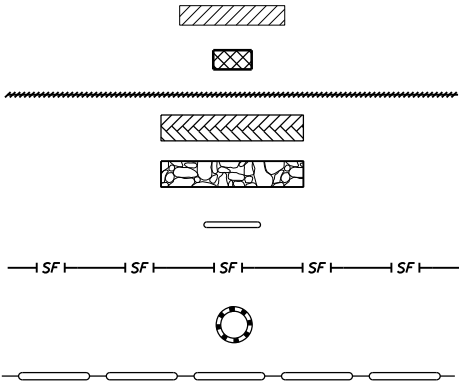
Riprap

Fiber Roll (Ditch and/or Cut Slope)

Silt Fence

Temporary Inlet Protection

Fiber Roll (Slope Protection)

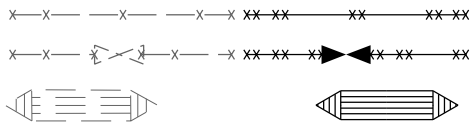


FENCE & CATTLEGUARD SYMBOLS

Fence (Existing, Proposed)

Fence w/ Gate (Existing, Proposed)

Cattleguard (Existing, Proposed)



GEOLOGIC SYMBOLS

Boring Location (Existing, Proposed)

Material Source



STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A2

LANDSCAPING & VEGETATION SYMBOLS

Tree

Treeline

MAPPING SYMBOLS

Building (Existing, Proposed)

Coordinate Grid Tick

North Arrow

Railroad

Single Track

Double Track

Spot Elevation

Trail

Survey Control Point

RIGHT-OF-WAY SYMBOLS

Boundaries

National

State

County

City

Township or Range Line

Section

1/4 Section

1/16 Section

Bureau of Indian Affairs

Bureau of Land Management

National Forest

National Park

National Wildlife Refuge

Easements

Permanent (Existing)

Permanent (Proposed)

Temporary (Proposed)

Monument (As described)

Parcel Number

Property Line

Right-of-Way Line (Existing)

Right-of-Way Line (Proposed)

Section Corner (Found, Projected)

1/4 Section Corner (Found, Projected)

1/16 Section Corner (Found)

GUARDRAIL, BARRIER & WALL SYMBOLS

Guardrail (Existing, Proposed)

Guardwall (Existing, Proposed)

Median & Side Barrier (Existing, Proposed)

Retaining Wall (Existing, Proposed)

ROADWAY SYMBOLS

Clearing/Construction Limits

Slope Stake Limits

Top of Cut

Transition

Toe of Fill

Edge of Roadway

Existing

Proposed

Roadway Centerline (With Station ticks)

Roadway Obliteration

SIGN SYMBOLS

Signs

Commercial (Existing, Proposed)

Delineator (Existing, Proposed)

Portable (Proposed)

Post Mounted (Existing, Proposed)

UTILITY SYMBOLS

Irrigation Ditch

Underground (Existing, Proposed)

Surface (Existing, Proposed)

Support Pole (Existing, Proposed)

Support Pole Anchor (Existing, Proposed)

Street Light (Existing, Proposed)

Telephone Booth (Existing, Proposed)

Telephone Pedestal (Existing, Proposed)

Underground Utility (Existing, Proposed)

CATV

Fiber Optic

Gas

Oil

Power

Sanitary Sewer

Telephone

Water

Overhead Utility Line (Existing, Proposed)

CATV

Fiber Optic

Power

Telephone

PROJECT SPECIFIC SYMBOLS

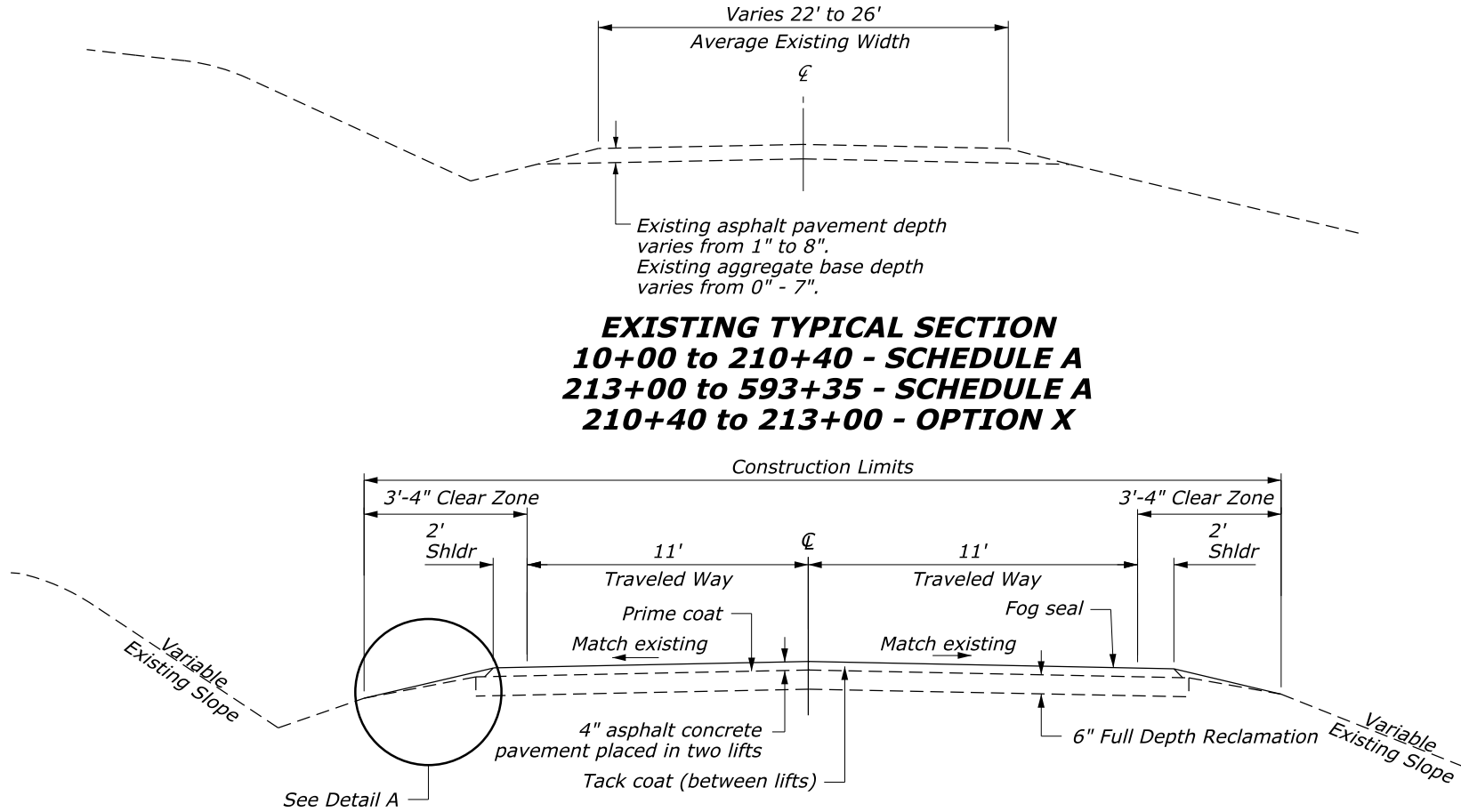
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A3



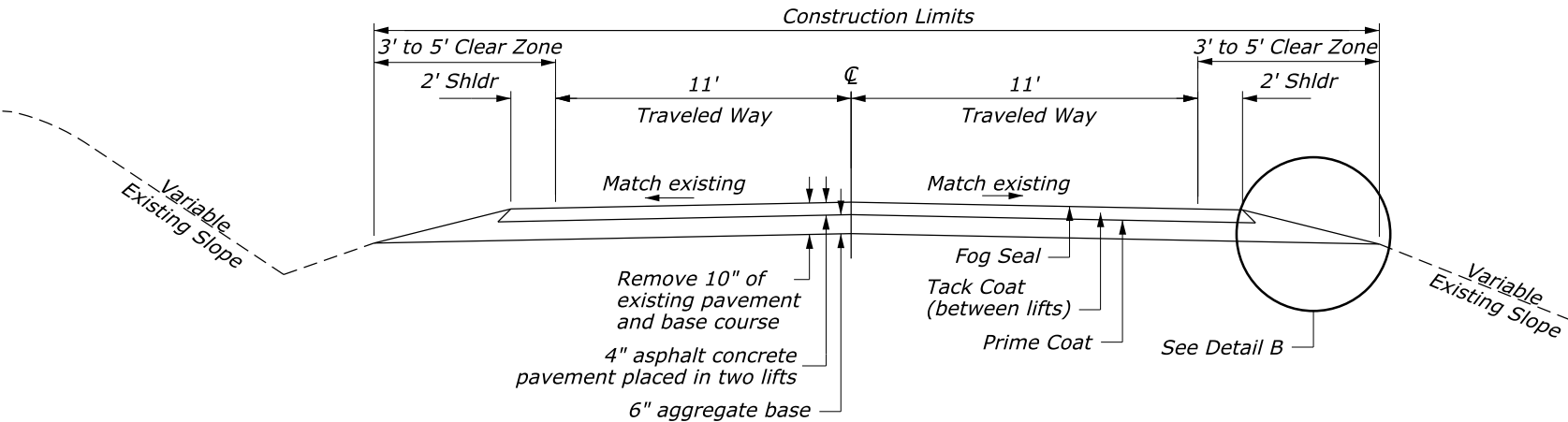
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A5

NOTE:

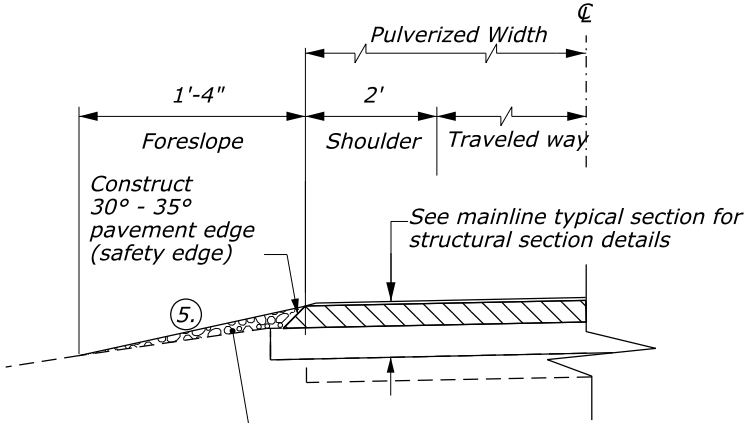
- Existing superelevated and widened sections are not shown.
- Dimensions shown are approximate and may be varied by the CO.
- Pulverize the existing paved width or as directed by the CO. Pulverize to a depth of 6".
- Place asphalt concrete pavement in two lifts. Apply tack coat to the first lift prior to placing the second lift.
- Construct a 1:4 foreslope unless otherwise directed by the CO. Steepen the foreslopes as necessary, but not steeper than 1:2, to stay on the existing bench.
- Spread pulverized asphalt and pave across the specified width in all areas less than 26 ft in width. Add additional aggregate base if necessary.



TYPICAL SECTION  
10+00 to 210+40 - SCHEDULE A  
210+40 to 213+00 - OPTION X

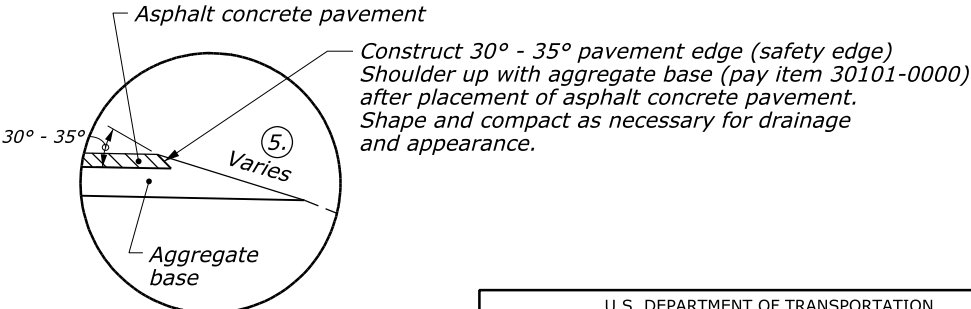


TYPICAL SECTION  
213+00 to 593+35 - SCHEDULE A



Remove all pulverized asphalt material from this section. Incorporate pulverized material into the mainline base section. Shoulder up with Aggregate Base (pay item 30101-0000) after placement of asphalt concrete pavement. Shape and compact as necessary for drainage and appearance.

DETAIL A



DETAIL B

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

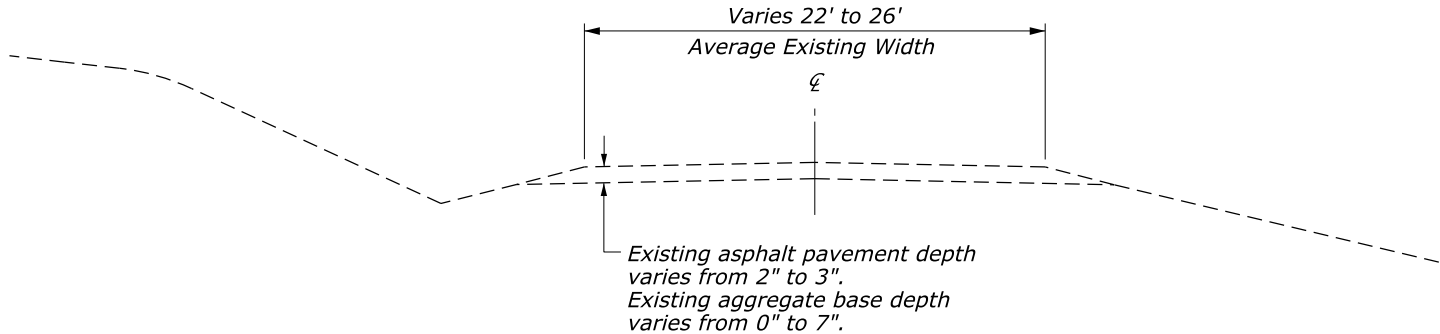
TYPICAL SECTIONS  
MAINLINE  
AVENUE 26

NO SCALE

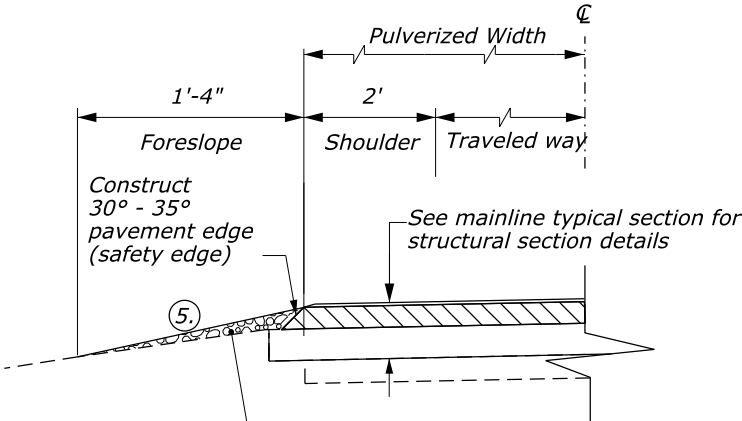
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	A6

NOTE:

- Existing superelevated and widened sections are not shown.
- Dimensions shown are approximate and may be varied by the CO.
- Pulverize the existing paved width or as directed by the CO. Pulverize to a depth of 6".
- Place asphalt concrete pavement in two lifts. Apply tack coat to the first lift prior to placing the second lift.
- Construct a 1:4 foreslope unless otherwise directed by the CO. Steepen the foreslopes as necessary, but not steeper than 1:2, to stay on the existing bench.
- Spread pulverized asphalt and pave across the specified width in all areas less than 26 ft in width. Add additional aggregate base if necessary.

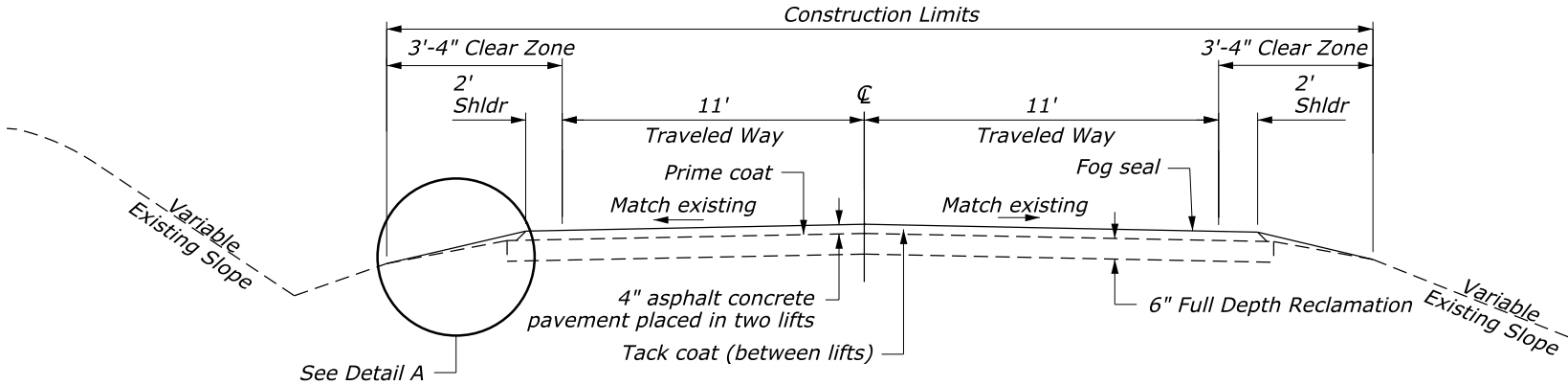


EXISTING TYPICAL SECTION  
700+00 to 980+00 - SCHEDULE A



Remove all pulverized asphalt material from this section. Incorporate pulverized material into the mainline base section. Shoulder up with Aggregate Base (pay item 30101-0000) after placement of asphalt concrete pavement. Shape and compact as necessary for drainage and appearance.

DETAIL A



TYPICAL SECTION  
700+00 to 980+00 - SCHEDULE A

LENGTH OF PROJECT

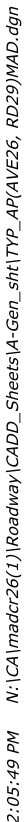
Station to Station	Roadway (ft)	Schedule/Option
10+00 to 210+40	20,040	Schedule A
210+40 to 213+00	260	Option X
213+00 to 593+34.76	38,034.76	Schedule A
700+00 to 980+00	28,000	Schedule A
TOTALS (ft)	86,074.76	Schedule A
TOTALS (miles)	16.30	Schedule A
TOTALS (ft)	260	Option X
TOTALS (miles)	0.05	Option X

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

TYPICAL SECTIONS  
MAINLINE  
ROAD 29

NO SCALE



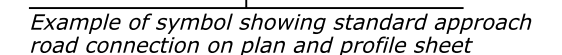


3/28/2018



1. *Actual locations to be field verified. See Approach Road Summary.*
2. *Construct cut and fill slopes for approach roads to match with mainline roadway construction.*
3. *Under special conditions, the approach road angle shown may be varied  $\pm 20^\circ$ .*
4. *Place culverts at the end of the approach road radius to provide a flatter foreslope and increased mainline recovery area. When a culvert must be placed within the clear zone of the mainline roadway, use safety end sections (see Standard Drawing 602-9).*
5. *Apply the normal crown to approach roads with widths greater than 15 feet.*
6. *Construct approach roads with landing areas having grades within  $\pm 2\%$ . In snowy regions restrict this to a 0% to -2% grade. Under special conditions, use 6% maximum.*
7. *Vary radii to fit unusual field conditions. Do not reduce existing radii or widths.  $R_1$  is on the left side of the approach road centerline.*

\* Match existing



**TYPICAL SYMBOL**

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

## TYPICAL SECTIONS APPROACH ROADS

*NO SCALE*



\_User: Leslie.Karsten\_

9:39:38 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C1.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C1

**10+00  
AVENUE 26  
BEGIN CA FLAP MAD CR26(1)  
SCHEDULE A**

APN: 026-150-017  
FAGUNES DAIRY

APN: 026-150-018  
FAGUNES DAIRY

APN: 026-150-019  
FAGUNES DAIRY

APN: 026-210-001  
CREEKSIDE LAND COMPANY LLC

APN: 026-150-020  
TAYLOR VINCENT TRACY

APN: 026-210-001  
CREEKSIDE LAND COMPANY LLC

Sta. 30+36  
Remove existing culvert  
Install 18"x46' CMP  
End Section, Lt. & Rt.  
50' of ditch excavation, Lt. & Rt.

Install fiber rolls at culvert inlet.  
See Detail C157-55

Install check dams  
See Detail C157-53

**AVENUE 26  
PLAN SHEET  
10+00 to 38+00**







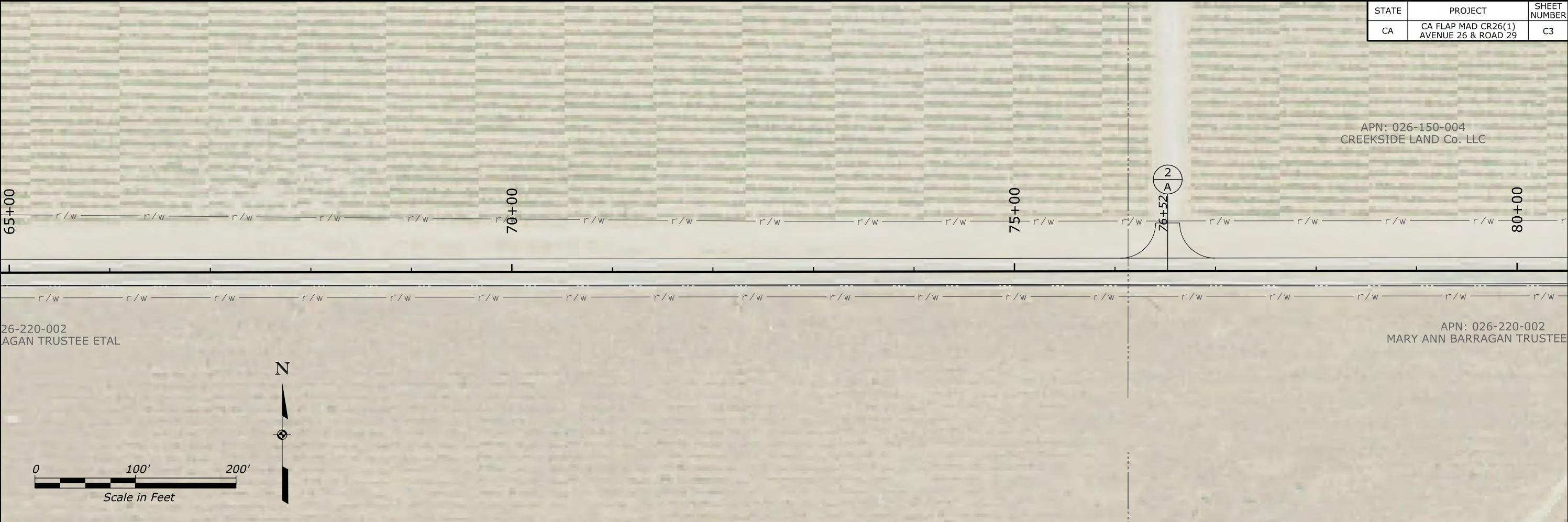






\_User: Leslie.Karsten\_

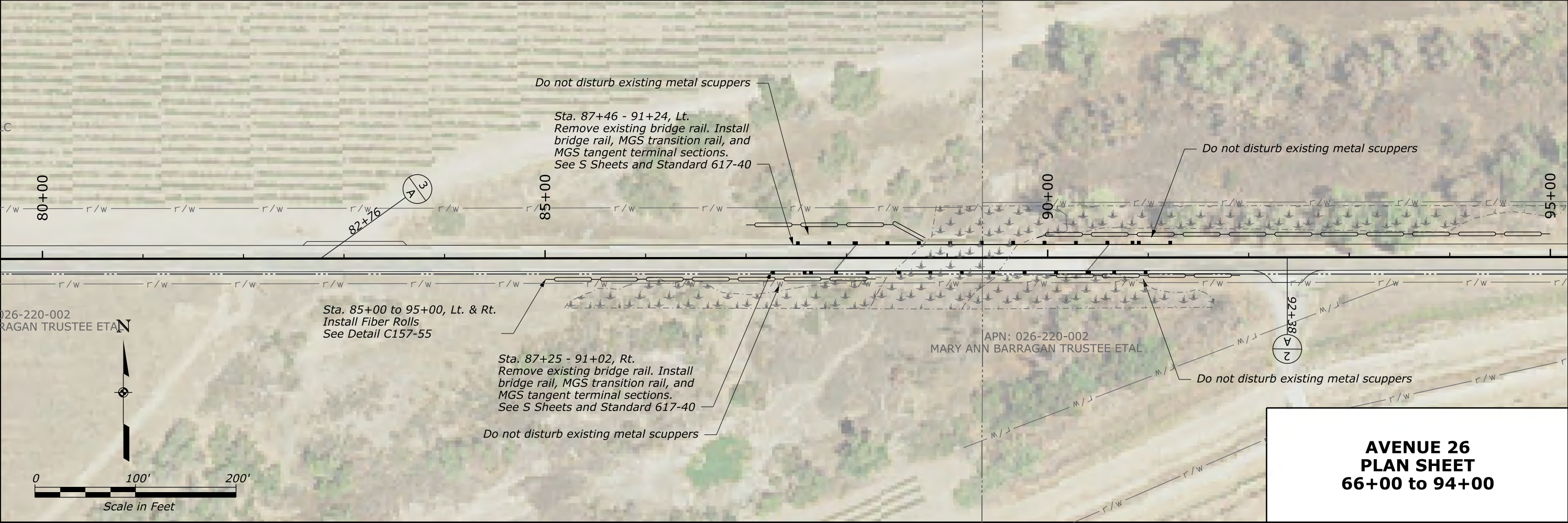
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C3



N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C3.dgn

9:45:12 AM

3/29/2018



**AVENUE 26  
PLAN SHEET  
66+00 to 94+00**







\_User: Leslie.Karsten\_

9:46:53 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C4.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C4









STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C5









STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C6



**AVENUE 26  
PLAN SHEET  
150+00 to 178+00**







STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C7

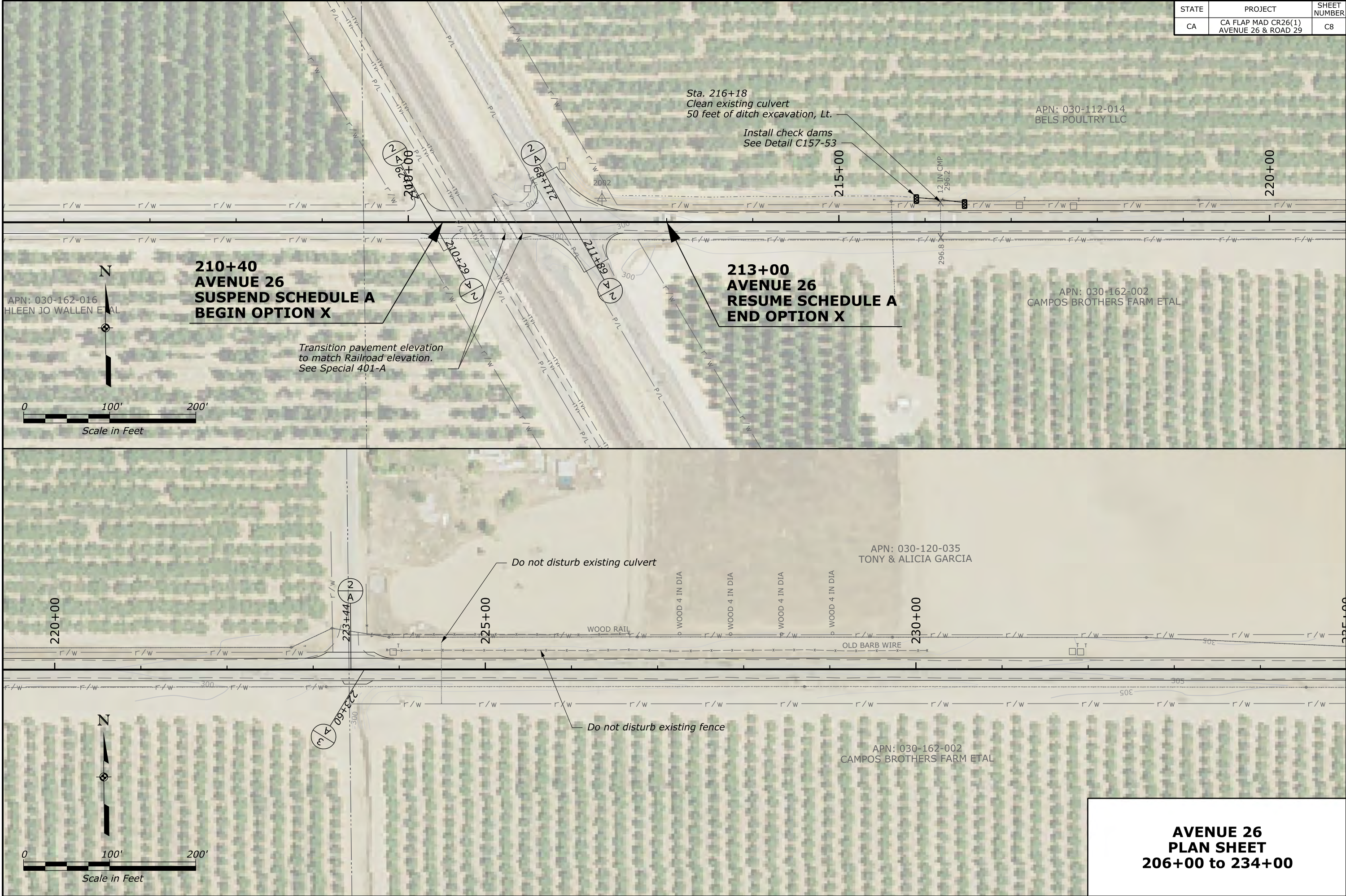








STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C8



**AVENUE 26  
PLAN SHEET  
206+00 to 234+00**







STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C9



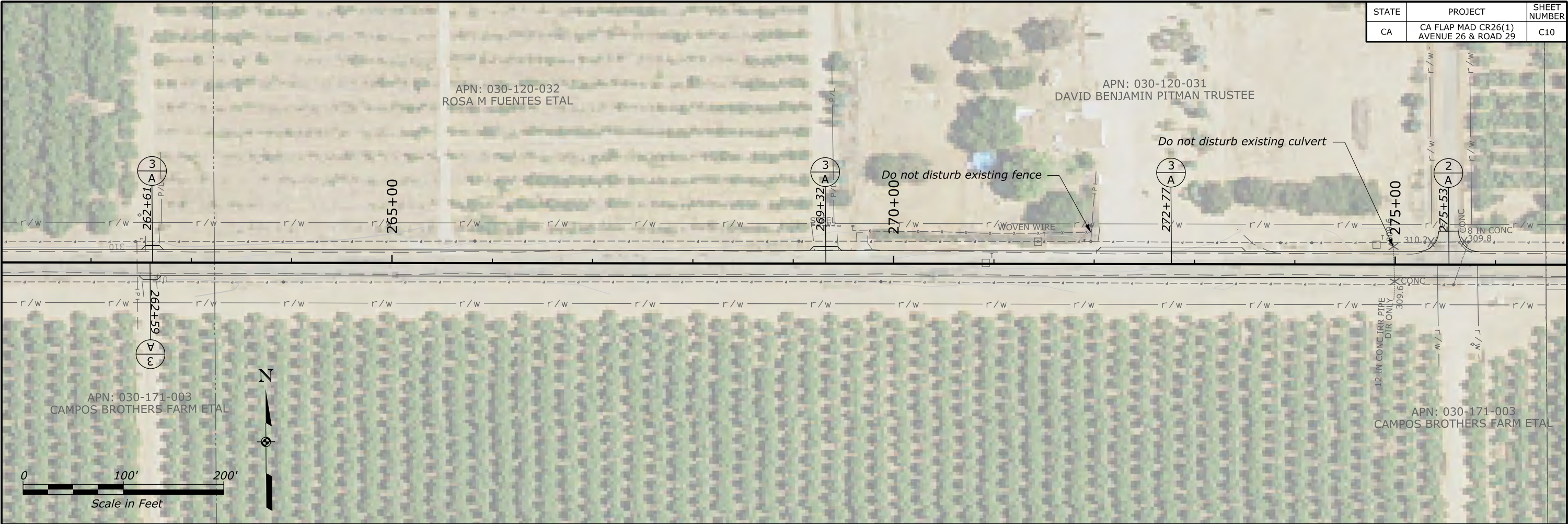
**AVENUE 26  
PLAN SHEET  
234+00 to 262+00**







STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C10



**AVENUE 26  
PLAN SHEET  
262+00 to 290+00**





\_User: Leslie.Karsten\_

9:20:10 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNV(AVE26)MAD\_C11.dgn

8/7/2019

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C11



**AVENUE 26  
PLAN SHEET  
290+00 to 318+00**



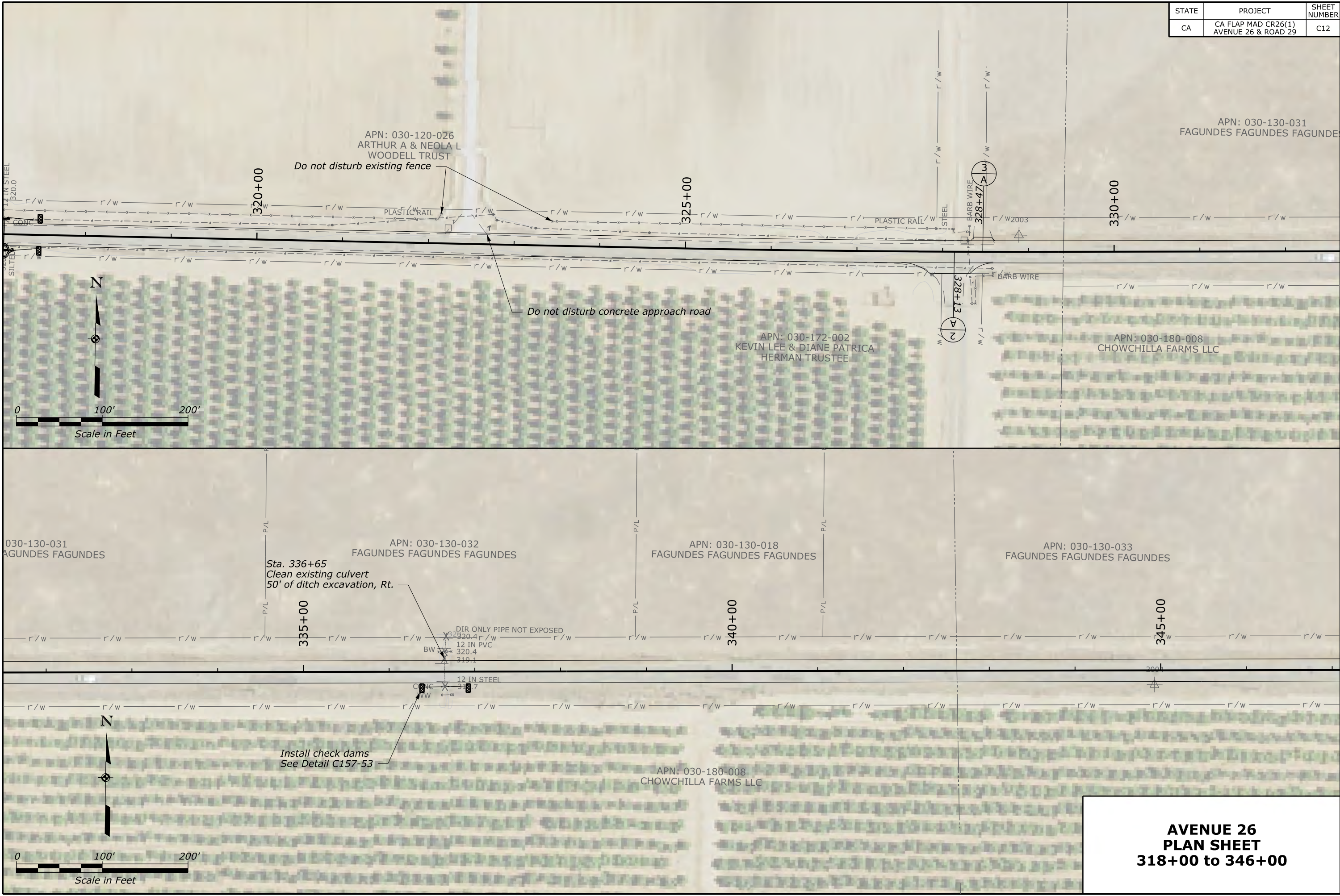


\_User: Leslie.Karsten\_

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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C12





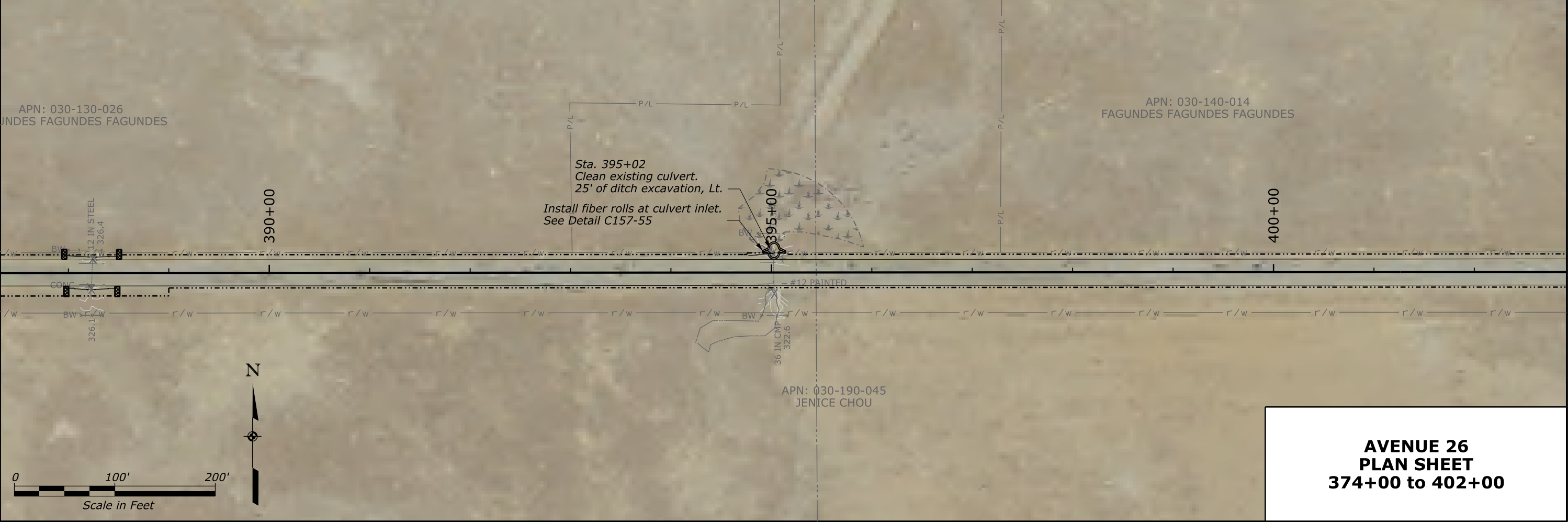








STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C14



**AVENUE 26  
PLAN SHEET  
374+00 to 402+00**





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C15

Sta. 405+17  
Remove existing culvert  
Install 18"x40' CMP  
End sections, Lt. & Rt.

*Sta. 410+74 - 412+58, Lt. & Rt.  
Remove existing guardrail and bridge  
rail. Install bridge rail, MGS transition  
rail, and MGS flared terminal sections.  
See S Sheets and Standard 617-39*

APN: 030-140-014  
FAGUNDES FAGUNDES FAGUNDES

APN: 030-140-014  
FAGUNDES FAGUNDES FAGUNDES

*Do not disturb existing metal scuppers*

— *Do not disturb canal.*

- *Do not disturb existing metal scuppers*

- *Install fiber rolls at culvert inlet.  
See Detail C157-55*

Do not disturb existing metal scuppers

Sta. 410+50 to 412  
Install fiber rolls  
See Detail C157-55

APN: 030-190-049  
U.S.A.

APN: 030-190-047  
CAYIOUS JR & MAE KING

- Do not disturb existing metal scuppers

APN: 030-140-008  
FAGUNDES FAGUNDES FAGUNDES

APN: 030-140-008  
FAGUNDES FAGUNDES FAGUNDES

Sta. 423+60  
Clean existing culvert  
50' of ditch excavation, Lt. & Rt.

Install check dams  
See Detail C157-53

APN: 030-190-047  
CAYIOUS JR & MAE KING

# AVENUE 26 PLAN SHEET 402+00 to 430+00

User: Leslie.Karsten\_

10:16:53 AM N: |CA|madcr26(1)|Roadway\CADD\_Sheets\C-ML\_P&P\PNP(AVE26)MAD\_C15.dgn

3/29/2018



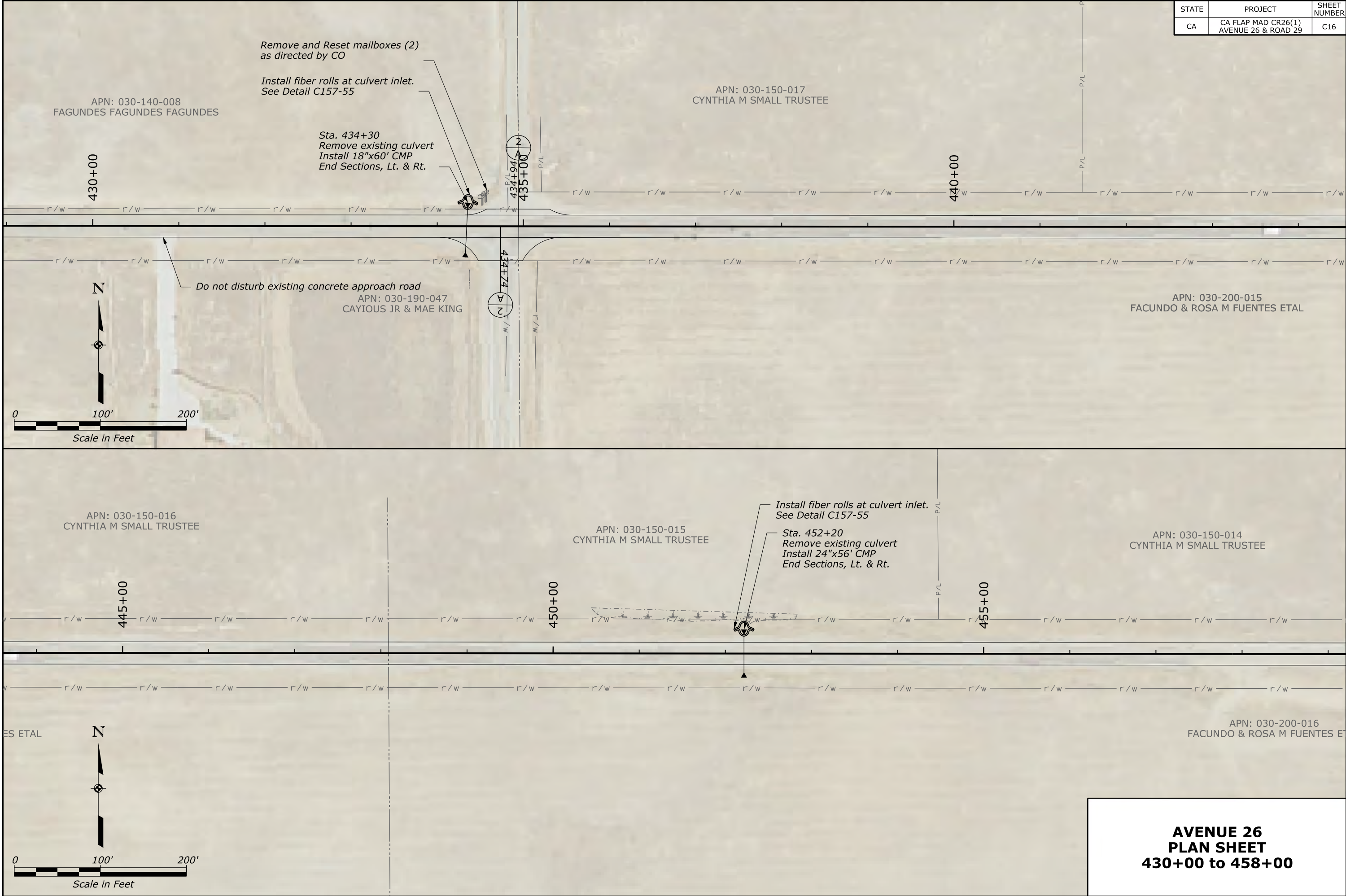


\_User: Leslie.Karsten\_

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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C16



**AVENUE 26  
PLAN SHEET  
430+00 to 458+00**



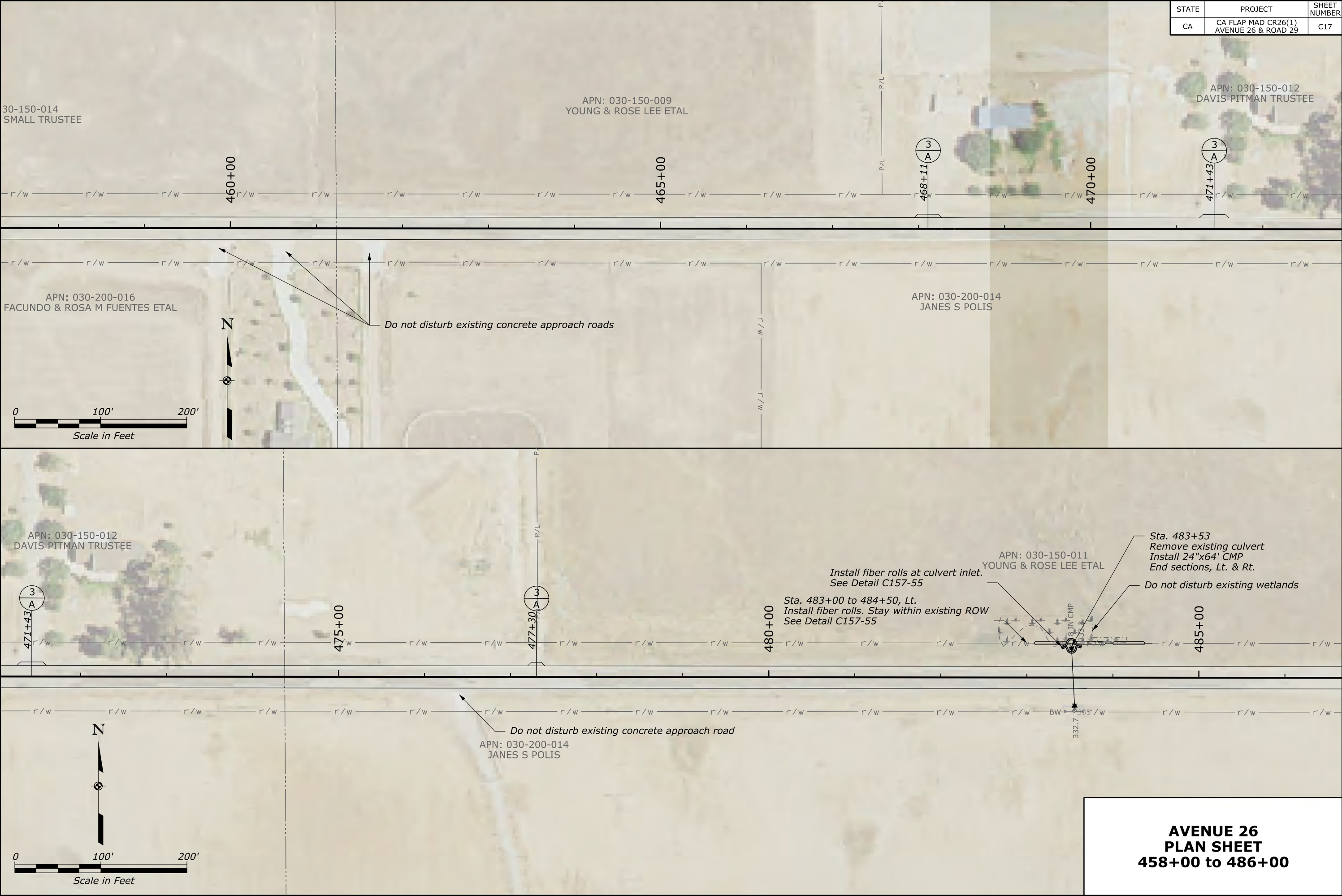


\_User: Leslie.Karsten\_

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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C17





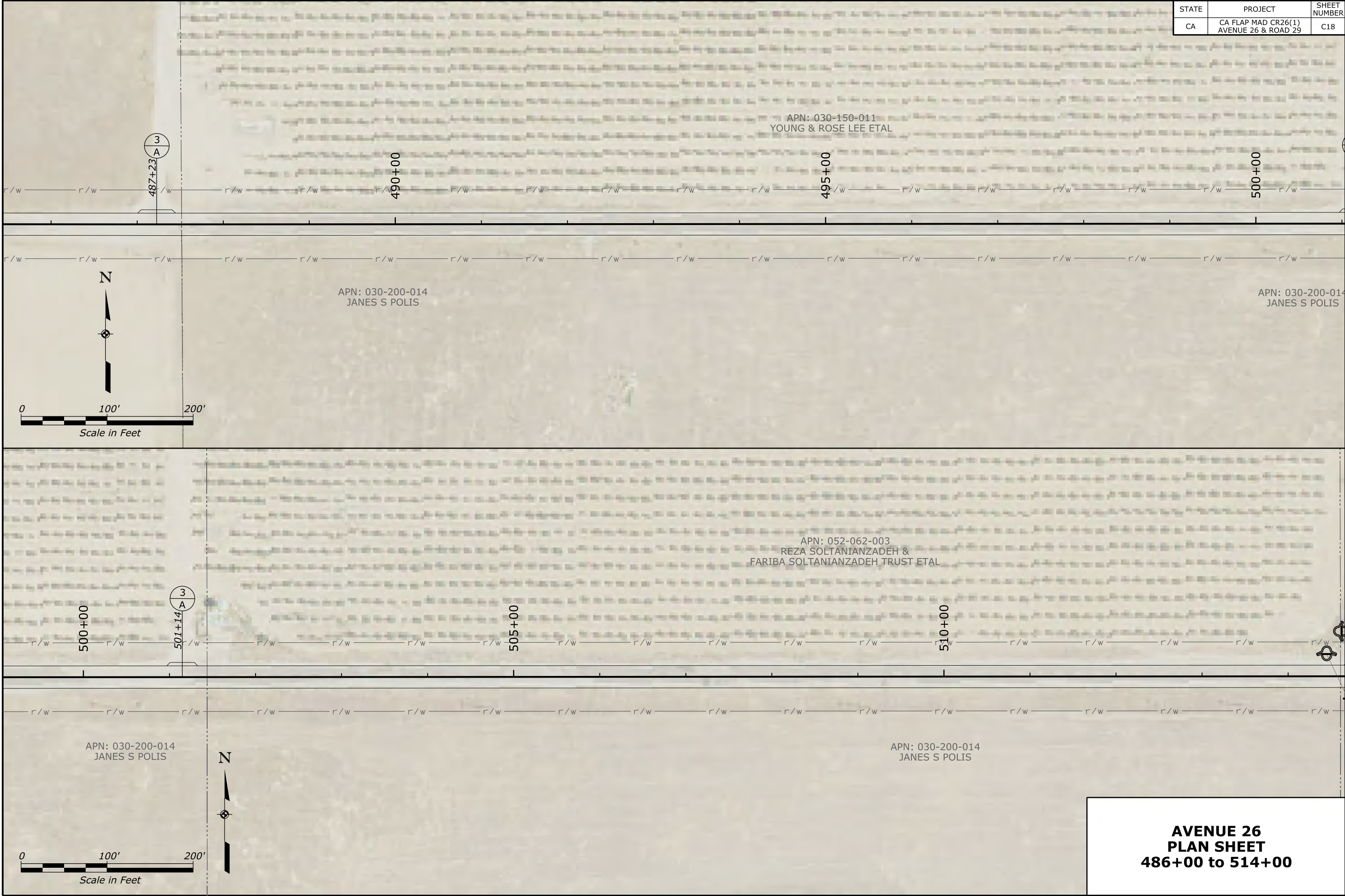


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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C18





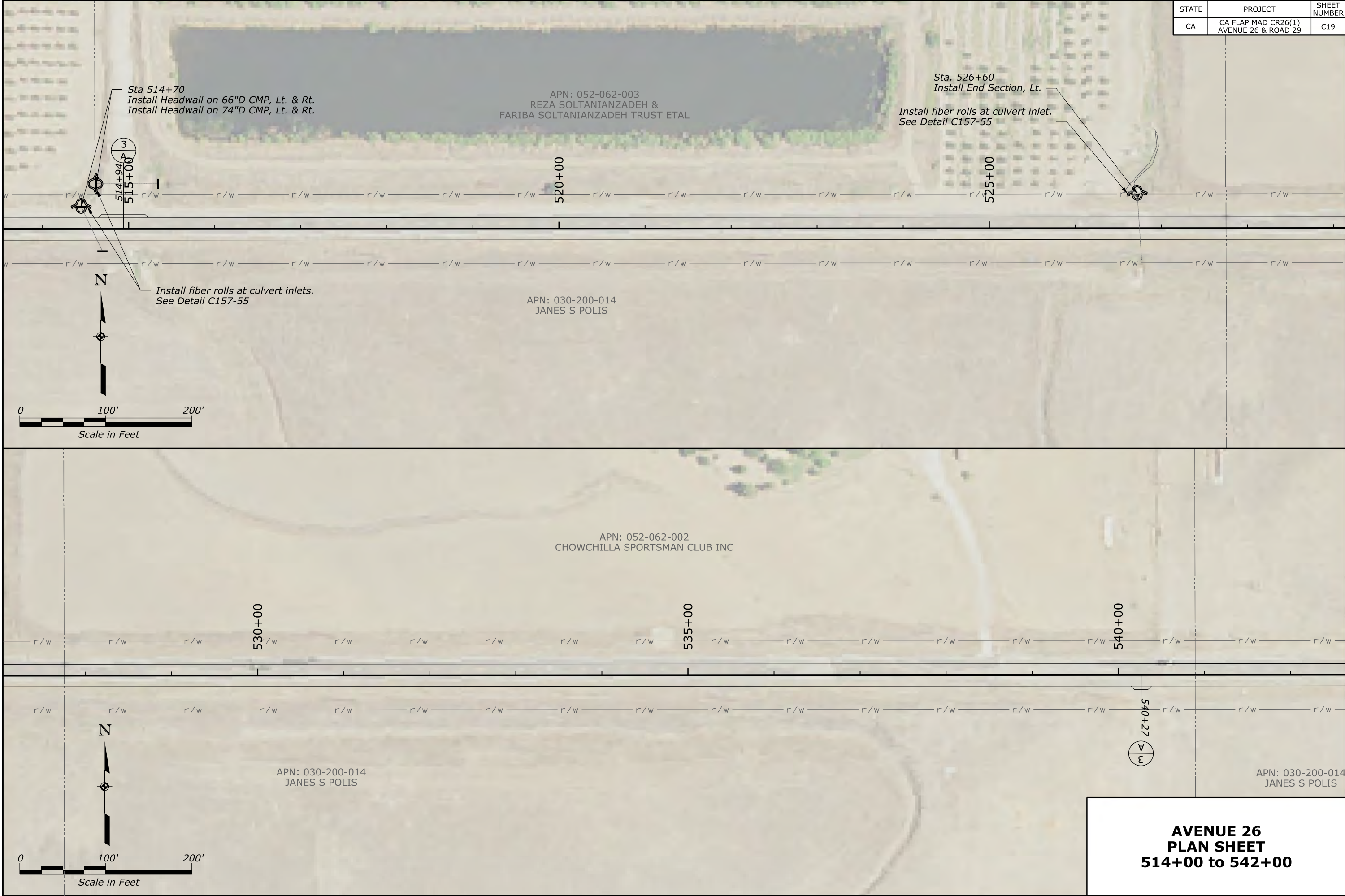


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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C19



**AVENUE 26  
PLAN SHEET  
514+00 to 542+00**





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C20

APN: 052-064-005  
KENNETH E & MILLIE R KRAUSE TRUSTEE

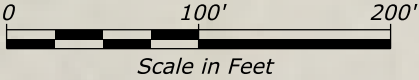
545+00

550+00

555+00

APN: 030-200-014  
JANES S POLIS

APN: 030-200-014  
JANES S POLIS



APN: 052-064-006  
KENNETH E & MILLIE R KRAUSE TRUSTEE

Sta 562+25  
Install Headwalls for 60" CMP, Lt. & Rt.

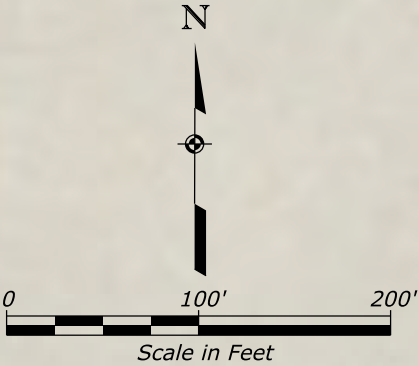
Install fiber rolls at culvert inlet.  
See Detail C157-55

560+00

565+00

570+00

APN: 052-100-037  
JOHN M & ROSEMARY LASGOITY TRUSTEE

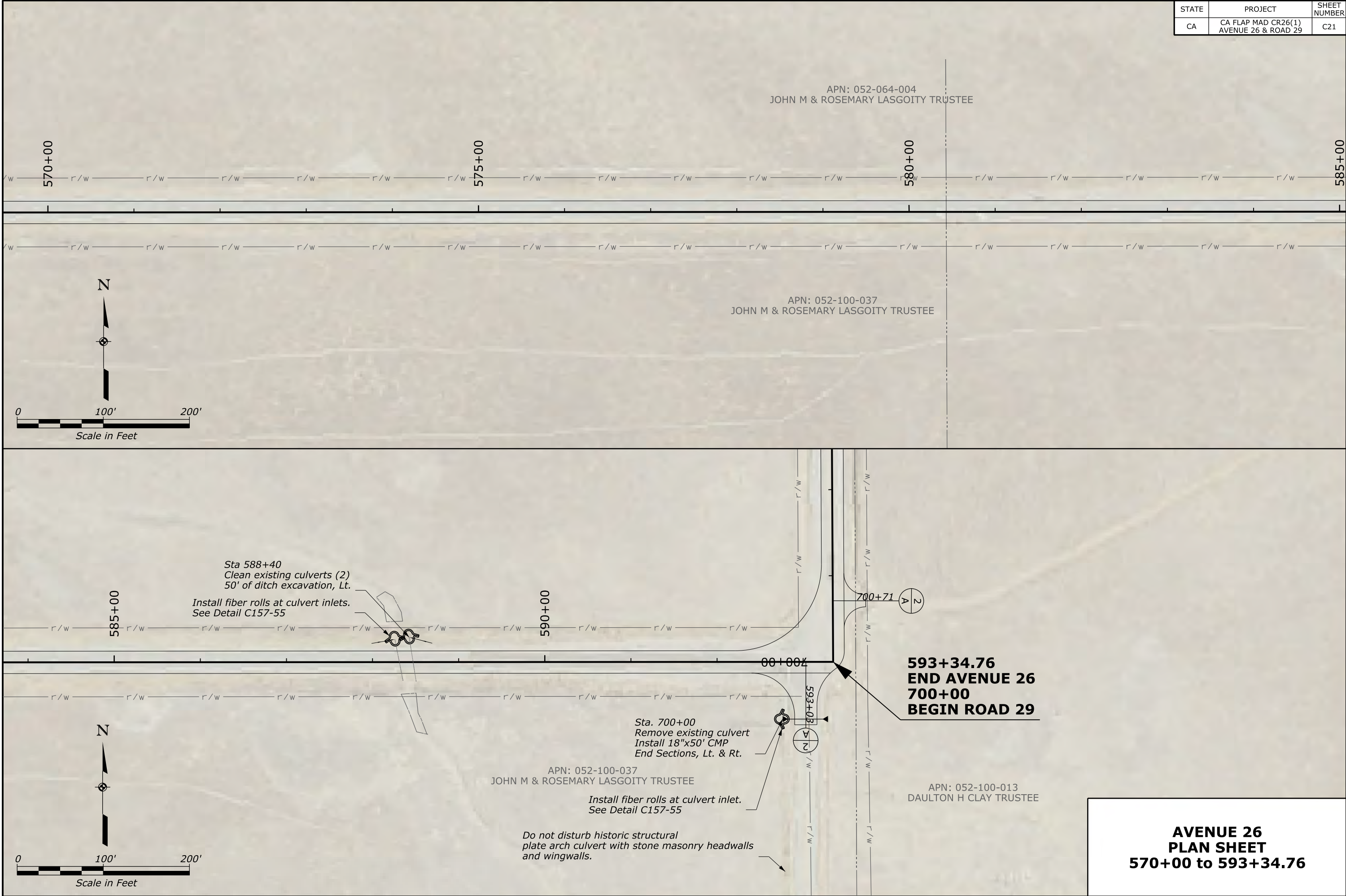


**AVENUE 26  
PLAN SHEET  
542+00 to 570+00**





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C21





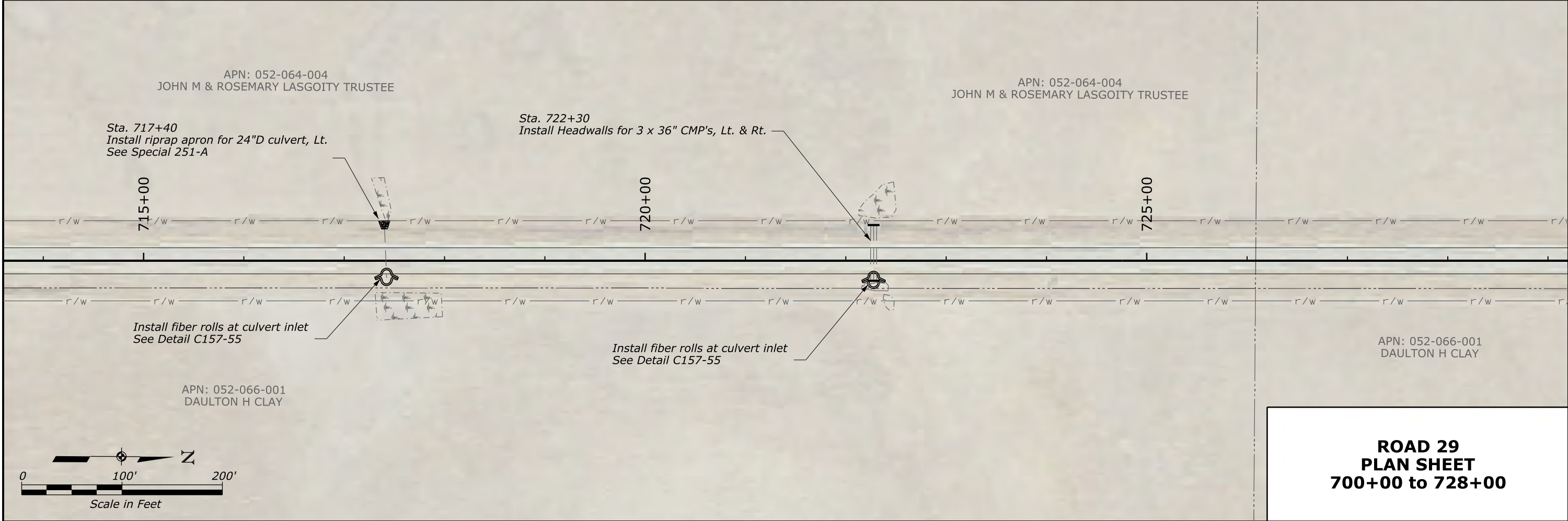
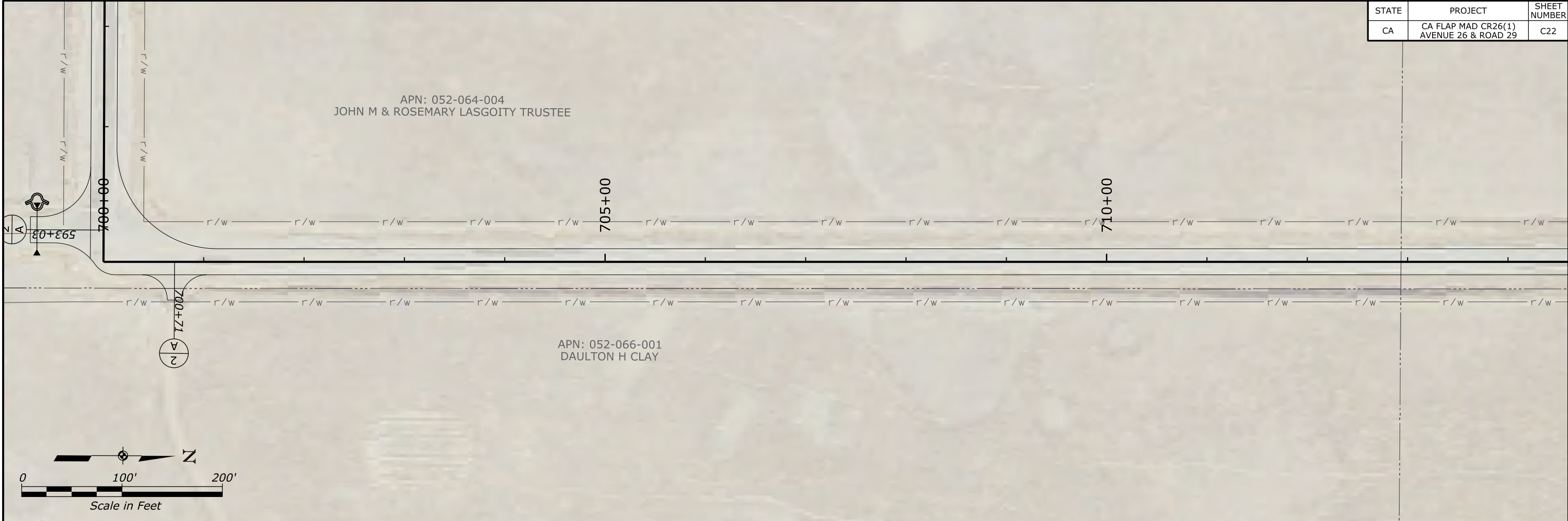


\_User: Leslie.Karsten\_

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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C22



**ROAD 29  
PLAN SHEET  
700+00 to 728+00**

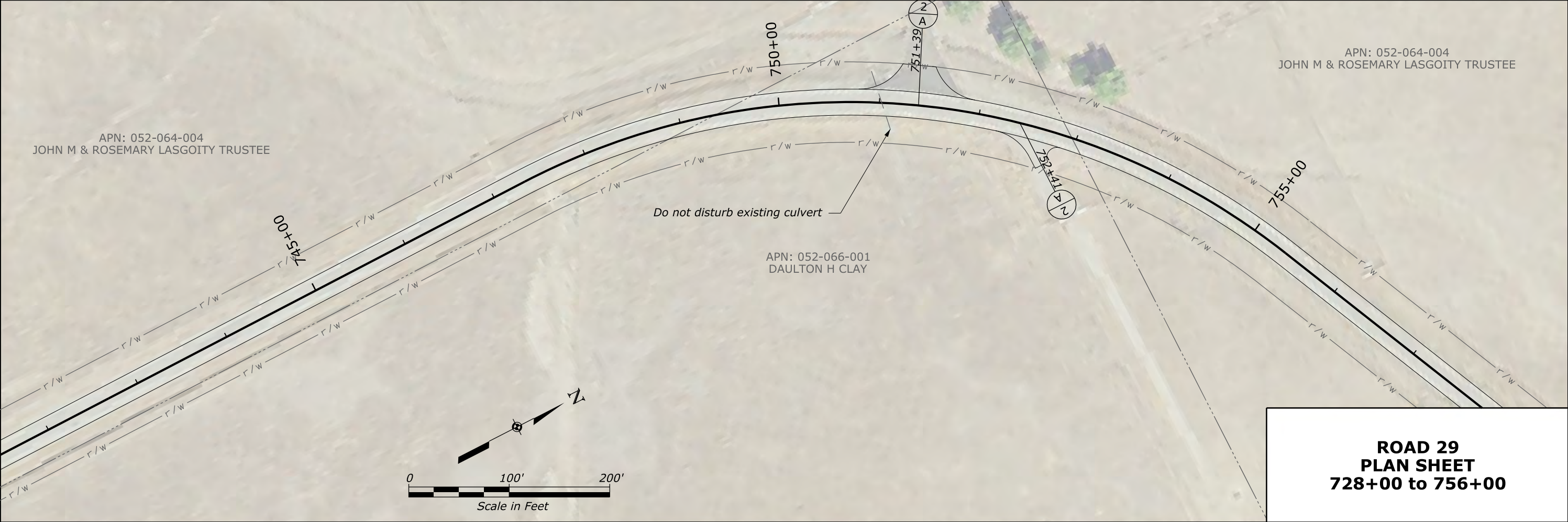
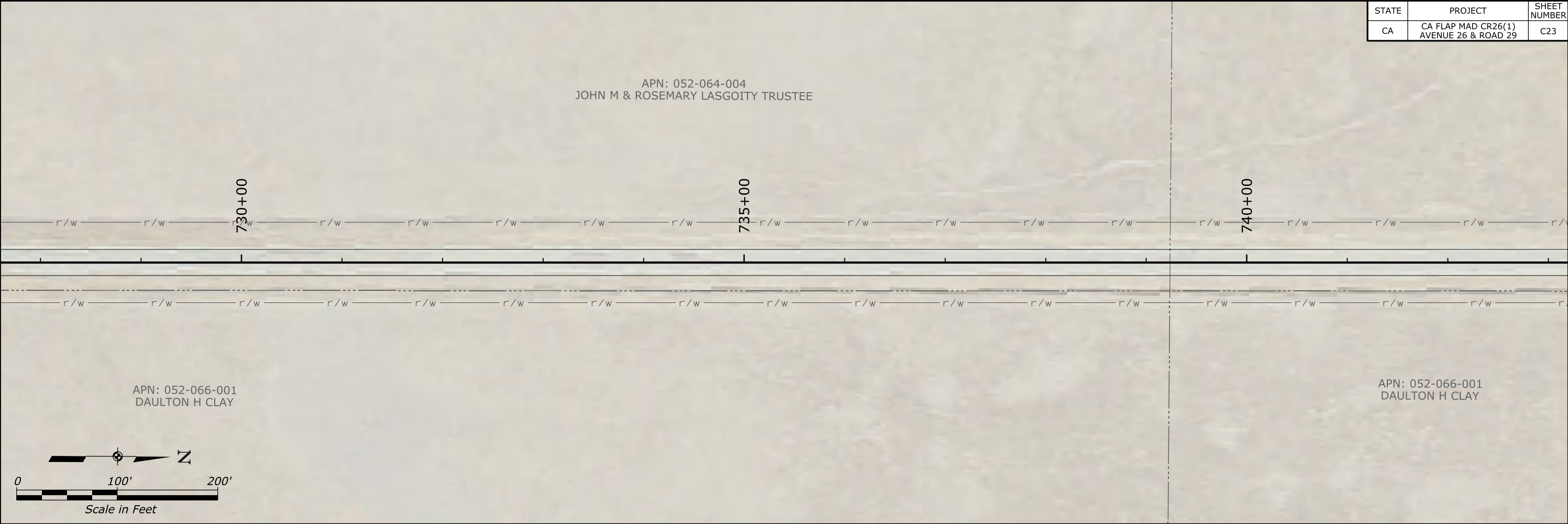




\_User: Leslie.Karsten\_

10:33:56 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C23.dgn  
3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C23





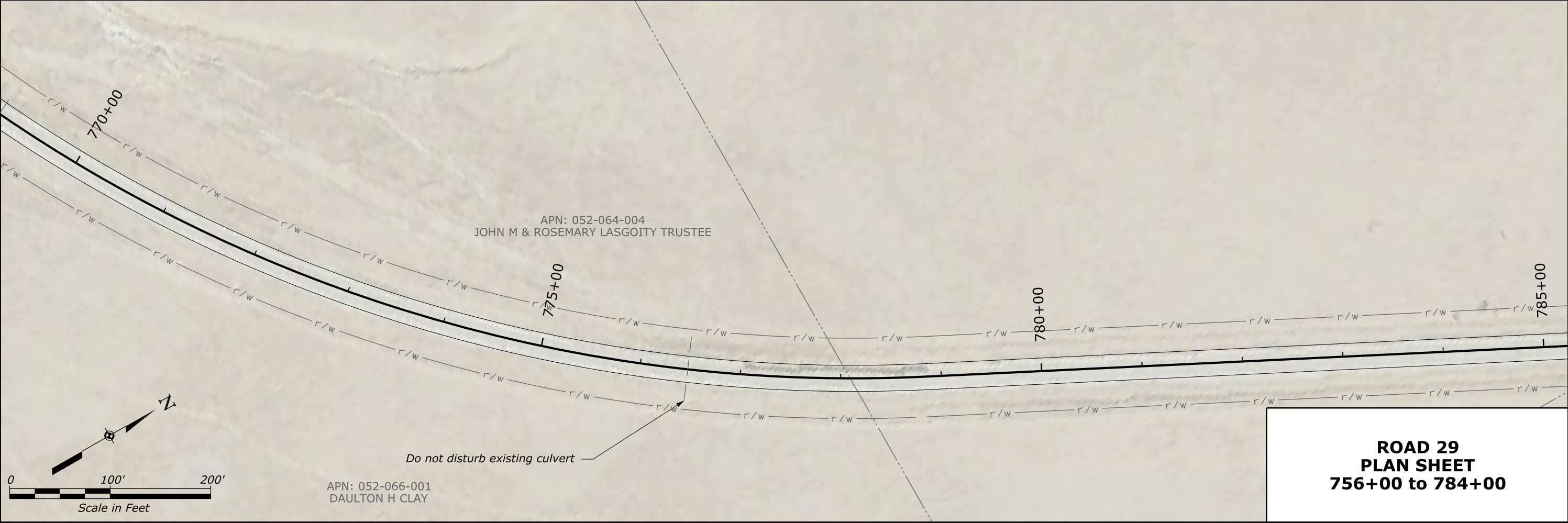
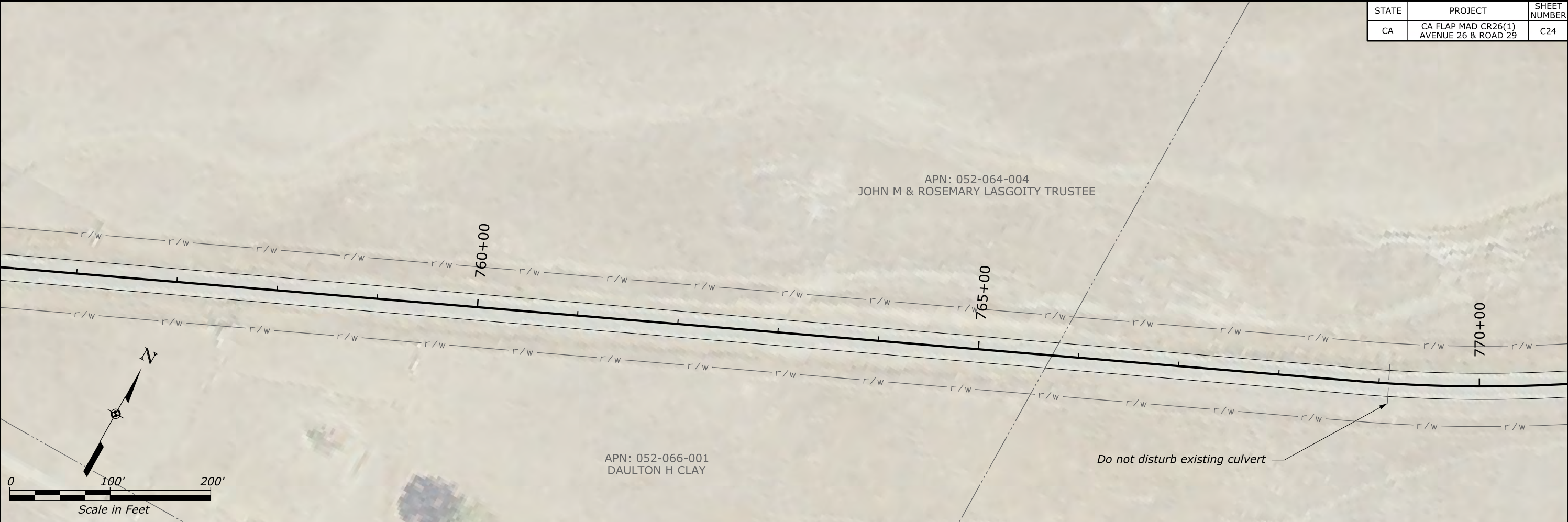


\_User: Leslie.Karsten\_

10:36:45 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C24.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C24





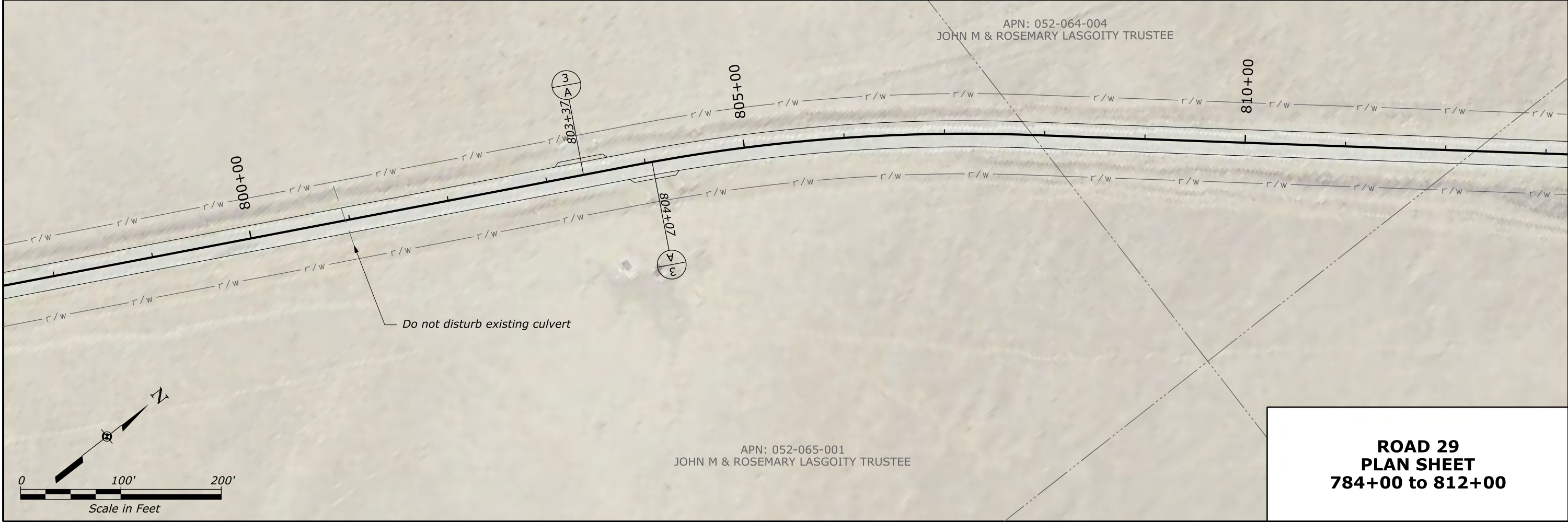
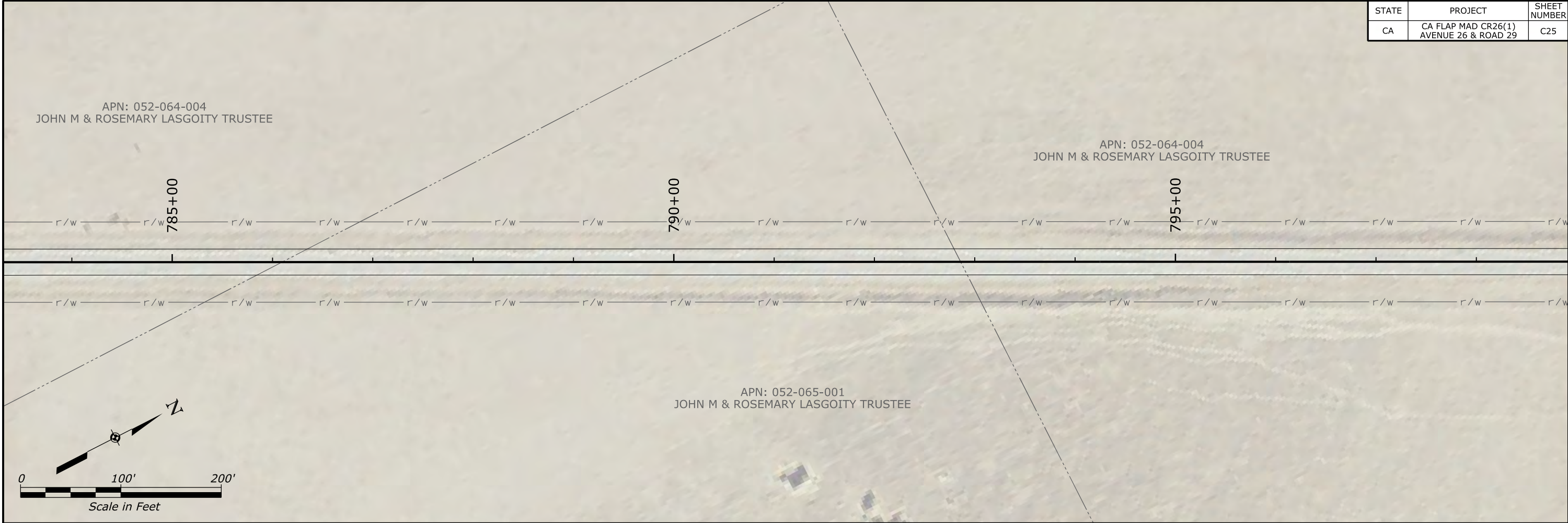


\_User: Leslie.Karsten\_

10:41:27 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C25.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C25



**ROAD 29  
PLAN SHEET  
784+00 to 812+00**



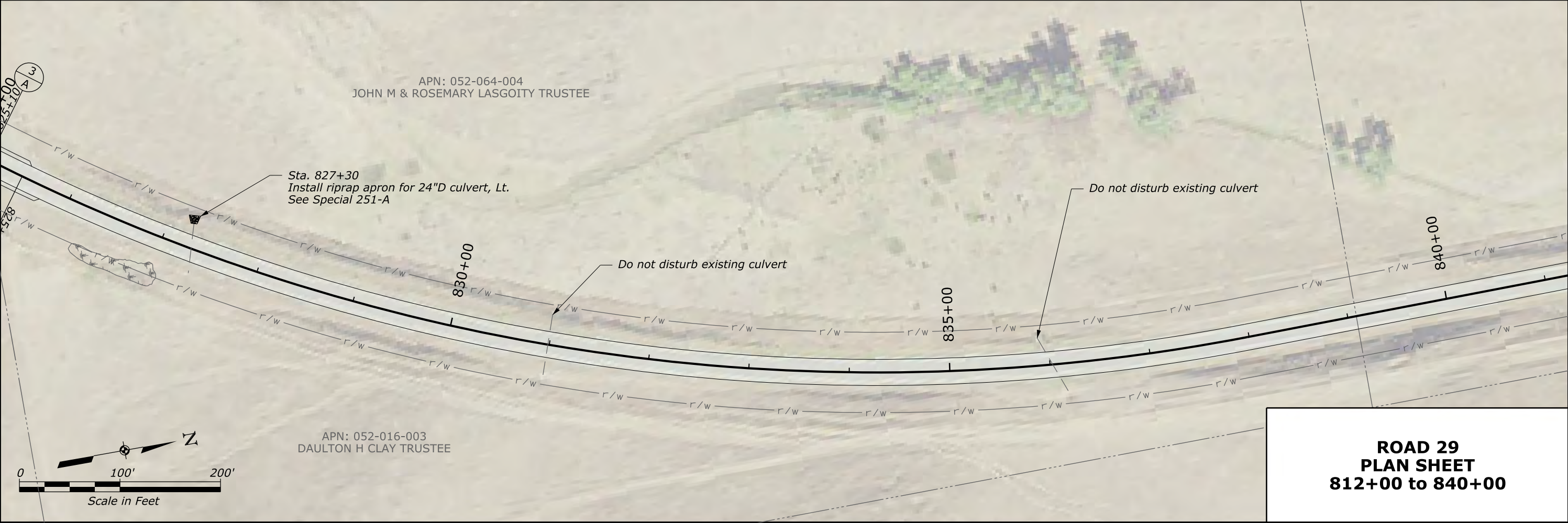
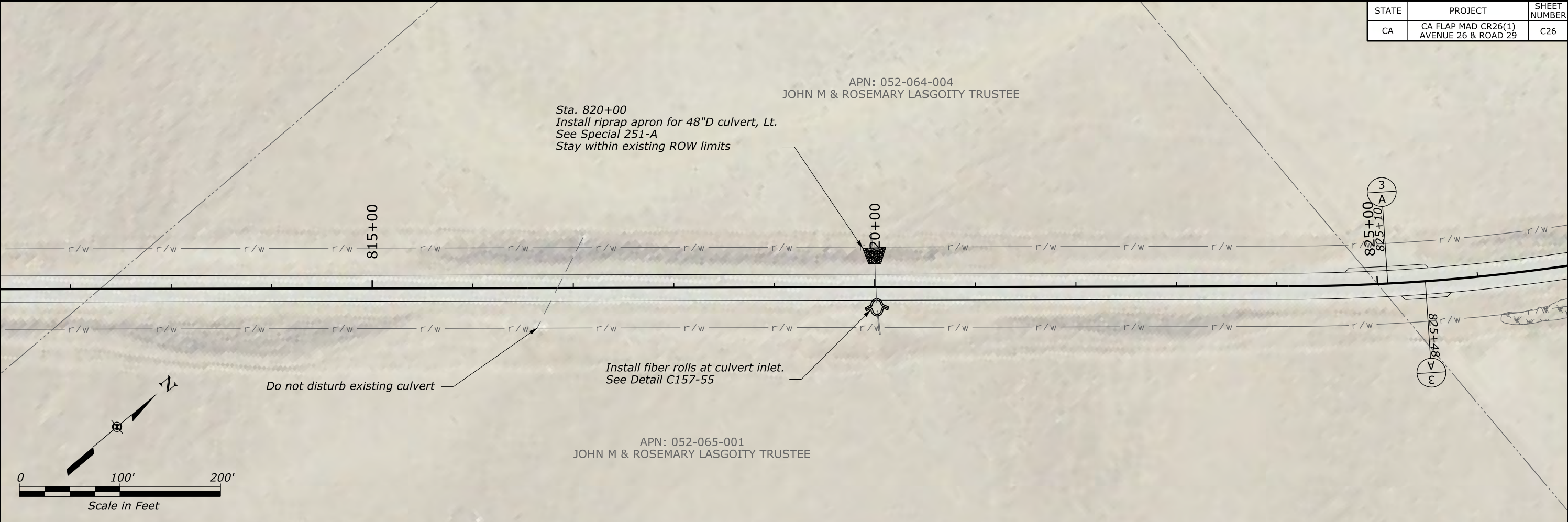


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3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C26





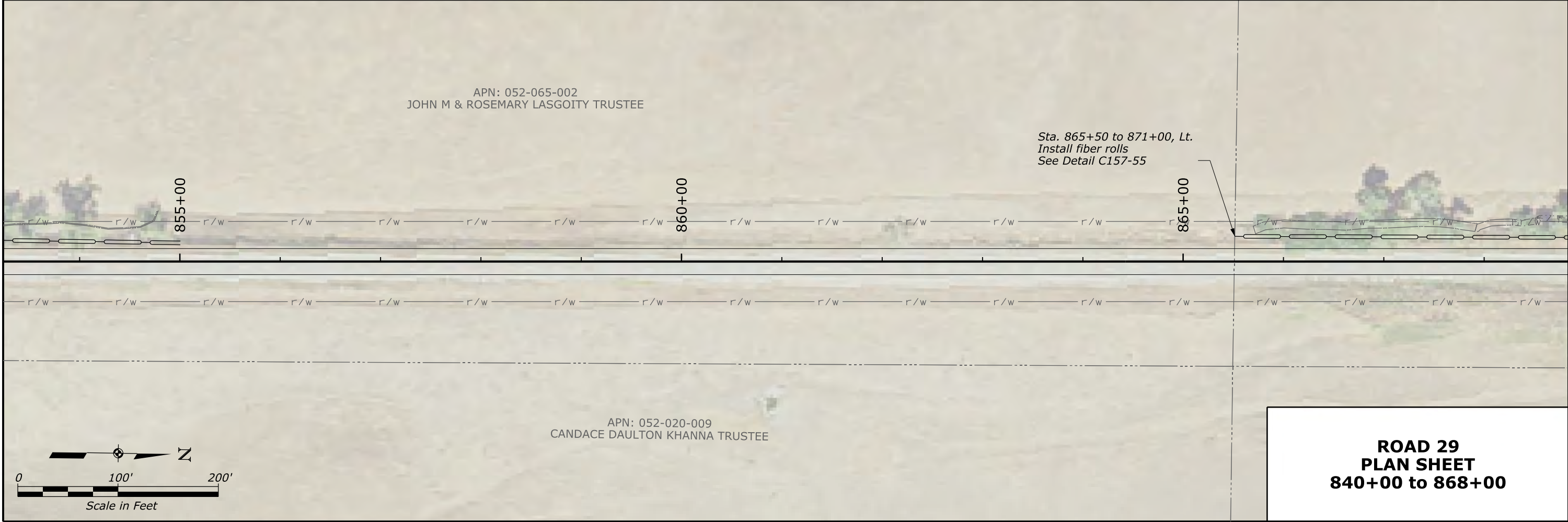
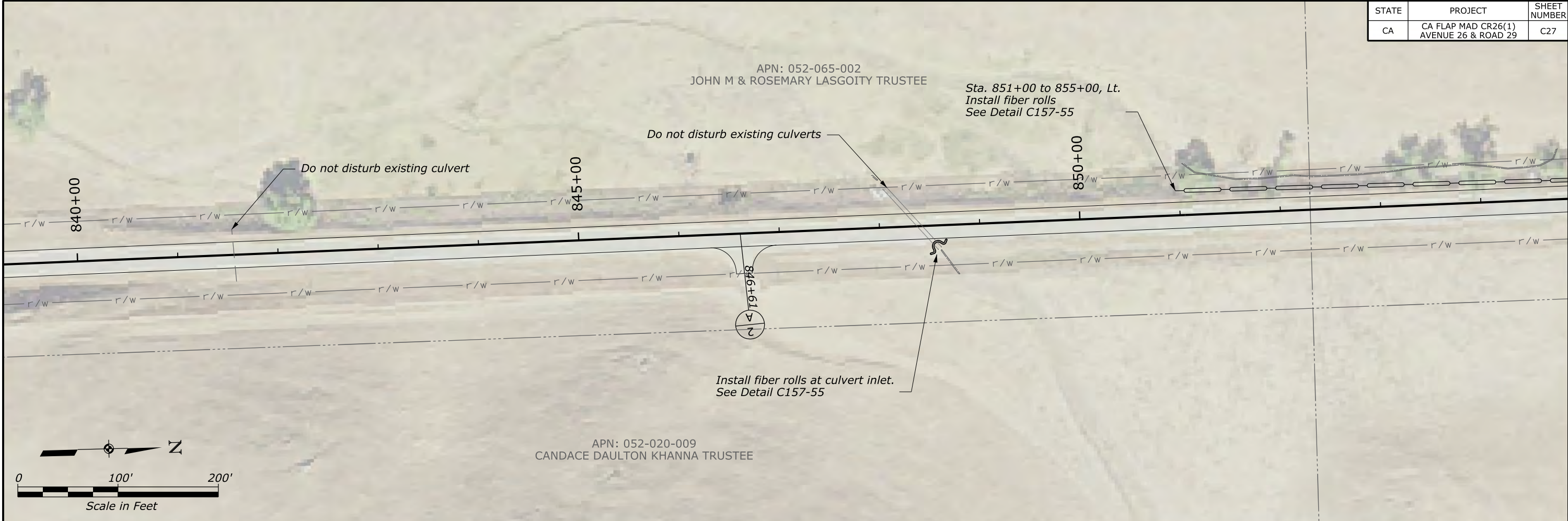


\_User: Leslie.Karsten\_

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3/29/2018

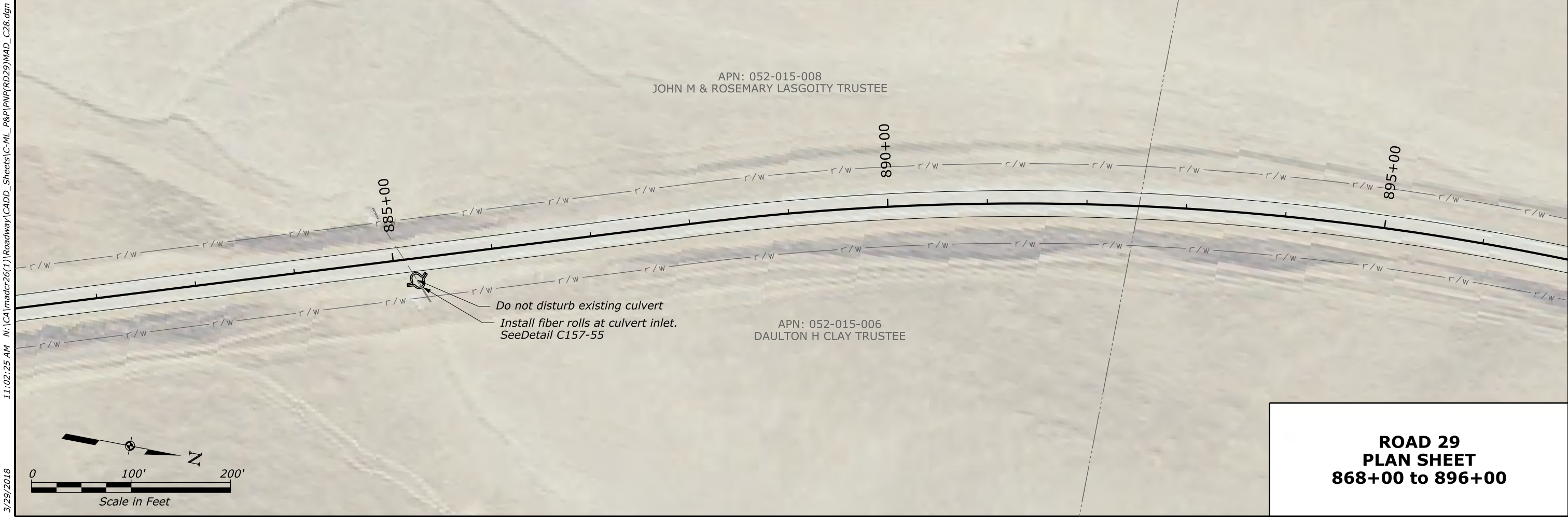
STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C27







STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C28



**ROAD 29  
PLAN SHEET  
868+00 to 896+00**

11:02:25 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C28.dgn 3/29/2018

User: Leslie.Karsten\_



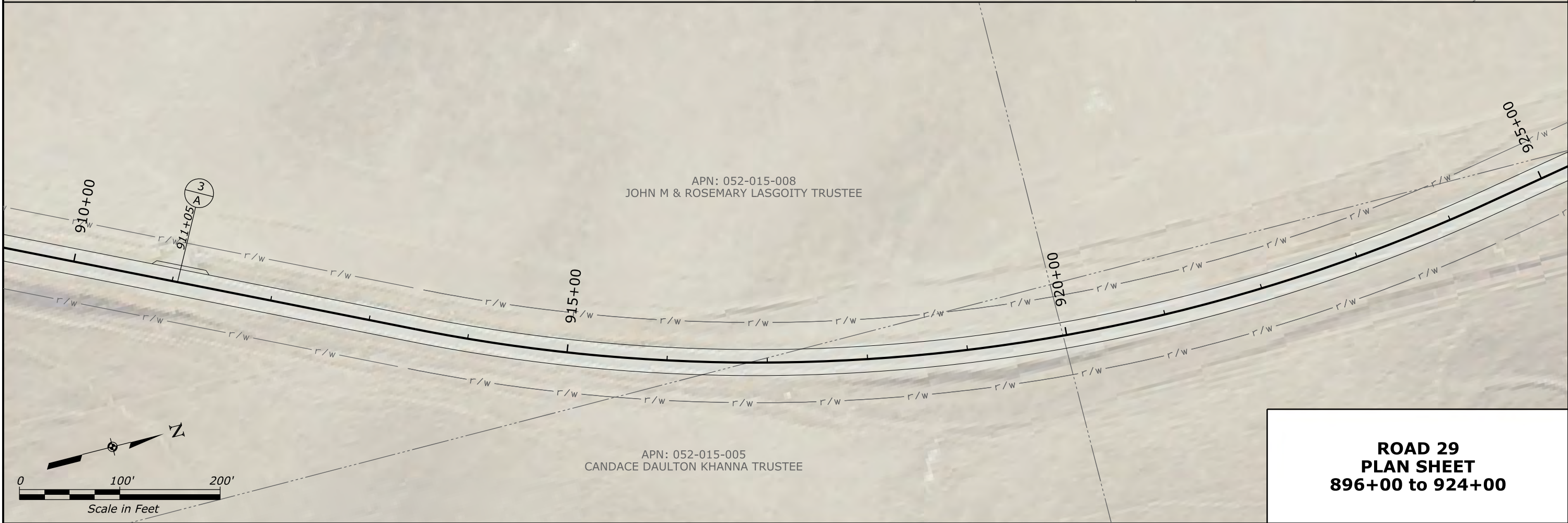
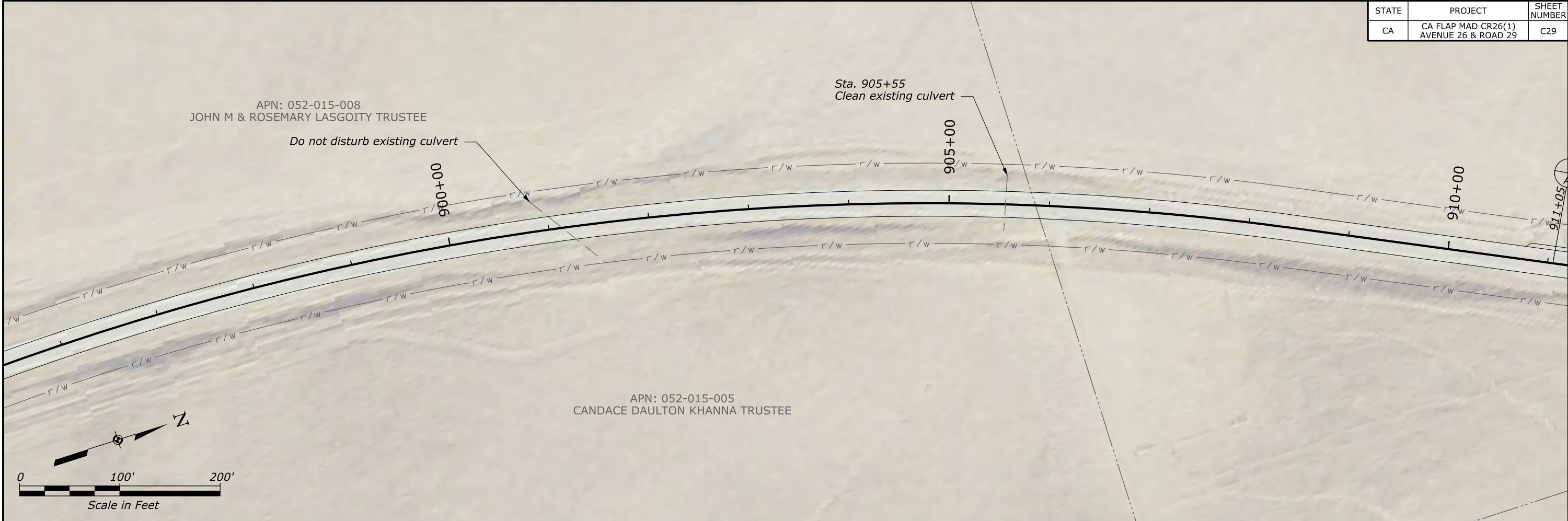


\_User: Leslie.Karsten\_

11:06:06 AM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C29.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C29

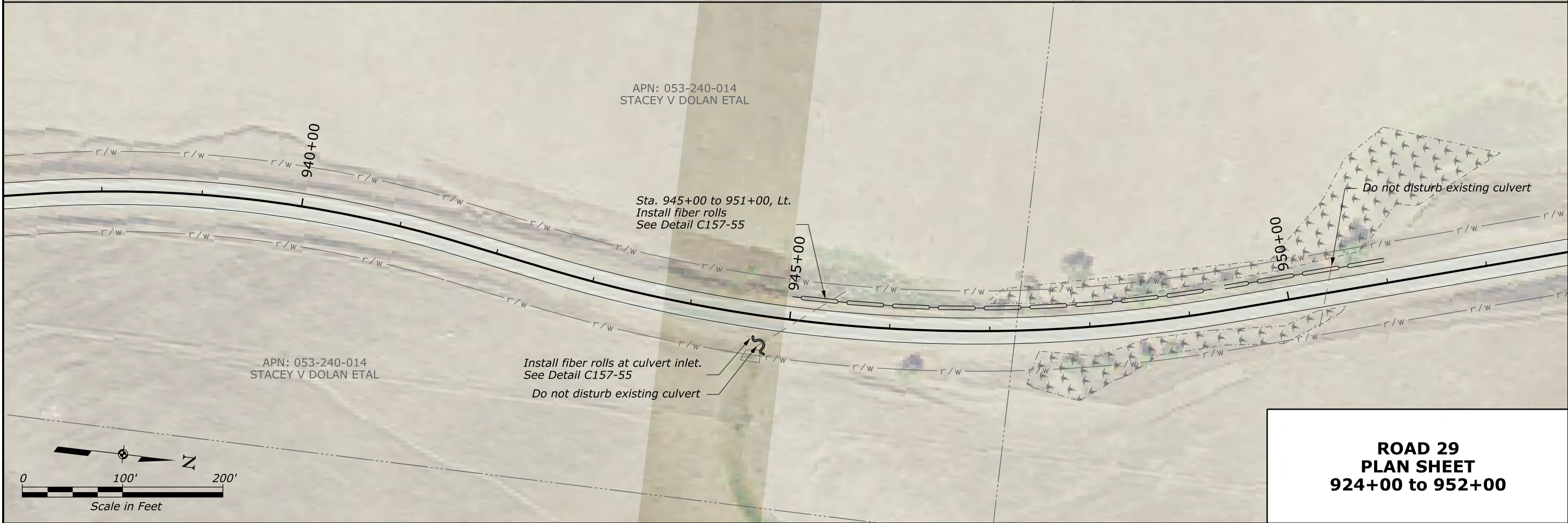
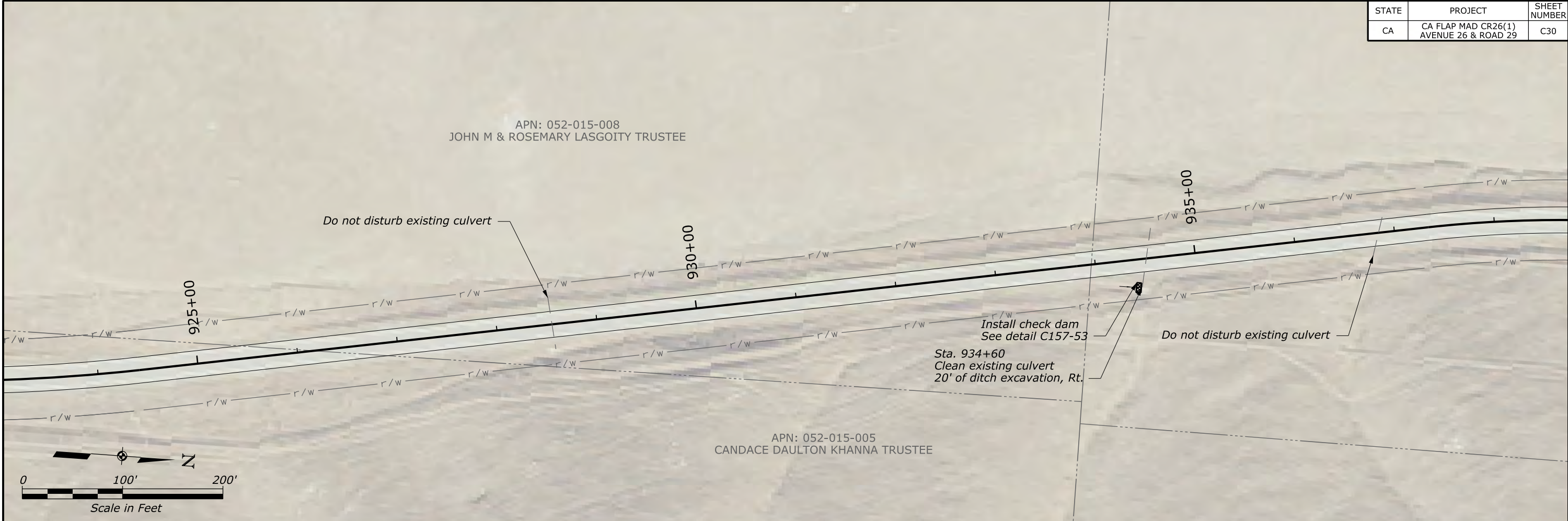


**ROAD 29  
PLAN SHEET  
896+00 to 924+00**





STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C30





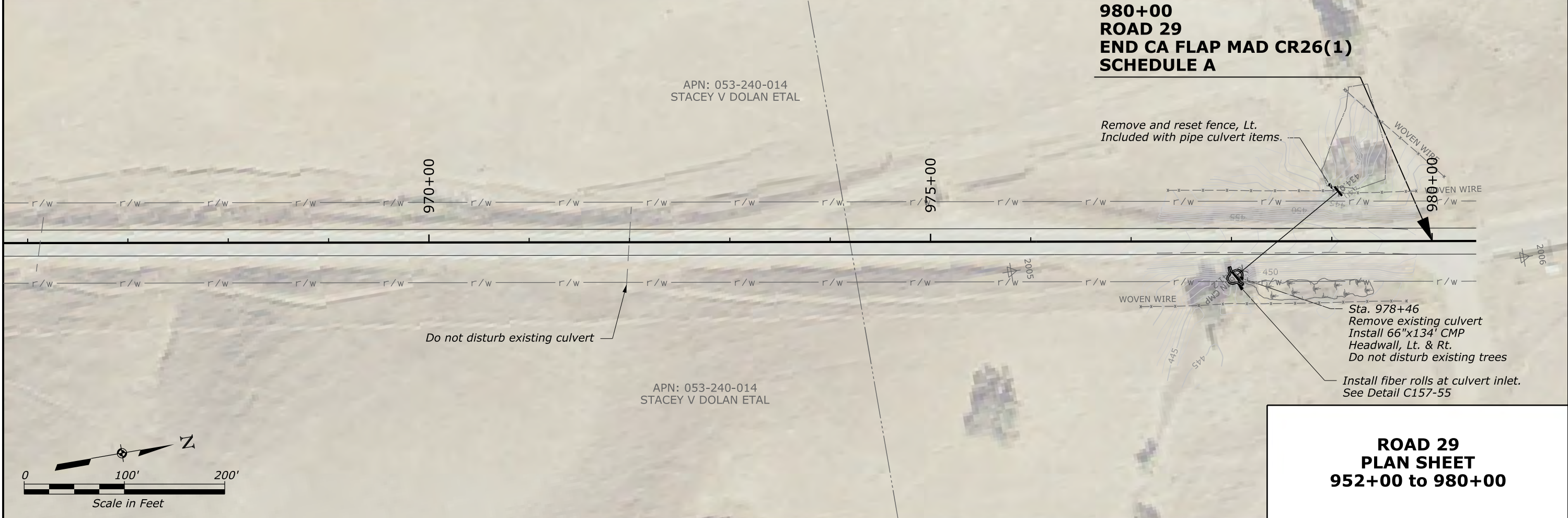


\_User: Leslie.Karsten\_

12:03:37 PM N:\CA\madcr26(1)\Roadway\CADD\_Sheets\C-ML\_P&P\PNP(RD29)\MAD\_C31.dgn

3/29/2018

STATE	PROJECT	SHEET NUMBER
CA	CA FLAP MAD CR26(1) AVENUE 26 & ROAD 29	C31







## **Appendix B. Database Queries**



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## IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

### Location

Madera County, California



### Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
Fresno Kangaroo Rat <i>Dipodomys nitratoides exilis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5150">https://ecos.fws.gov/ecp/species/5150</a>	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/2873">https://ecos.fws.gov/ecp/species/2873</a>	Endangered

## Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/625">https://ecos.fws.gov/ecp/species/625</a>	Endangered
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened

## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

## Fishes

NAME	STATUS
<b>Delta Smelt</b> <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

## Insects

NAME	STATUS
<b>Valley Elderberry Longhorn Beetle</b> <i>Desmocerus californicus dimorphus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a>	Threatened

## Crustaceans

NAME	STATUS
<b>Conservancy Fairy Shrimp</b> <i>Branchinecta conservatio</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a>	Endangered
<b>Vernal Pool Fairy Shrimp</b> <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened
<b>Vernal Pool Tadpole Shrimp</b> <i>Lepidurus packardii</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a>	Endangered

## Flowering Plants

NAME	STATUS
<b>Fleshy Owl's-clover</b> <i>Castilleja campestris</i> ssp. <i>succulenta</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8095">https://ecos.fws.gov/ecp/species/8095</a>	Threatened
<b>Greene's Tuctoria</b> <i>Tuctoria greenei</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1573">https://ecos.fws.gov/ecp/species/1573</a>	Endangered
<b>San Joaquin Orcutt Grass</b> <i>Orcuttia inaequalis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5506">https://ecos.fws.gov/ecp/species/5506</a>	Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service<sup>3</sup>. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.



## 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or are known to have particular vulnerabilities in your project location. To learn more about the levels of concern for birds on your list, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your specific project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the [E-bird data mapping tool](#) (search for the scientific name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain time-frame) and the [E-bird Explore Data Tool](#) (perform a query to see a list of all birds sighted in your county or region and within a certain time-frame). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found [below](#).

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC), but is of concern in this area either because of the Eagle Act, or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Mar 20 to Sep 15
<b>Black Swift</b> <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/8878">https://ecos.fws.gov/ecp/species/8878</a>	Breeds Jun 15 to Sep 10
<b>Burrowing Owl</b> <i>Athene cunicularia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9737">https://ecos.fws.gov/ecp/species/9737</a>	Breeds Mar 15 to Aug 31
<b>California Thrasher</b> <i>Toxostoma redivivum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
<b>Clark's Grebe</b> <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
<b>Costa's Hummingbird</b> <i>Calypte costae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9470">https://ecos.fws.gov/ecp/species/9470</a>	Breeds Jan 15 to Jun 10
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC), but is of concern in this area either because of the Eagle Act, or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds Apr 1 to Aug 31
<b>Lewis's Woodpecker</b> <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9408">https://ecos.fws.gov/ecp/species/9408</a>	Breeds Apr 20 to Sep 30
<b>Long-billed Curlew</b> <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a>	Breeds elsewhere
<b>Marbled Godwit</b> <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9481">https://ecos.fws.gov/ecp/species/9481</a>	Breeds elsewhere

<b>Mountain Plover</b> <i>Charadrius montanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3638">https://ecos.fws.gov/ecp/species/3638</a>	Breeds elsewhere
<b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a>	Breeds Apr 1 to Jul 20
<b>Oak Titmouse</b> <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a>	Breeds Mar 15 to Jul 15
<b>Rufous Hummingbird</b> <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/8002">https://ecos.fws.gov/ecp/species/8002</a>	Breeds elsewhere
<b>Short-billed Dowitcher</b> <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a>	Breeds elsewhere
<b>Tricolored Blackbird</b> <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3910">https://ecos.fws.gov/ecp/species/3910</a>	Breeds Mar 15 to Aug 10
<b>Whimbrel</b> <i>Numenius phaeopus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9483">https://ecos.fws.gov/ecp/species/9483</a>	Breeds elsewhere
<b>White Headed Woodpecker</b> <i>Picoides albolarvatus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9411">https://ecos.fws.gov/ecp/species/9411</a>	Breeds May 1 to Aug 15
<b>Willet</b> <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
<b>Wrentit</b> <i>Chamaea fasciata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
<b>Yellow-billed Magpie</b> <i>Pica nuttalli</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9726">https://ecos.fws.gov/ecp/species/9726</a>	Breeds Apr 1 to Jul 31

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.



To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

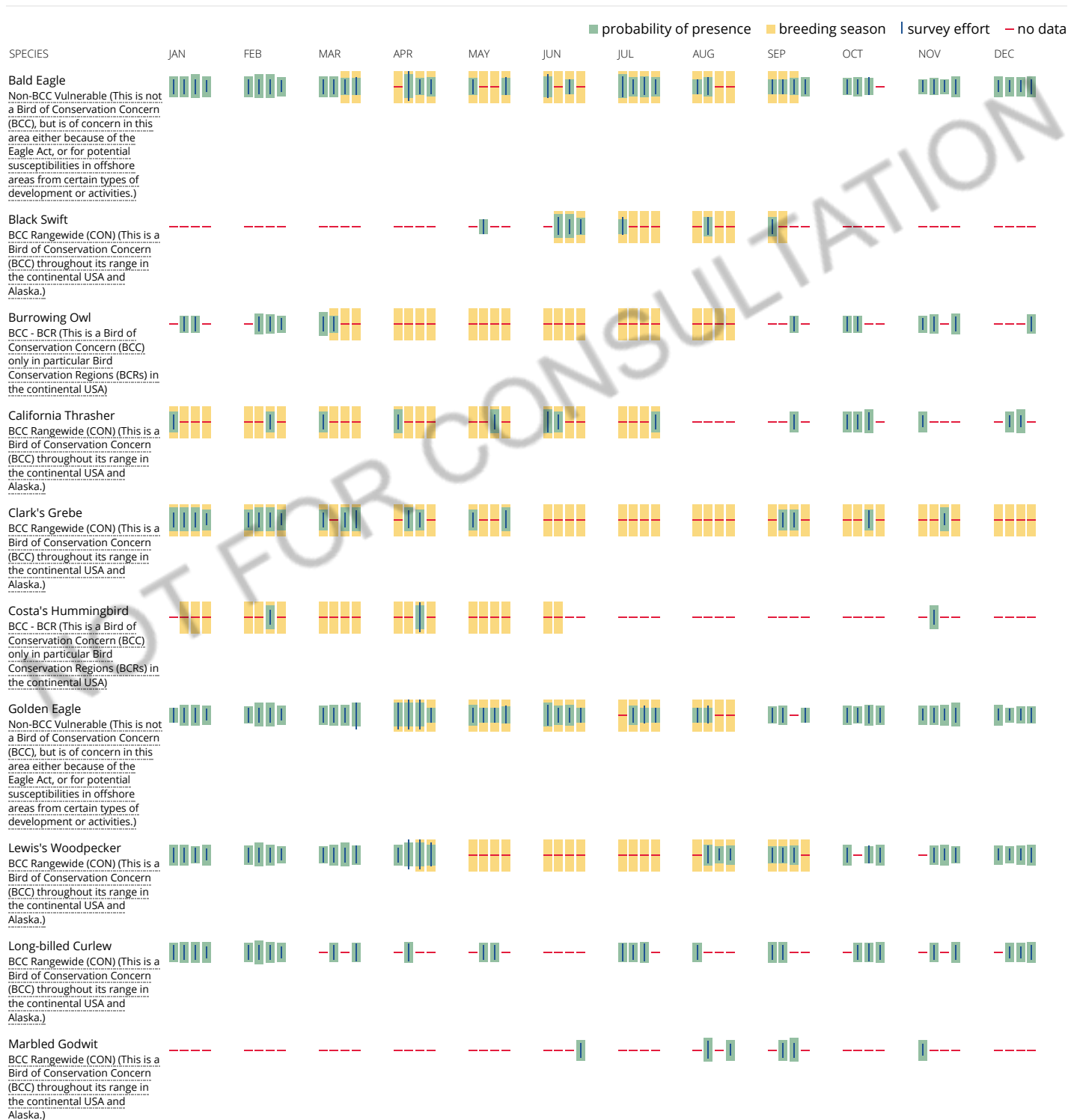
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

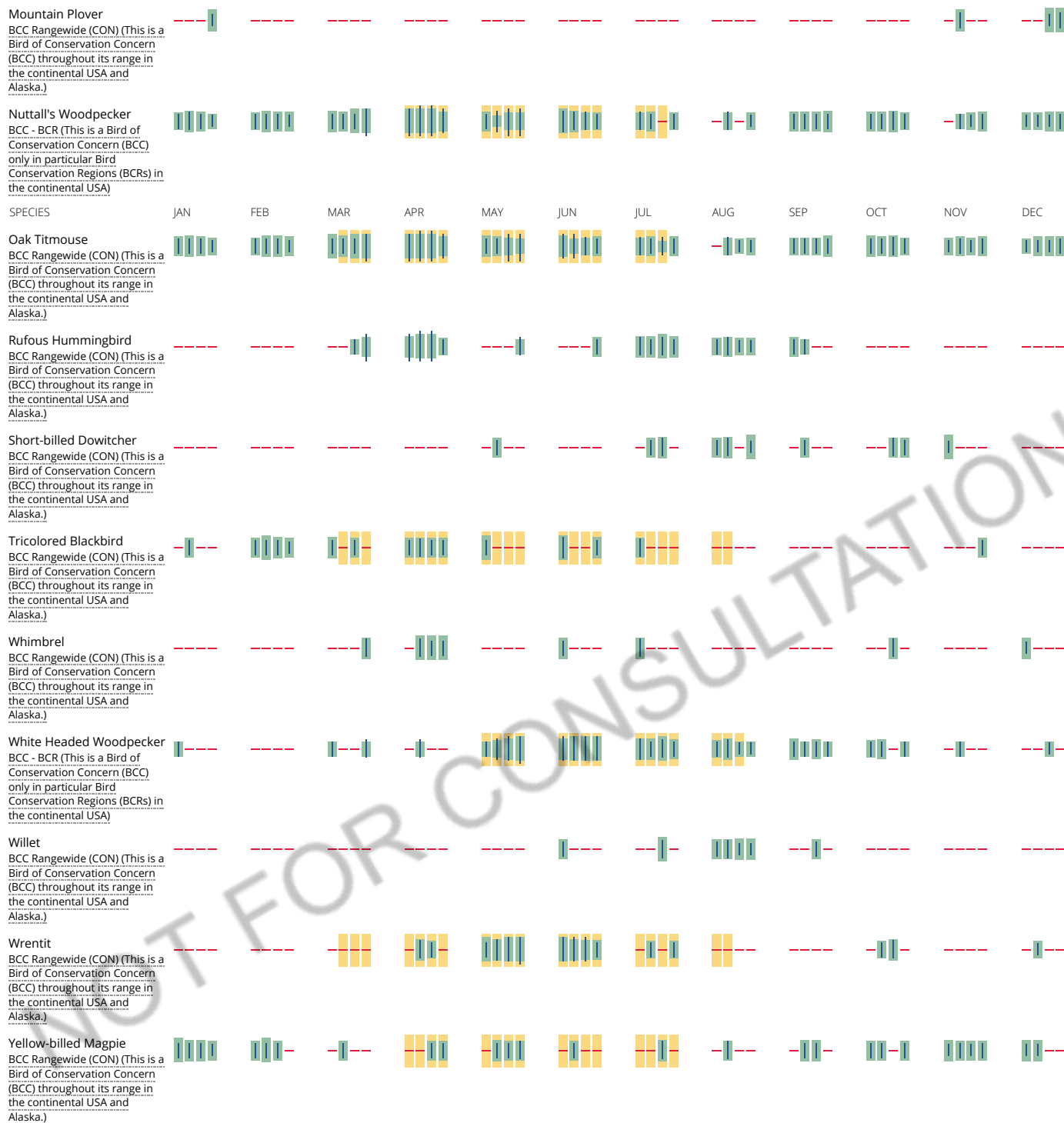
### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Such measures are particularly important when birds are most likely to occur in the project area. To see when birds are most likely to occur in your project area, view the Probability of Presence Summary. Special attention should be made to look for nests and avoid nest destruction during the breeding season. The best information about when birds are breeding can be found in [Birds of North America \(BNA\) Online](#) under the "Breeding Phenology" section of each species profile. Note that accessing this information may require a [subscription](#). [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) that might be affected by activities in your project location. These birds are of priority concern because it has been determined that without additional conservation actions, they are likely to become candidates for listing under the [Endangered Species Act \(ESA\)](#).

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#). The AKN list represents all birds reported to be occurring at some level throughout the year in the counties in which your project lies. That list is then narrowed to only the Birds of Conservation Concern for your project area.



Again, the Migratory Bird Resource list only includes species of particular priority concern, and is not representative of all birds that may occur in your project area. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

#### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available.

#### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird entry on your migratory bird species list indicates a breeding season, it is probable the bird breeds in your project's counties at some point within the time-frame specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

#### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

[Avoidance and minimization measures](#) should be implemented to reduce impacts to birds on your list, and all other birds that may occur in your project area. Nationwide Standard Conservation Measures can be applied for any project, regardless of project type or location.

If measures exist that are specific to your activity or to any of the species on your list that are confirmed to exist at your project area, these should also be considered for implementation in addition to the Nationwide Standard Conservation Measures. Implementation of avoidance and minimization measures is particularly important for BCC birds of rangewide concern.

If your project has the potential to disturb or kill eagles, you will need to [obtain a permit](#) to avoid violating the BGEPA should such impacts occur.

#### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEMA](#)  
[PEMC](#)  
[PEMFh](#)

FRESHWATER POND

[PUBFx](#)  
[PABFx](#)

LAKE

[L2USJh](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <https://ecos.fws.gov/ipac/wetlands/decoder>

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



**CNDDDB 9-Quad Species List** 134 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712011	Kismet	Mapped	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712021	Raynor Creek	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712033	Planada	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3712033	Planada	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3712021	Raynor Creek	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Amphibians	Spea hammondi	western spadefoot	AAABF02020	None	None	SSC	-	3712011	Kismet	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondi
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3712033	Planada	Mapped	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712033	Planada	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712012	Berenda	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712013	Chowchilla	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712022	Le Grand	Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712023	Plainsburg	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus cyaneus	northern harrier	ABNKC11010	None	None	SSC	-	3712023	Plainsburg	Mapped	Animals - Birds - Accipitridae - Circus cyaneus

Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3712032	Owens Reservoir	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712032	Owens Reservoir	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712033	Planada	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712013	Chowchilla	Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712023	Plainsburg	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010	None	None	SSC	-	3712013	Chowchilla	Unprocessed	Animals - Birds - Icteridae - Xanthocephalus xanthocephalus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712011	Kismet	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712023	Plainsburg	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712022	Le Grand	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712033	Planada	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3712032	Owens Reservoir	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3712033	Planada	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712033	Planada	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi



Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712023	Plainsburg	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712012	Berenda	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712032	Owens Reservoir	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712033	Planada	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712033	Planada	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis

Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712023	Plainsburg	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712032	Owens Reservoir	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712033	Planada	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3712022	Le Grand	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Lytta moesta	moestan blister beetle	IICOL4C020	None	None	-	-	3712011	Kismet	Mapped	Animals - Insects - Meloidae - Lytta moesta
Animals - Mammals	Vulpes macrotis mutica	San Joaquin kit fox	AMAJA03041	Endangered	Threatened	-	-	3712022	Le Grand	Mapped	Animals - Mammals - Canidae - Vulpes macrotis mutica
Animals - Mammals	Vulpes macrotis mutica	San Joaquin kit fox	AMAJA03041	Endangered	Threatened	-	-	3712023	Plainsburg	Mapped	Animals - Mammals - Canidae - Vulpes macrotis mutica
Animals - Mammals	Vulpes macrotis mutica	San Joaquin kit fox	AMAJA03041	Endangered	Threatened	-	-	3712033	Planada	Mapped	Animals - Mammals - Canidae - Vulpes macrotis mutica
Animals - Mammals	Dipodomys heermanni dixonii	Merced kangaroo rat	AMAFD03062	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Dipodomys heermanni dixonii
Animals - Mammals	Dipodomys heermanni dixonii	Merced kangaroo rat	AMAFD03062	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Dipodomys heermanni dixonii
Animals - Mammals	Perognathus inornatus	San Joaquin Pocket Mouse	AMAFD01060	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Perognathus inornatus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3712033	Planada	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3712023	Plainsburg	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus



Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3712013	Chowchilla	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	3712023	Plainsburg	Mapped	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3712031	Illinois Hill	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3712032	Owens Reservoir	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Phrynosoma blainvillii	coast horned lizard	ARACF12100	None	None	SSC	-	3712022	Le Grand	Unprocessed	Animals - Reptiles - Phrynosomatidae - Phrynosoma blainvillii
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712021	Raynor Creek	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712011	Kismet	Mapped and Unprocessed	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712032	Owens Reservoir	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712033	Planada	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Eryngium spinosepalum	spiny-sepaled button-celery	PDAP10Z0Y0	None	None	-	1B.2	3712033	Planada	Mapped	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaled button-celery	PDAP10Z0Y0	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaled button-celery	PDAP10Z0Y0	None	None	-	1B.2	3712021	Raynor Creek	Unprocessed	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaled button-celery	PDAP10Z0Y0	None	None	-	1B.2	3712022	Le Grand	Mapped and Unprocessed	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaled button-celery	PDAP10Z0Y0	None	None	-	1B.2	3712023	Plainsburg	Mapped	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Calycadenia hooveri	Hoover's calycadenia	PDAST1P040	None	None	-	1B.3	3712021	Raynor Creek	Mapped	Plants - Vascular - Asteraceae - Calycadenia hooveri

Plants - Vascular	Calycadenia hooveri	Hoover's calycadenia	PDAST1P040	None	None	-	1B.3	3712032	Owens Reservoir	Mapped	Plants - Vascular - Asteraceae - Calycadenia hooveri
Plants - Vascular	Hesperervax caulescens	hogwallow starfish	PDASTE5020	None	None	-	4.2	3712032	Owens Reservoir	Unprocessed	Plants - Vascular - Asteraceae - Hesperervax caulescens
Plants - Vascular	Hesperervax caulescens	hogwallow starfish	PDASTE5020	None	None	-	4.2	3712033	Planada	Unprocessed	Plants - Vascular - Asteraceae - Hesperervax caulescens
Plants - Vascular	Cryptantha hooveri	Hoover's cryptantha	PDBOR0A190	None	None	-	1A	3712013	Chowchilla	Mapped	Plants - Vascular - Boraginaceae - Cryptantha hooveri
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Atriplex cordulata var. cordulata	heartscale	PDCHE040B0	None	None	-	1B.2	3712013	Chowchilla	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex cordulata var. cordulata
Plants - Vascular	Atriplex cordulata var. cordulata	heartscale	PDCHE040B0	None	None	-	1B.2	3712012	Berenda	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex cordulata var. cordulata
Plants - Vascular	Atriplex cordulata var. cordulata	heartscale	PDCHE040B0	None	None	-	1B.2	3712023	Plainsburg	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex cordulata var. cordulata
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712023	Plainsburg	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712012	Berenda	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712013	Chowchilla	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Atriplex subtilis	subtle orache	PDCHE042T0	None	None	-	1B.2	3712013	Chowchilla	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex subtilis
Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712022	Le Grand	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca
Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712023	Plainsburg	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca



Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca
Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712033	Planada	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3712013	Chowchilla	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3712012	Berenda	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Calochortus clavatus var. avius	Pleasant Valley mariposa-lily	PMLIL0D095	None	None	-	1B.2	3712031	Illinois Hill	Mapped	Plants - Vascular - Liliaceae - Calochortus clavatus var. avius
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLIL0V010	None	None	-	4.2	3712033	Planada	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Clarkia rostrata	beaked clarkia	PDONA050Y0	None	None	-	1B.3	3712032	Owens Reservoir	Mapped	Plants - Vascular - Onagraceae - Clarkia rostrata
Plants - Vascular	Clarkia virgata	Sierra clarkia	PDONA05160	None	None	-	4.3	3712021	Raynor Creek	Unprocessed	Plants - Vascular - Onagraceae - Clarkia virgata
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712012	Berenda	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712022	Le Grand	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712033	Planada	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3712033	Planada	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Neostapfia colusana	Colusa grass	PMPOA4C010	Threatened	Endangered	-	1B.1	3712033	Planada	Mapped	Plants - Vascular - Poaceae - Neostapfia colusana
Plants - Vascular	Neostapfia colusana	Colusa grass	PMPOA4C010	Threatened	Endangered	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Poaceae - Neostapfia colusana
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712033	Planada	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis

Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia pilosa	hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Orcuttia pilosa
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3712023	Plainsburg	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712033	Planada	Mapped	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712032	Owens Reservoir	Mapped and Unprocessed	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Navarretia myersii ssp. myersii	pincushion navarretia	PDPLM0C0X1	None	None	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Polemoniaceae - Navarretia myersii ssp. myersii
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712033	Planada	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712011	Kismet	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712022	Le Grand	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Goodmania luteola	golden goodmania	PDPGN0B010	None	None	-	4.2	3712013	Chowchilla	Unprocessed	Plants - Vascular - Polygonaceae - Goodmania luteola
Plants - Vascular	Delphinium hansenii ssp. ewanianum	Ewan's larkspur	PDRAN0B0T2	None	None	-	4.2	3712012	Berenda	Unprocessed	Plants - Vascular - Ranunculaceae - Delphinium hansenii ssp. ewanianum
Plants - Vascular	Delphinium hansenii ssp. ewanianum	Ewan's larkspur	PDRAN0B0T2	None	None	-	4.2	3712032	Owens Reservoir	Unprocessed	Plants - Vascular - Ranunculaceae - Delphinium hansenii ssp. ewanianum
Plants - Vascular	Delphinium recurvatum	recurved larkspur	PDRAN0B1J0	None	None	-	1B.2	3712013	Chowchilla	Mapped	Plants - Vascular - Ranunculaceae - Delphinium recurvatum



**CNDDB 9-Quad Species List 118 records.**

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3711918	Daulton	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3711928	Raymond	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3711938	Ben Hur	Mapped	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712011	Kismet	Mapped	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712021	Raynor Creek	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3712021	Raynor Creek	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3712011	Kismet	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3711928	Raymond	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3711918	Daulton	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3711928	Raymond	Mapped and Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3711918	Daulton	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712012	Berenda	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712022	Le Grand	Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni

Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3711928	Raymond	Mapped and Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3711938	Ben Hur	Mapped	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3712032	Owens Reservoir	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712032	Owens Reservoir	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3711918	Daulton	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3711928	Raymond	Mapped	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3711918	Daulton	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712011	Kismet	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712021	Raynor Creek	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712032	Owens Reservoir	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3712022	Le Grand	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3712032	Owens Reservoir	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712012	Berenda	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3711918	Daulton	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi



Animals - Crustaceans	Branchinecta mesoallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesoallensis
Animals - Crustaceans	Branchinecta mesoallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesoallensis
Animals - Crustaceans	Branchinecta mesoallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesoallensis
Animals - Crustaceans	Branchinecta mesoallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3712032	Owens Reservoir	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesoallensis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712011	Kismet	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3711918	Daulton	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3711928	Raymond	Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712021	Raynor Creek	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Crustaceans	Lepidurus packardii	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3712032	Owens Reservoir	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardii
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3712022	Le Grand	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Lytta moesta	moestan blister beetle	IICOL4C020	None	None	-	-	3712011	Kismet	Mapped	Animals - Insects - Meloidae - Lytta moesta
Animals - Mammals	Vulpes macrotis mutica	San Joaquin kit fox	AMAJA03041	Endangered	Threatened	-	-	3712022	Le Grand	Mapped	Animals - Mammals - Canidae - Vulpes macrotis mutica
Animals - Mammals	Dipodomys heermanni dixonii	Merced kangaroo rat	AMAFD03062	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Dipodomys heermanni dixonii
Animals - Mammals	Dipodomys heermanni dixonii	Merced kangaroo rat	AMAFD03062	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Dipodomys heermanni dixonii

Animals - Mammals	Perognathus inornatus	San Joaquin Pocket Mouse	AMAFD01060	None	None	-	-	3712032	Owens Reservoir	Mapped and Unprocessed	Animals - Mammals - Heteromyidae - Perognathus inornatus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3711918	Daulton	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3711928	Raymond	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3711928	Raymond	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3711928	Raymond	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3711938	Ben Hur	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3711918	Daulton	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3712032	Owens Reservoir	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3712031	Illinois Hill	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Phrynosoma blainvillii	coast horned lizard	ARACF12100	None	None	SSC	-	3712022	Le Grand	Unprocessed	Animals - Reptiles - Phrynosomatidae - Phrynosoma blainvillii
Community - Aquatic	Central Valley Drainage Hardhead/Squawfish Stream	Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA	None	None	-	-	3711938	Ben Hur	Mapped	Community - Aquatic - Central Valley Drainage Hardhead/Squawfish Stream
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712011	Kismet	Mapped and Unprocessed	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3711918	Daulton	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712021	Raynor Creek	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712022	Le Grand	Mapped and Unprocessed	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3712032	Owens Reservoir	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Eryngium spinosepalum	spiny-sepaed button-celery	PDAPI0Z0Y0	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaed button-celery	PDAPI0Z0Y0	None	None	-	1B.2	3712021	Raynor Creek	Unprocessed	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Eryngium spinosepalum	spiny-sepaed button-celery	PDAPI0Z0Y0	None	None	-	1B.2	3712022	Le Grand	Mapped and Unprocessed	Plants - Vascular - Apiaceae - Eryngium spinosepalum
Plants - Vascular	Calycadenia hooveri	Hoover's calycadenia	PDAST1P040	None	None	-	1B.3	3712021	Raynor Creek	Mapped	Plants - Vascular - Asteraceae - Calycadenia hooveri
Plants - Vascular	Calycadenia hooveri	Hoover's calycadenia	PDAST1P040	None	None	-	1B.3	3712032	Owens Reservoir	Mapped	Plants - Vascular - Asteraceae - Calycadenia hooveri
Plants - Vascular	Hesperevax caulescens	hogwallow starfish	PDASTE5020	None	None	-	4.2	3712032	Owens Reservoir	Unprocessed	Plants - Vascular - Asteraceae - Hesperevax caulescens
Plants - Vascular	Pentachaeta fragilis	fragile pentachaeta	PDAST6X050	None	None	-	4.3	3711928	Raymond	Unprocessed	Plants - Vascular - Asteraceae - Pentachaeta fragilis



Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Atriplex cordulata var. cordulata	heartscale	PDCHE040B0	None	None	-	1B.2	3712012	Berenda	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex cordulata var. cordulata
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712012	Berenda	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Atriplex minuscula	lesser saltscale	PDCHE042M0	None	None	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex minuscula
Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712022	Le Grand	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca
Plants - Vascular	Phacelia ciliata var. opaca	Merced phacelia	PDHYD0C0S2	None	None	-	3.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Hydrophyllaceae - Phacelia ciliata var. opaca
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3712012	Berenda	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Calochortus clavatus var. avius	Pleasant Valley mariposa-lily	PMLIL0D095	None	None	-	1B.2	3712031	Illinois Hill	Mapped	Plants - Vascular - Liliaceae - Calochortus clavatus var. avius
Plants - Vascular	Clarkia rostrata	beaked clarkia	PDONA050Y0	None	None	-	1B.3	3712032	Owens Reservoir	Mapped	Plants - Vascular - Onagraceae - Clarkia rostrata
Plants - Vascular	Clarkia rostrata	beaked clarkia	PDONA050Y0	None	None	-	1B.3	3711928	Raymond	Mapped	Plants - Vascular - Onagraceae - Clarkia rostrata
Plants - Vascular	Clarkia rostrata	beaked clarkia	PDONA050Y0	None	None	-	1B.3	3711938	Ben Hur	Mapped	Plants - Vascular - Onagraceae - Clarkia rostrata
Plants - Vascular	Clarkia virgata	Sierra clarkia	PDONA05160	None	None	-	4.3	3712021	Raynor Creek	Unprocessed	Plants - Vascular - Onagraceae - Clarkia virgata
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3711928	Raymond	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3711918	Daulton	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712012	Berenda	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Castilleja campestris var. succulenta	succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	-	1B.2	3712022	Le Grand	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Castilleja campestris var. succulenta
Plants - Vascular	Neostapfia colusana	Colusa grass	PMPOA4C010	Threatened	Endangered	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Poaceae - Neostapfia colusana
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3711918	Daulton	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia inaequalis	San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Orcuttia inaequalis
Plants - Vascular	Orcuttia pilosa	hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Orcuttia pilosa

Plants - Vascular	Orcuttia pilosa	hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	-	1B.1	3711918	Daulton	Mapped	Plants - Vascular - Poaceae - Orcuttia pilosa
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712011	Kismet	Mapped	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712022	Le Grand	Mapped	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Tuctoria greenei	Greene's tuctoria	PMPOA6N010	Endangered	Rare	-	1B.1	3712032	Owens Reservoir	Mapped and Unprocessed	Plants - Vascular - Poaceae - Tuctoria greenei
Plants - Vascular	Leptosiphon serrulatus	Madera leptosiphon	PDPLM09130	None	None	-	1B.2	3711928	Raymond	Mapped	Plants - Vascular - Polemoniaceae - Leptosiphon serrulatus
Plants - Vascular	Navarretia myersii ssp. myersii	pincushion navarretia	PDPLM0C0X1	None	None	-	1B.1	3712032	Owens Reservoir	Mapped	Plants - Vascular - Polemoniaceae - Navarretia myersii ssp. myersii
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712032	Owens Reservoir	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3711928	Raymond	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3711918	Daulton	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712011	Kismet	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Navarretia nigelliformis ssp. radians	shining navarretia	PDPLM0C0J2	None	None	-	1B.2	3712022	Le Grand	Mapped	Plants - Vascular - Polemoniaceae - Navarretia nigelliformis ssp. radians
Plants - Vascular	Delphinium hansenii ssp. ewanianum	Ewan's larkspur	PDRAN0B0T2	None	None	-	4.2	3712012	Berenda	Unprocessed	Plants - Vascular - Ranunculaceae - Delphinium hansenii ssp. ewanianum
Plants - Vascular	Delphinium hansenii ssp. ewanianum	Ewan's larkspur	PDRAN0B0T2	None	None	-	4.2	3712032	Owens Reservoir	Unprocessed	Plants - Vascular - Ranunculaceae - Delphinium hansenii ssp. ewanianum





## Plant List

### Inventory of Rare and Endangered Plants

25 matches found. [Click on scientific name for details](#)

#### Search Criteria

Found in Quads 3712033, 3712032, 3712031, 3712023, 3712022, 3712021, 3712013, 3712012, 3712011, 3711928, 3711918 and 3711938;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Atriplex cordulata var. cordulata</a>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
<a href="#">Atriplex minuscula</a>	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
<a href="#">Atriplex subtilis</a>	subtle orache	Chenopodiaceae	annual herb	Jun, Aug, Sep (Oct)	1B.2	S1	G1
<a href="#">Calochortus clavatus var. avius</a>	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G4T2
<a href="#">Calycadenia hooveri</a>	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S3	G3
<a href="#">Castilleja campestris var. succulenta</a>	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar) Apr-May	1B.2	S2S3	G4? T2T3
<a href="#">Clarkia rostrata</a>	beaked clarkia	Onagraceae	annual herb	Apr-May	1B.3	S2S3	G2G3
<a href="#">Clarkia virgata</a>	Sierra clarkia	Onagraceae	annual herb	May-Aug	4.3	S3	G3
<a href="#">Cryptantha hooveri</a>	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	1A	SH	GH
<a href="#">Delphinium hansenii ssp. ewaniamum</a>	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	4.2	S3	G4T3
<a href="#">Downingia pusilla</a>	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
<a href="#">Eryngium spinosepalum</a>	spiny-sepaed button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
<a href="#">Gratiola heterosepala</a>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
<a href="#">Hesperervax caulescens</a>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
<a href="#">Leptosiphon serrulatus</a>	Madera leptosiphon	Polemoniaceae	annual herb	Apr-May	1B.2	S3	G3
<a href="#">Navarretia myersii ssp. myersii</a>	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	1B.1	S2	G2T2
<a href="#">Navarretia nigelliformis ssp. nigelliformis</a>	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
<a href="#">Navarretia nigelliformis ssp. radians</a>	shining navarretia	Polemoniaceae	annual herb	(Mar) Apr-Jul	1B.2	S2	G4T2
<a href="#">Neostapfia colusana</a>	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
<a href="#">Orcuttia inaequalis</a>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1

<a href="#"><u>Orcuttia pilosa</u></a>	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
<a href="#"><u>Phacelia ciliata var. opaca</u></a>	Merced phacelia	Hydrophyllaceae	annual herb	Feb-May	3.2	SH	G5TH
<a href="#"><u>Puccinellia simplex</u></a>	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
<a href="#"><u>Sagittaria sanfordii</u></a>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
<a href="#"><u>Tuctoria greenei</u></a>	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

### Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 20 December 2017].

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### Questions and Comments

[rareplants@cnps.org](mailto:rareplants@cnps.org)





## **Appendix C. State Listed Species**



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Common Name (Scientific Name)	Status <sup>1</sup>	General Habitat Requirements	Blooming / Activity Period	Potential For Occurrence
<b>PLANTS</b>				
<i>Eryngium spinosepalum</i>  Spiny-sepaled button-celery	CRPR: 1B	Vernal pools or similar habitats or granite-derived clay within grassland at 80 to 420 meters (260 to 1,400 feet) elevation. Majority of occurrences in Merced County. Several nearby occurrences associated with vernal pool complex north of survey area.	Blooms April through May.	Suitable habitat present
<i>Navarretia nigelliformis</i> ssp. <i>radians</i>  Shining navarretia	CRPR: 1B	Sometimes in clay soils in woodlands, grasslands, and vernal pools from 76 to 1,000 meters (250 to 3,280 feet) AMSL.	Blooms March through July (annual herb)	Survey area supports grassland habitat on clay soils, but road shoulder is highly disturbed.
<b>AMPHIBIANS</b>				
Western spadefoot ( <i>Spea hammondi</i> )	SSC	Found in grasslands, but occasionally populations also occur in valley-foothill hardwood woodlands. Some populations persist in orchard or vineyard habitats. Occurs in the Central valley and adjacent foothills. In the Coast Ranges, it is found from Santa Barbara County south to the Mexican border. Elevation from sea level to 1,363m (4,460 ft) in the southern Sierra foothills.	Active from October through April (following onset of winter rains).	Suitable habitat present.

Common Name (Scientific Name)	Status <sup>1</sup>	General Habitat Requirements	Blooming / Activity Period	Potential For Occurrence
<b>REPTILES</b>				
Western pond turtle ( <i>Emys marmorata</i> )	SSC	Inhabits permanent or nearly permanent water, in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. San Francisco Bay south to Baja California, including Mojave River.	Active from February to November, may be active during warm periods in winter. Estivates during summer droughts. Breeding from April-May.	Suitable habitat present.
<b>BIRDS</b>				
Tricolored blackbird ( <i>Agelaius tricolor</i> )	SCE, SSC	Forages in agricultural areas, particularly where livestock are present and grass is short. Breeds in freshwater marshes with tall emergent vegetation, in upland habitats (especially thickets of non-native blackberry), and in silage fields. Breeds April-July, in large congregations.	Year-round	Suitable habitat present.
<i>Aquila chrysaetos</i> (nesting & wintering)  Golden eagle	CA: Fully Protected	Open and semi-open country featuring native vegetation. Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nests on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	Year-round diurnal	Species observed foraging in agricultural fields adjacent to survey area during October 2016 survey. No nesting habitat in survey area.



Common Name (Scientific Name)	Status <sup>1</sup>	General Habitat Requirements	Blooming / Activity Period	Potential For Occurrence
Burrowing owl ( <i>Athene cunicularia</i> )	SSC	Open, treeless areas with low, sparse vegetation, usually on gentle sloping terrain. Found in grasslands, deserts, and steppe environments; on golf courses, pastures, agricultural fields, airport medians, road embankments, cemeteries, and urban vacant lots. Associated with burrowing animals such as prairie dogs, ground squirrels, and tortoises.	Year-round. Active during the day.	Suitable foraging habitat and several culverts and pipes that may be used for breeding occur throughout and immediately adjacent to the survey area.
Swainson's hawk ( <i>Buteo swainsoni</i> )	ST	Favor open habitats such as native prairie and grassland habitats, will forage in agricultural fields, pastures, grain crops, and row crops. Nests in scattered stands of trees near agricultural fields and grasslands for nesting.	Spring and fall (in migration)	Suitable foraging habitat throughout survey area. Suitable nesting habitat in several stands of willows and cottonwoods along Avenue 29, riparian forest at Berenda Slough, and eucalyptus grove on north side of Avenue 26.
Northern harrier ( <i>Circus cyaneus</i> )	SSC	Common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation. Breed in freshwater and brackish marshes, lightly grazed meadows, old fields, tundra, dry upland prairies, drained marshlands, high-desert shrubsteppe, and riverside woodlands.	Year-round	Suitable nesting habitat occurs in Berenda Slough.
<i>Haliaeetus leucocephalus</i> (nesting & wintering)  Bald eagle	SE; Fully Protected Species	Nest in forested areas adjacent to large bodies of water. Prefers tall, mature coniferous or deciduous trees for perching. Winters in dry, open uplands near open water for fishing.	Year-round	Known to nest at Eastman Lake and along Chowchilla River near survey area. Riparian forest at Berenda Slough could provide suitable roosting habitat during winter.

Common Name (Scientific Name)	Status <sup>1</sup>	General Habitat Requirements	Blooming / Activity Period	Potential For Occurrence
<b>MAMMALS</b>				
Pallid bat ( <i>Antrozous pallidus</i> )	SSC	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. Breeds October -February, young born April-June, juveniles independent July-August.	Year-round; nocturnal	No roosting habitat in survey area. Species may forage in survey area.
American badger ( <i>Taxidea taxus</i> )	SSC	Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert. Widely distributed in North America.	Year-round	Survey area supports suitable habitat, but site is located adjacent to a busy road, which this species would normally avoid. Potential to occur in adjacent agricultural and reserve lands, therefore may disperse through survey area.
STATUS CODES: <b>State Status</b> SE—State listed as endangered ST—State listed as threatened SCE—Candidate endangered SR—State Rare SSC—Species of Special Concern		<b>CNPS Status</b> 1A—Plants presumed extinct in California 1B—Plants rare, threatened, or endangered in California and elsewhere 2A—Plants presumed extirpated in California, but common elsewhere 2B—Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere 3—Plants About Which More Information is Needed - A Review List 4—Plants of Limited Distribution - A Watch List 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat) 0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat) 0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)		

## **Appendix D. Plant Survey Report**



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# LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

July 12, 2019

Jenny Kirk  
Director of Environmental Services  
Compliance Solutions Inc.  
1865 Herndon Ave Ste. K357  
Clovis, CA 93611

**RE: Results of Focused Surveys for Special Status Plants, Avenue 26 and Road 29 Rehabilitation Project, Madera County, CA**

Dear Jenny:

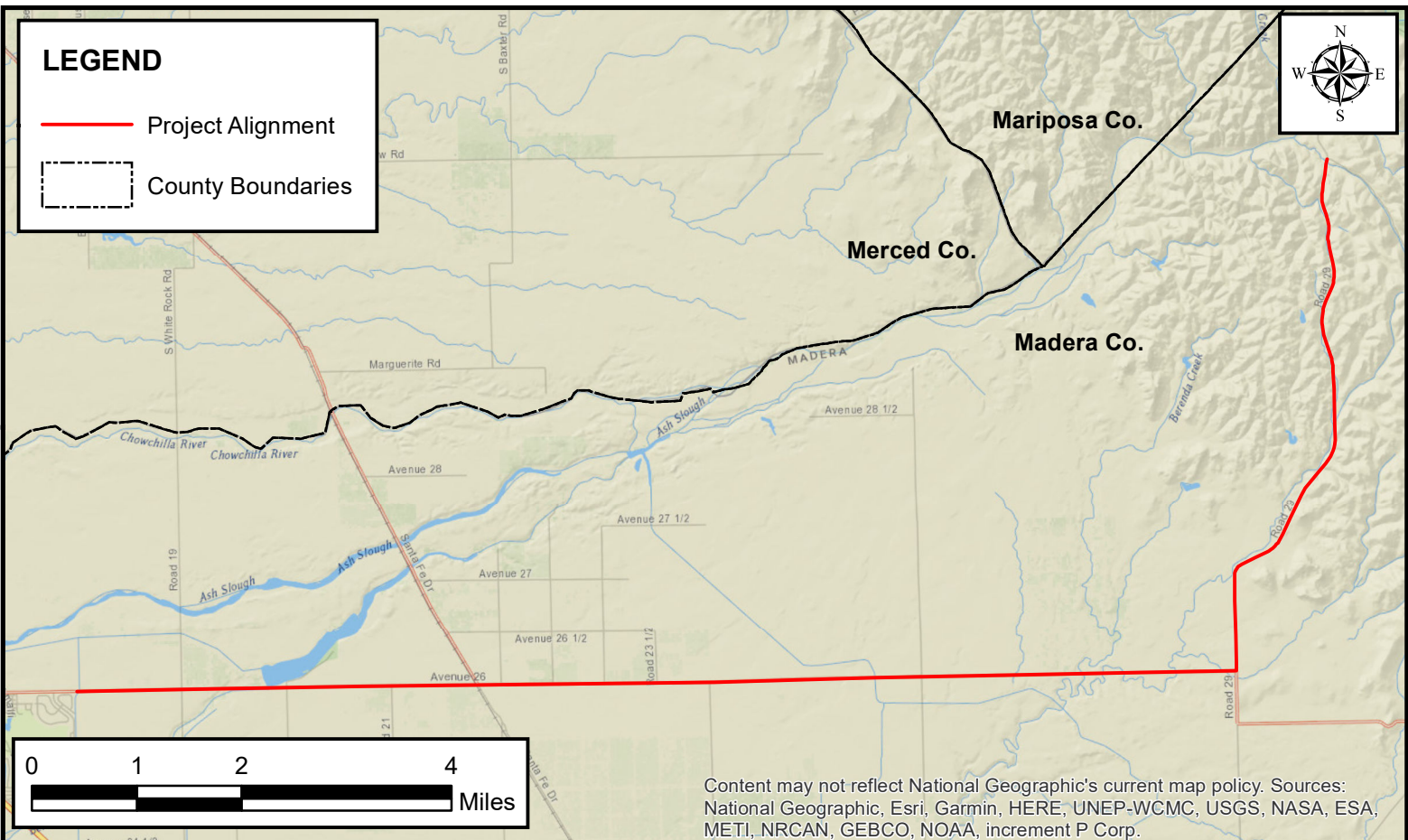
This letter report summarizes the results of special status plant surveys that Live Oak Associates, Inc. (LOA) conducted in the summer of 2018 and 2019 within the temporary workspace associated with the Avenue 26 and Road 29 Rehabilitation Project (or “project”) in rural Madera County, California. The project will generally consist of road resurfacing, shoulder widening, and culvert replacements within the road right-of-ways. The project site encompasses approximately 104 acres along an 11-mile stretch of Avenue 26 and 5.3-mile stretch of Road 29 (Figure 1). It can be found on the *Raynor Creek* and *Le Grand* U.S. Geological Survey (USGS) 7.5-minute quadrangles; in Township 9 south, Range 16 east; Township 9 south, Range 17 east; Township 9 south, Range 18 east; and Township 8 south, Range 18 east; Mount Diablo Base and Meridian.


The purpose of the surveys was to document the absence or onsite distribution of special status plants, should any be present. The surveys focused on five federal- and/or state-listed plants occurring in the vicinity, including succulent owl’s clover (*Castilleja campestris* ssp. *succulenta*), San Joaquin Valley orcutt grass (*Orcuttia inaequalis*), hairy orcutt grass (*Orcuttia pilosa*), Greene’s tuctoria (*Tuctoria greenei*), and Boggs lake hedge-hyssop (*Gratiola heterosepala*). Spiny-sepaled button celery, a California Native Plant Society (CNPS) List 1B species, was also included in the survey effort. All six species are primarily associated with vernal pool habitats in California’s Central Valley.

Following is a brief discussion of each of the target species.

## LEGEND

- Project Alignment
- County Boundaries



			<b>Live Oak Associates, Inc.</b>	
			<b>CA FLAP MAD 26(1)</b> <b>Ave. 26 / Rd. 29 Rehabilitation Project</b> <b>Vicinity Map</b>	
<b>Date</b> 01/30/2019	<b>Project #</b> 2291-02	<b>Figure #</b> 1		



### **Succulent owl's clover**

This member of the Broomrape Family (Orobanchaceae) is listed as Federally Threatened and California Endangered. CNPS has placed this species on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). This annual herbaceous species blooms between April and May, depending on rainfall and spring temperatures. Succulent owl's clover occurs in vernal pools within valley and foothill grasslands.

### **San Joaquin Valley orcutt grass**

This member of the Grass Family (Poaceae) is listed as Federally Threatened and California Endangered, and has been placed on CNPS List 1B. This annual herbaceous species blooms between April and September, depending on rainfall and spring temperatures, but usually exhibits a peak bloom in June or July. San Joaquin Valley orcutt grass occurs in deep vernal pools of California's Central Valley.

### **Hairy orcutt grass**

This member of the Grass Family (Poaceae) is listed as Federally Endangered and California Endangered, and has been placed on CNPS List 1B. This annual herbaceous species blooms between May and September, depending on rainfall and spring temperatures, but usually exhibits a peak bloom in June or July. Hairy orcutt grass occurs in deep vernal pools of California's Central Valley.

### **Greene's tuctoria**

This member of the Grass Family (Poaceae) is listed as Endangered under the Federal Endangered Species Act and Rare under the California Native Plant Protection Act of 1977, and has been placed on CNPS List 1B. This annual herbaceous species blooms between May and July, depending on rainfall and spring temperatures. Greene's tuctoria occurs in deep vernal pools of the Central Valley.

### **Boggs lake hedge-hyssop**

This member of the Plantain Family (Plantaginaceae) is listed by the State of California as Endangered, and has been placed on CNPS List 1B. This annual herbaceous species blooms between April and August, depending on latitude, elevation, rainfall, and spring temperatures. Boggs Lake hedge-hyssop occurs in California's Central Valley, inner North Coast Range, and Sierra Nevada foothills, but the largest concentration of occurrences are located within the Modoc Plateau. The species is restricted to clay soils in or near shallow water such as at the margins of lakes and vernal pools.

### **Spiny-sepaled button celery**

This member of the Carrot Family (Apiaceae) does not have a state or federal listing status, but has been placed on CNPS List 1B. This annual herbaceous species blooms between April and May, depending rainfall and spring temperatures. Spiny-sepaled button celery occurs in vernal pools and swales in valley and foothill grasslands.

## SURVEY METHODOLOGIES

**Surveying Botanists.** LOA botanist Wendy Fisher conducted the 2018 survey and LOA botanist Jeff Gurule conducted the 2019 survey. Ms. Fisher has been a professional botanist in Central California for 21 years. Mr. Gurule has been a professional botanist in Central California for 14 years. Their experience with special status vernal pool plant species includes extensive experience identifying special status vernal pool plant habitat, conducting numerous protocol botanical surveys, and monitoring vernal pool plant populations at the Drayer and Kennedy Table Conservation Banks.

**Literature Search.** Prior to conducting field surveys, LOA conducted a literature search. This literature search involved a review of the *CNPS Botanical Survey Guidelines* (CNPS 2001), the *CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), the on-line version of the *CNPS Inventory of Rare and Endangered Plants*, and the Jepson Online Interchange for California floristics. We queried the California Natural Diversity Data Base (CNDDDB) for documented occurrences of special-status plants in the project vicinity. Results of our CNDDDB search were used to guide our selection of appropriate field survey timing and methodologies.

**Reference Population Inspections.** A large reference population of locally occurring hairy orcutt grass was visited on July 11, 2018 by LOA botanist Wendy Fisher. Individual plants ranged from green plants in bloom to dried plants. Individual plants were readily identifiable in both the green and dried states. This population is a documented CNDDDB occurrence (#11) located north of Highway 145 and east of Road 33 in Madera County. Although reference sites were not visited for the other two orcuttia tribe grasses, San Joaquin Valley orcutt grass and Greene's tuctoria, both have very similar life cycles to the hairy orcutt grass and were assumed to be in a similar state of development at the time of the 2018 survey.

A large reference population of dried specimens of succulent owl's clover was visited on June 11, 2019 by LOA botanist Jeff Gurule at the Drayer Conservation Bank in Merced County. The dried specimens were readily observable. A large number of individual succulent owl's clover plants were observed with individual plants standing, leaning, and lying flat across the ground. The large size of some of the plants and the population numbers observed indicated a good year for development of this species.

No known accessible populations of Boggs lake hedge-hyssop are known in the project vicinity. The nearest documented, accessible occurrence, which is at the Kennedy Table Conservation Bank, has not been observed during regular Bank monitoring by LOA botanists over the last 15 years.

**On-site Botanical Surveys.** A July 11, 2018 survey for San Joaquin Valley orcutt grass, hairy orcutt grass, and Greene's tuctoria was conducted by LOA botanist Wendy Fisher, and biologist Jenny Kirk of Compliance Solutions Inc (CSI). The survey effort consisted

of driving on Avenue 26 and Road 29 and stopping to inspect all culvert crossings and previously identified aquatic habitat within the temporary project workspace from the intersection of Avenue 26 and the Road 18 Alignment to the intersection of Road 29 and Buchanan Road.

A June 11, 2019 survey for succulent owl's clover and Boggs lake hedge-hyssop was conducted by LOA botanist Jeff Gurule and CSI biologist Jenny Kirk. This survey effort also consisted of driving on Avenue 26 and Road 29 and stopping to inspect all culvert crossings and previously identified aquatic habitat within the temporary project workspace. However, based on the absence of suitable wetland and aquatic habitat at the western portion of the project site found during the 2018 survey, the 2019 survey was conducted from the intersection of Avenue 26 and Road 23 ½ to the intersection of Road 29 and Buchanan Road, which encompassed all potentially suitable habitats.

During both surveys, each inspection point was photographed and analyzed for suitable habitat for the target species' and, if habitat was determined present, the area was visually inspected for the presence of the target species. Representative photographs are presented in Attachment 1. If not readily identified, all plant species observed were keyed out using *The Jepson Manual: Vascular Higher Plants of California, Second Edition* (Baldwin et al, 2012). A list of vascular plant species observed within the survey area is presented in Attachment 2. Surveys were consistent with conservation ethics and collection and documentation techniques. Surveys were floristic in nature and conducted during a time when the target species, with the exception of the Boggs lake hedge-hyssop, were confirmed identifiable by the surveying botanists, pursuant to the CNPS and CDFW Survey Guidelines (see Attachment 3).

## RESULTS

**Biotic Habitats.** The project site is composed almost exclusively of ruderal lands associated with Avenue 26 and Road 29. Historic and ongoing disturbance from road construction, culvert installations, as well as road and culvert maintenance have greatly reduced or eliminated historic habitats within the project area. Surrounding agricultural land use west of the Road 25 Alignment has greatly eliminated habitats suitable for the target species. Open rangeland surrounding the project site east of the Road 25 Alignment still supports vernal pool habitats potentially suitable for the target species.

Areas of aquatic or wetland habitat within the survey area consisted primarily of seasonally inundated channels directing water through culverts for drainage purposes. In some cases these channels led to offsite vernal pools. Some culverts allowed established seasonal drainages to pass through the site. Nearly all aquatic features on the site were heavily vegetated by wetland species such as creeping spikerush (*Eleocharis macrostachya*), perennial rye grass (*Festuca perenne*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and curly dock (*Rumex crispus*).

**Special Status Plant Species.** During the 2018 and 2019 botanical surveys of the project site, LOA found no individuals of the target species, and found habitats to be unsuitable to extremely marginal for all target species save the spiny-sealed button celery. Other



than the latter, the wetland plant community within onsite aquatic features did not represent the plant community with which any of the target species would be associated. Furthermore, the dense vegetation growth in some areas and scouring creek flows in other areas created unsuitable habitat conditions for these species. Mr. Gurule collected samples of *Eryngium* from various locations along the project site and, upon inspection under a dissecting scope, found them to be great valley button-celery (*Eryngium castrense*), a widely-distributed plant that, while native to California, is not listed or considered rare.

The Boggs lake hedge-hyssop, for which a local reference population was not available for inspection prior to the botanical survey, was determined to be absent due to unsuitable onsite aquatic habitat conditions, as described above, as well as the absence of onsite aquatic features within clay soils that are required by this species.

The following table summarizes the 2018 and 2019 survey results for each target species.

<b>Table 1. Results of Focused Surveys for Special Status Plants, Avenue 26 and Road 29 Rehabilitation Project</b>		
<b>Target Species</b>	<b>Onsite Habitat Availability</b>	<b>Individuals Observed</b>
Succulent owl's clover	Absent to extremely marginal	0
San Joaquin Valley orcutt grass	Absent to extremely marginal	0
Hairy orcutt grass	Absent to extremely marginal	0
Greene's tuctoria	Absent to extremely marginal	0
Boggs lake hedge hyssop	Absent	0
Spiny-sepaled button celery	Present	0

Please feel free to contact me with any questions or comments related to LOA's special status plant surveys. I can be reached at (559) 641-5664 or [jgurule@loainc.com](mailto:jgurule@loainc.com).

Sincerely,



Jeff Gurule  
Plant/Wetlands/Wildlife Ecologist, Senior Project Manager  
Live Oak Associates, Inc.



## ATTACHMENT 1: REPRESENTATIVE PHOTOS



**Photo 1:** Hairy orcutt grass at reference population on July 11, 2018.



**Photo 2:** Succulent owl's clover at reference population on June 11, 2019.





**Photo 3:** Typical culvert crossing on Avenue 26 in agricultural lands west of Road 23 ½.



**Photo 4:** Dense mat of creeping spikerush at Avenue 26 culvert east of Road 23 ½. This photo exemplifies the unsuitable habitat conditions for the target species at a number of culverts along the project alignment due to dense vegetation growth.





**Photo 5:** Aquatic habitat at Avenue 26 culvert east of Road 23 ½, which directs a seasonal stream channel beneath the road. This photo exemplifies the unsuitable habitat conditions for the target species at a number of culverts along the project alignment due to riverine type hydrology unsuitable for the target species.



**Photo 6:** Vernal pool habitat adjacent to the project area along Road 29 in the vicinity of a culvert crossing. Suitable habitat within the project area is unsuitable for any of the target species due to dense vegetation growth. No target species were observed in the vernal pool along the fence line.



**Photo 7:** Riparian and emergent marsh habitat along Road 29 is unsuitable for all of the target species.

## ATTACHMENT 2 VASCULAR PLANTS OF THE PROJECT SITE

The plant species listed below were observed on the Avenue 26 and Road 29 Rehabilitation Project in Madera County during the during field surveys conducted by Live Oak Associates, Inc. on July 11, 2018 and/or June 11, 2019. Indicator statuses are based on the USACE Arid West 2016 Regional Plant List.

OBL - Obligate  
FACW - Facultative Wetland  
FAC - Facultative  
FACU - Facultative Upland  
UPL - Upland  
NR - No review  
NA - No agreement  
NI - No investigation

### AMARANTHACEA – Amaranth Family

<i>Amaranthus albus</i>	Pigweed Amaranth	FACU
<i>Amaranthus retroflexus</i>	Red Root Pigweed	FACU

### APIACEAE – Carrot Family

<i>Eryngium castrense</i>	Great Valley Button Celery	FACW
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### ASCLEPIADACEAE – Milkweed Family

<i>Asclepias fascicularis</i>	Narrow Leaf Milkweed	FAC
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### ASTERACEAE - Sunflower Family

<i>Eclipta prostrata</i>	False Daisy	FAC
<i>Lactuca serriola</i>	Prickly Lettuce	FACU
<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	FAC
<i>Psilocarphus brevissimus</i>	Woolly Marbles	FACW
<i>Psilocarphus tenellus</i> ssp. <i>tenellus</i>	Slender Woolly Heads	OBL

### BORAGINACEAE – Borage Family

<i>Plagiobothrys stipitatus</i>	Slender Popcornflower	FACW
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### BRASSICACEAE – Mustard Family

<i>Brassica</i> sp.	Mustard	
<i>Raphanus sativus</i>	Wild Radish	UPL

### CARYOPHYLLACEAE – Carnation Family

<i>Spergularia rubra</i>	Red Sandspurrey	FAC
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### EUPHORBIACEAE – Spurge Family

<i>Croton setiger</i>	Turkey Mullein	UPL
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### FABACEAE - Legume Family

<i>Acmispon americanus</i>	Spanish Clover	UPL
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### GERANIACEAE - Geranium Family

<i>Erodium cicutarium</i>	Red-stem Filaree	UPL
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### JUNCACEAE – Rush Family

<i>Eleocharis acicularis</i>	Needle Spikerush	OBL
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<i>Eleocharis macrostachya</i>	Creeping Spikerush	OBL
<b>LAMIACEAE – Mint Family</b>		
<i>Stachys albens</i>	Whitestem Hedgenettle	OBL
<b>LYTHRACEAE – Loosestrife Family</b>		
<i>Ammannia sp.</i>	Ammannia	OBL
<i>Lythrum hyssopifolia</i>	Hyssop's Loosestrife	OBL
<b>MARSILEACEAE – Water-Clover Family</b>		
<i>Marsilea vestita</i>	Hairy Waterclover	OBL
<b>MORACEAE—Mulberry Family</b>		
<i>Ficus carica</i>	Common Fig	FACU
<b>ONAGRACEAE – Fuschia Family</b>		
<i>Epilobium campestre</i>	Smooth Boisdualia	OBL
<i>Epilobium cleistogamum</i>	Cleistogamous Spike-primrose	OBL
<i>Ludwigia peploides</i>	Floating Water Primrose	OBL
<b>PHRYMACEAE – Monkey Flower Family</b>		
<i>Erythranthe guttata</i>	Common Monkey Flower	OBL
<b>POACEAE - Grass Family</b>		
<i>Avena sp.</i>	Oats	UPL
<i>Bromus hordeaceus</i>	Soft Chess	FACU
<i>Cynodon dactylon</i>	Bermuda Grass	FACU
<i>Glyceria declinata</i>	Waxy Manna Grass	FACW
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Barnyard Barley	FAC
<i>Lolium multiflorum</i>	Ryegrass	FAC
<i>Paspalum dilatatum</i>	Dallis Grass	FAC
<i>Polypogon monspeliensis</i>	Rabbits Foot Grass	FACW
<b>POLYGONACEAE - Buckwheat Family</b>		
<i>Persicaria lapathifolia</i>	Common Knotweed	FACW
<i>Polygonum aviculare</i>	Yard Knotweed	FAC
<i>Rumex crispus</i>	Curley Dock	FAC
<b>SALICACEAE – Willow Family</b>		
<i>Populus fremontii</i>	Fremont's Cottonwood	UPL
<i>Salix gooddingii</i>	Gooding's Black Willow	FACW
<i>Salix laevigata</i>	Red Willow	FACW
<b>TYPHACEAE – Cattail Family</b>		
<i>Typha latifolia</i>	Broadleaf Cattail	OBL

**ATTACHMENT 3**  
**CDFW BOTANICAL SURVEY PROTOCOLS**

# Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities

STATE OF CALIFORNIA  
CALIFORNIA NATURAL RESOURCES AGENCY  
DEPARTMENT OF FISH AND WILDLIFE

DATE: March 20, 2018

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## 1. INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as sensitive natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to botanical field surveys and assessments of special status plants and sensitive natural communities so that reliable information is produced and the potential for locating special status plants and sensitive natural communities is maximized. These protocols may also help those who prepare and review environmental documents determine when botanical field surveys are needed, how botanical field surveys may be conducted, what information to include in a botanical survey report, and what qualifications to consider for botanical field surveyors. These protocols are meant to help people meet California Environmental Quality Act (CEQA)<sup>1</sup> requirements for adequate disclosure of potential impacts to plants and sensitive natural communities. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands<sup>2</sup> or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants<sup>3</sup>.

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<sup>1</sup> Available at: <http://resources.ca.gov/ceqa>

<sup>2</sup> Available at: <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/techbio.aspx>

<sup>3</sup> U.S. Fish and Wildlife Service Survey Guidelines: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>



## Department of Fish and Wildlife Trustee and Responsible Agency Mission

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish & G. Code, § 1802). CDFW, as trustee agency under CEQA Guidelines section 15386, provides expertise in reviewing and commenting on environmental documents and provides protocols regarding potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) and Native Plant Protection Act (NPPA) provide additional protections for such species, including take prohibitions (Fish & G. Code, § 2050 *et seq.*; Fish & G. Code, § 1908). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA and NPPA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and the take would not jeopardize the continued existence of the species (Fish & G. Code, § 2081, subd. (b); Cal. Code Regs., tit. 14 § 786.9, subd. (b)). Botanical field surveys are one of the preliminary steps to detect special status plant species and sensitive natural communities that may be impacted by a project.

## Definitions

Botanical field surveys provide information used to determine the potential environmental effects of proposed projects on special status plants and sensitive natural communities as required by law (e.g., CEQA, CESA, and federal Endangered Species Act (ESA)).

**Special status plants**, for the purposes of this document, include all plants that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under the ESA or candidates for possible future listing as threatened or endangered under the ESA (50 C.F.R., § 17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (Fish & G. Code, § 2050 *et seq.*)<sup>4</sup>. In CESA, "endangered species" means a native species or subspecies of plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish & G. Code, § 2062). "Threatened species" means a native species or subspecies of plant that,

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<sup>4</sup> Refer to current online published lists available at:  
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline>

although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA (Fish & G. Code, § 2067). "Candidate species" means a native species or subspecies of plant that the California Fish and Game Commission has formally noticed as being under review by CDFW for addition to either the list of endangered species or the list of threatened species, or a species for which the California Fish and Game Commission has published a notice of proposed regulation to add the species to either list (Fish & G. Code, § 2068).

- Listed as rare under the California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish & G. Code, § 1901).
- Meet the definition of rare or endangered under CEQA Guidelines section 15380, subdivisions (b) and (d), including:
  - Plants considered by CDFW to be "rare, threatened or endangered in California." This includes plants tracked by the California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) as California Rare Plant Rank (CRPR) 1 or 2<sup>5</sup>;
  - Plants that may warrant consideration on the basis of declining trends, recent taxonomic information, or other factors. This may include plants tracked by the CNDDB and CNPS as CRPR 3 or 4<sup>6</sup>.
- Considered locally significant plants, that is, plants that are not rare from a statewide perspective but are rare or uncommon in a local context such as within a county or region (CEQA Guidelines, § 15125, subd. (c)), or as designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include plants that are at the outer limits of their known geographic range or plants occurring on an atypical soil type.

**Sensitive natural communities** are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status plants or their

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<sup>5</sup> See CNDDB's Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 1 or 2: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline>

<sup>6</sup> CRPR 3 plants (plants about which more information is needed) and CRPR 4 plants (plants of limited distribution) may warrant consideration under CEQA Guidelines section 15380. Impacts to CRPR 3 plants may warrant consideration under CEQA if sufficient information is available to assess potential impacts to such plants. Impacts to CRPR 4 plants may warrant consideration under CEQA if cumulative impacts to such plants are significant enough to affect their overall rarity. Data on CRPR 3 and 4 plants should be submitted to CNDDB. Such data aids in determining and revising the CRPR of plants. See CNDDB's Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 3 or 4: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline>

habitat. CDFW's *List of California Terrestrial Natural Communities*<sup>7</sup> is based on the best available information, and indicates which natural communities are considered sensitive at the current stage of the California vegetation classification effort. See the Vegetation Classification and Mapping Program (VegCAMP) website for additional information on natural communities and vegetation classification<sup>8</sup>.

## 2. BOTANICAL FIELD SURVEYS

Evaluate the need for botanical field surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs in an area that may be directly or indirectly affected by a project (project area), and it is unknown whether or not special status plants or sensitive natural communities occur in the project area;
- Special status plants or sensitive natural communities have historically been identified in a project area; or
- Special status plants or sensitive natural communities occur in areas with similar physical and biological properties as a project area.

### Survey Objectives

Conduct botanical field surveys in a manner which maximizes the likelihood of locating special status plants and sensitive natural communities that may be present. Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. "Focused surveys" that are limited to habitats known to support special status plants or that are restricted to lists of likely potential special status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special status plants.

For each botanical field survey conducted, include a list of all plants and natural communities detected in the project area. More than one field visit is usually necessary to adequately capture the floristic diversity of a project area. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the special status plants and sensitive natural communities in the project area is also useful to assess the significance of a particular plant population or natural community.

### Survey Preparation

Before botanical field surveys are conducted, the botanical field surveyors should compile relevant botanical information in the general project area to provide a regional

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<sup>7</sup> Available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural%20communities%20lists>

<sup>8</sup> Available at: <https://www.wildlife.ca.gov/Data/VegCAMP>



context. Consult the CNDDDB<sup>9</sup> and BIOS<sup>10</sup> for known occurrences of special status plants and sensitive natural communities in the project area prior to botanical field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties (e.g. soils) of the project area and surrounding ecoregion<sup>11</sup>. Then, develop a list of special status plants and sensitive natural communities with the potential to occur within the vegetation and habitat types identified. The list of special status plants with the potential to occur in the project area can be created with the help of the CNDDDB QuickView Tool<sup>12</sup> which allows the user to generate lists of CNDDDB-tracked elements that occur within a particular U.S. Geological Survey 7.5' topographic quad, surrounding quads, and counties within California. Resulting lists should only be used as a tool to facilitate the use of reference sites, with the understanding that special status plants and sensitive natural communities in a project area may not be limited to those on the list. Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list. Include in the botanical survey report the list of potential special status plants and sensitive natural communities that was created, and the list of references used to compile the background botanical information for the project area.

### **Survey Extent**

Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology. Surveys restricted to known locations of special status plants may not identify all special status plants and sensitive natural communities present, and therefore do not provide a sufficient level of information to determine potential impacts.

### **Field Survey Method**

Conduct botanical field surveys using systematic field techniques in all habitats of the project area to ensure thorough coverage. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct botanical field surveys by traversing the entire project area to ensure thorough coverage, documenting all plant taxa observed. Parallel survey transects may be necessary to ensure thorough survey coverage in some habitats. The level of effort should be sufficient to provide comprehensive reporting. Additional time should be allocated for plant identification in the field.

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<sup>9</sup> Available at: <https://www.wildlife.ca.gov/Data/CNDDDB>

<sup>10</sup> Available at: <https://www.wildlife.ca.gov/Data/BIOS>

<sup>11</sup> Ecological Subregions of the United States, available at: <http://www.fs.fed.us/land/pubs/ecoregions/toc.html>

<sup>12</sup> Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. When creating a list of special status plants with the potential to occur in a project area, special care should be taken to search all quads with similar geology, habitats, and vegetation to those found in the project area.

## Timing and Number of Visits

Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g. in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present<sup>13</sup>. The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted.

## Reference Sites

When special status plants are known to occur in the type(s) of habitat present in a project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those special status plants are identifiable at the times of year the botanical field surveys take place and to obtain a visual image of the special status plants, associated habitat, and associated natural communities.

## Use of Existing Surveys

For some project areas, floristic inventories or botanical survey reports may already exist. Additional botanical field surveys may be necessary for one or more of the following reasons:

- Botanical field surveys are not current<sup>14</sup>;
- Botanical field surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems);
- Botanical field surveys did not cover the entire project area;
- Botanical field surveys did not occur at the appropriate times of year;
- Botanical field surveys were not conducted for a sufficient number of years to detect plants that are not evident and identifiable every year (e.g. geophytes, annuals and some short-lived plants);

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<sup>13</sup> U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>

<sup>14</sup> Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116396&inline>

- Botanical field surveys did not identify all plants in the project area to the taxonomic level necessary to determine rarity and listing status;
- Fire history, land use, or the physical or climatic conditions of the project area have changed since the last botanical field survey was conducted;
- Changes in vegetation or plant distribution have occurred since the last botanical field surveys were conducted, such as those related to habitat alteration, fluctuations in abundance, invasive species, seed bank dynamics, or other factors; or
- Recent taxonomic studies, status reviews or other scientific information has resulted in a revised understanding of the special status plants with potential to occur in the project area.

### **Negative Surveys**

Adverse conditions from yearly weather patterns may prevent botanical field surveyor from determining the presence of, or accurately identifying, some special status plants in the project area. Disease, drought, predation, fire, herbivory or other disturbance may also preclude the presence or identification of special status plants in any given year. Discuss all adverse conditions in the botanical survey report<sup>15</sup>.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that the plant occurrence no longer exists at a location, particularly if adverse conditions are present. For example, botanical field surveys over a number of years may be necessary if the special status plant is an annual or short-lived plant having a persistent, long-lived seed bank and populations of the plant are known to not germinate every year. Visiting the project area in more than one year increases the likelihood of detecting special status plants, particularly if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may help ensure that the timing of botanical field surveys was appropriate.

## **3. REPORTING AND DATA COLLECTION**

Adequate information about special status plants and sensitive natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants and sensitive natural communities and will guide the development of avoidance, minimization, and mitigation measures. The information necessary to assess impacts to special status plants and sensitive natural communities is described below. For comprehensive, systematic botanical field surveys where no special status plants or sensitive natural communities were found, reporting

and data collection responsibilities for botanical field surveyor remain as described

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<sup>15</sup> U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>



below, excluding specific occurrence information.

### **Special Status Plant and Sensitive Natural Community Observations**

Record the following information for locations of each special status plant and sensitive natural community detected during a botanical field survey of a project area.

- The specific geographic locations where the special status plants and sensitive natural communities were found. Preferably this will be done by use of global positioning system (GPS) and include the datum<sup>16</sup> in which the spatial data was collected and any uncertainty or error associated with the data. If GPS is not available, a detailed map (1:24,000 or larger) showing locations and boundaries of each special status plant population and sensitive natural community in relation to the project area is acceptable. Mark occurrences and boundaries as accurately as possible;
- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If a special status plant is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;
- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);
- If applicable, information about the percentage of each special status plant in each life stage such as seedling, vegetative, flowering and fruiting;
- The density of special status plants, identifying areas of relatively high, medium and low density of each special status plant in the project area; and
- Digital images of special status plants and sensitive natural communities in the project area, with diagnostic features.

### **Special Status Plant and Sensitive Natural Community Documentation**

When a special status plant is located, data must be submitted to the CNDDDB. Data may be submitted in a variety of formats depending on the amount and type of data that is collected<sup>17</sup>. The most common way to submit data is the Online CNDDDB Field Survey Form<sup>18</sup>, or equivalent written report, accompanied by geographic locality information (GPS coordinates, GIS shapefiles, KML files, topographic map, etc.). Data submitted in digital form must include the datum<sup>19</sup> in which it was collected.

If a sensitive natural community is found in a project area, document it with a Combined

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<sup>16</sup> NAD83, NAD27 or WGS84

<sup>17</sup> See <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data> for information on acceptable data submission formats.

<sup>18</sup> Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>

<sup>19</sup> NAD83, NAD27 or WGS84

Vegetation Rapid Assessment and Relevé Field Form<sup>20</sup> and submit the form to VegCAMP<sup>21</sup>.

### **Voucher Collection**

Voucher specimens provide verifiable documentation of special status plant presence and identification and a scientific record. This information is vital to conservation efforts and valuable for scientific research. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and in accordance with applicable state and federal permit requirements (e.g. scientific, educational, or management permits pursuant to Fish & G. Code, § 2081, subd. (a)). Voucher collections of special status plants (or possible special status plants) should only be made when such actions would not jeopardize the continued existence of the population. A plant voucher collecting permit<sup>22</sup> is required from CDFW prior to the take or possession of a state-listed plant for voucher collection purposes, and the permittee must comply with all permit conditions.

Voucher specimens should be deposited in herbaria that are members of the Consortium of California Herbaria<sup>23</sup> no later than 120 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant collector names and permit numbers on specimen labels (if applicable).

### **Botanical Survey Reports**

Botanical survey reports provide an important record of botanical field survey results and project area conditions. Botanical survey reports containing the following information should be prepared whenever botanical field surveys take place, and should also be submitted with project environmental documents:

#### ***Project and location description***

- A description of the proposed project;
- A detailed map of the project area that identifies topographic and landscape features and includes a north arrow and bar scale;
- A vegetation map of the project area using Survey of California Vegetation Classification and Mapping Standards<sup>24</sup> at a thematic and spatial scale that allows the display of all sensitive natural communities;
- A soil map of the project area; and

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<sup>20</sup> Available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Submit>

<sup>21</sup> Combined Vegetation Rapid Assessment and Relevé Field Forms can be emailed to VegCAMP staff. Contact information available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Other-Info>

<sup>22</sup> Applications available at: <https://www.wildlife.ca.gov/Conservation/Plants/Permits>

<sup>23</sup> A list of Consortium of California Herbaria participants is available at: <http://ucjeps.berkeley.edu/consortium/participants.html>

<sup>24</sup> Available at: <https://www.wildlife.ca.gov/data/vegcamp/publications-and-protocols>

- A written description of the biological setting, including all natural communities; geological and hydrological characteristics; and land use or management history.

***Detailed description of survey methodology and results***

- Names and qualifications of botanical field surveyor(s);
- Dates of botanical field surveys (indicating the botanical field surveyor(s) that surveyed each area on each survey date), and total person-hours spent;
- A discussion of the survey preparation methodology;
- A list of special status plants and sensitive natural communities with potential to occur in the region;
- Description(s) of reference site(s), if visited, and the phenological development of special status plant(s) at those reference sites;
- A description and map of the area surveyed relative to the project area;
- A list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant;
- Detailed data and maps for all special status plants and sensitive natural communities detected. Information specified above under the headings "Special Status Plant and Sensitive Natural Community Observations," and "Special Status Plant and Sensitive Natural Community Documentation," should be provided for the locations of each special status plant and sensitive natural community detected. Copies of all California Native Species Field Survey Forms and Combined Vegetation Rapid Assessment and Relevé Field Forms should be sent to the CNDDDB and VegCAMP, respectively, and included in the project environmental document as an Appendix<sup>25</sup>;
- A discussion of the potential for a false negative botanical field survey;
- A discussion of how climatic conditions may have affected the botanical field survey results;
- A discussion of how the timing of botanical field surveys may affect the comprehensiveness of botanical field surveys;
- Any use of existing botanical field surveys and a discussion of their applicability to the project;
- The deposition locations of voucher specimens, if collected; and
- A list of references used, including persons contacted and herbaria visited.

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<sup>25</sup> It is not necessary to submit entire environmental documents to the CNDDDB



### ***Assessment of potential project impacts***

- A discussion of the significance of special status plant populations in the project area considering nearby populations and total range and distribution;
- A discussion of the significance of sensitive natural communities in the project area considering nearby occurrences and natural community distribution;
- A discussion of project related direct, indirect, and cumulative impacts to special status plants and sensitive natural communities;
- A discussion of the degree and immediacy of all threats to special status plants and sensitive natural communities, including those from invasive species;
- A discussion of the degree of impact, if any, of the project on unoccupied, potential habitat for special status plants; and
- Recommended measures to avoid, minimize, or mitigate impacts to special status plants and sensitive natural communities.

## **4. BOTANICAL FIELD SURVEYOR QUALIFICATIONS**

Botanical field surveyors should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with plants of the region, including special status plants;
- Familiarity with natural communities of the region, including sensitive natural communities;
- Experience with the CNDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards;
- Experience conducting floristic botanical field surveys as described in this document, or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor;
- Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and
- Experience analyzing the impacts of projects on native plant species and sensitive natural communities.

## **5. SUGGESTED REFERENCES**

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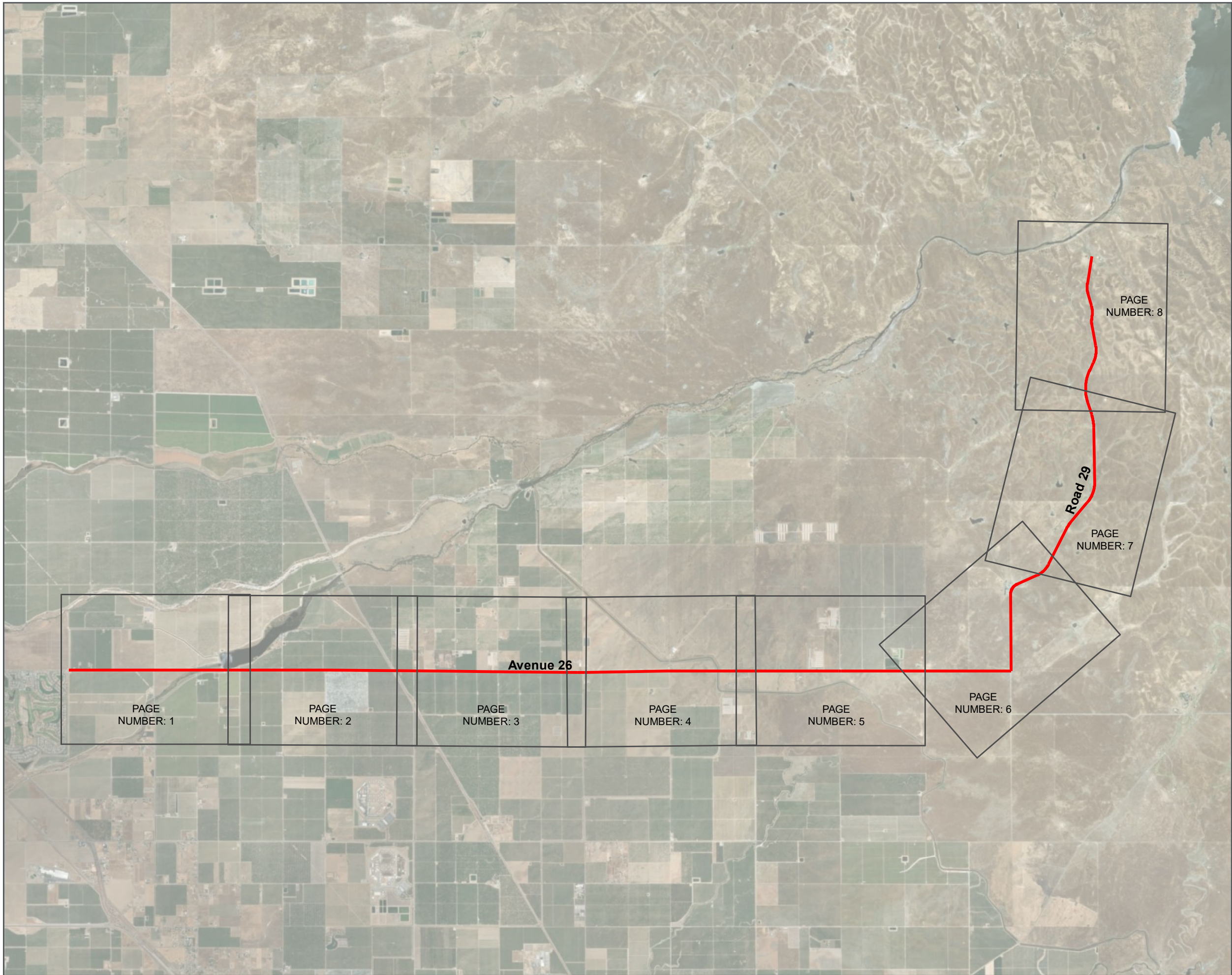




## **Appendix E. Vegetation Communities Maps**

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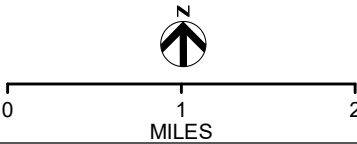
LEGEND

- Road Centerline
- Map Index

Map information was compiled from the best available sources.  
No warranty is made for its accuracy or completeness.

VEGETATION COMMUNITIES

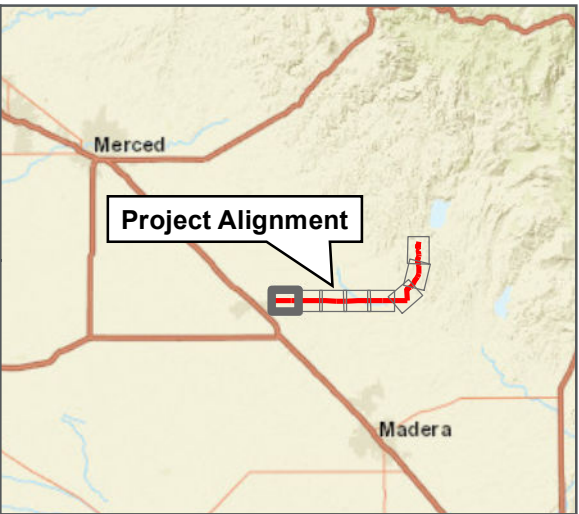
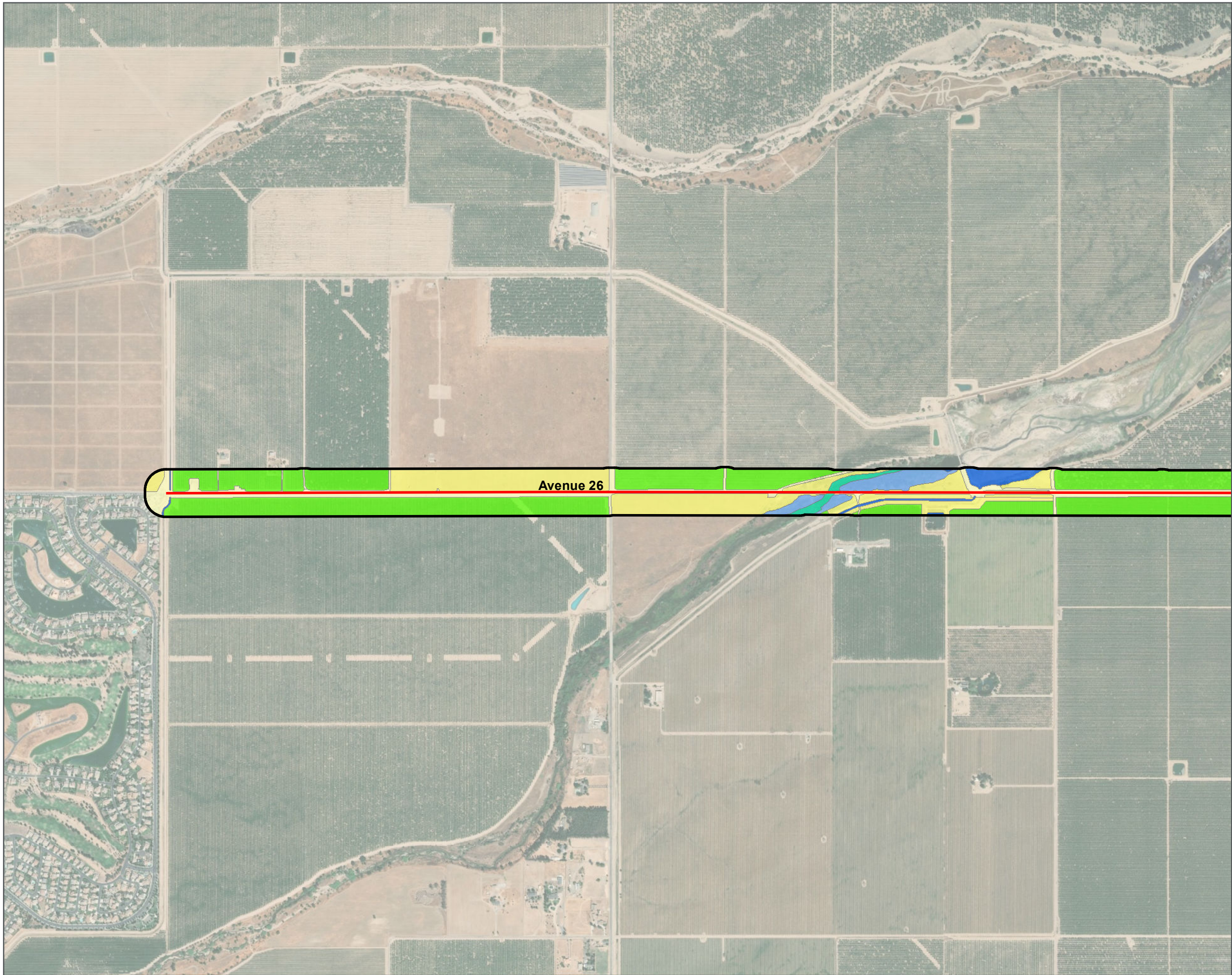
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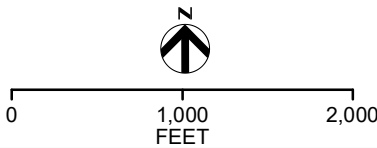
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- Road Centerline
- ▭ ActionArea
- Vegetative Communities
  - Agriculture
  - Annual Grassland
  - Developed/Bare Ground
  - Freshwater Marsh
  - Open Water
  - Riparian
  - Vernal Pool

Map information was compiled from the best available sources.  
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**VEGETATION COMMUNITIES**

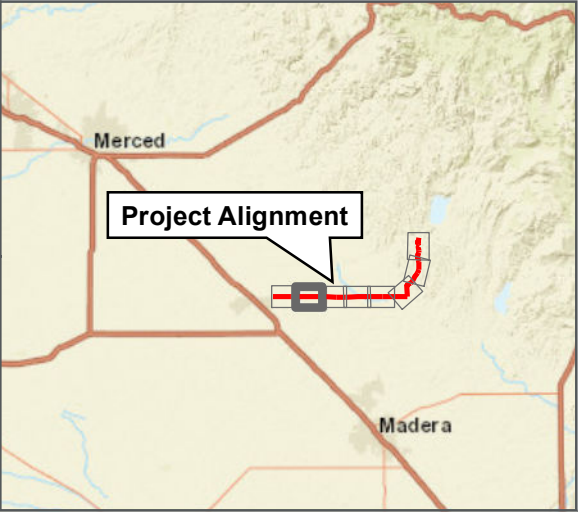
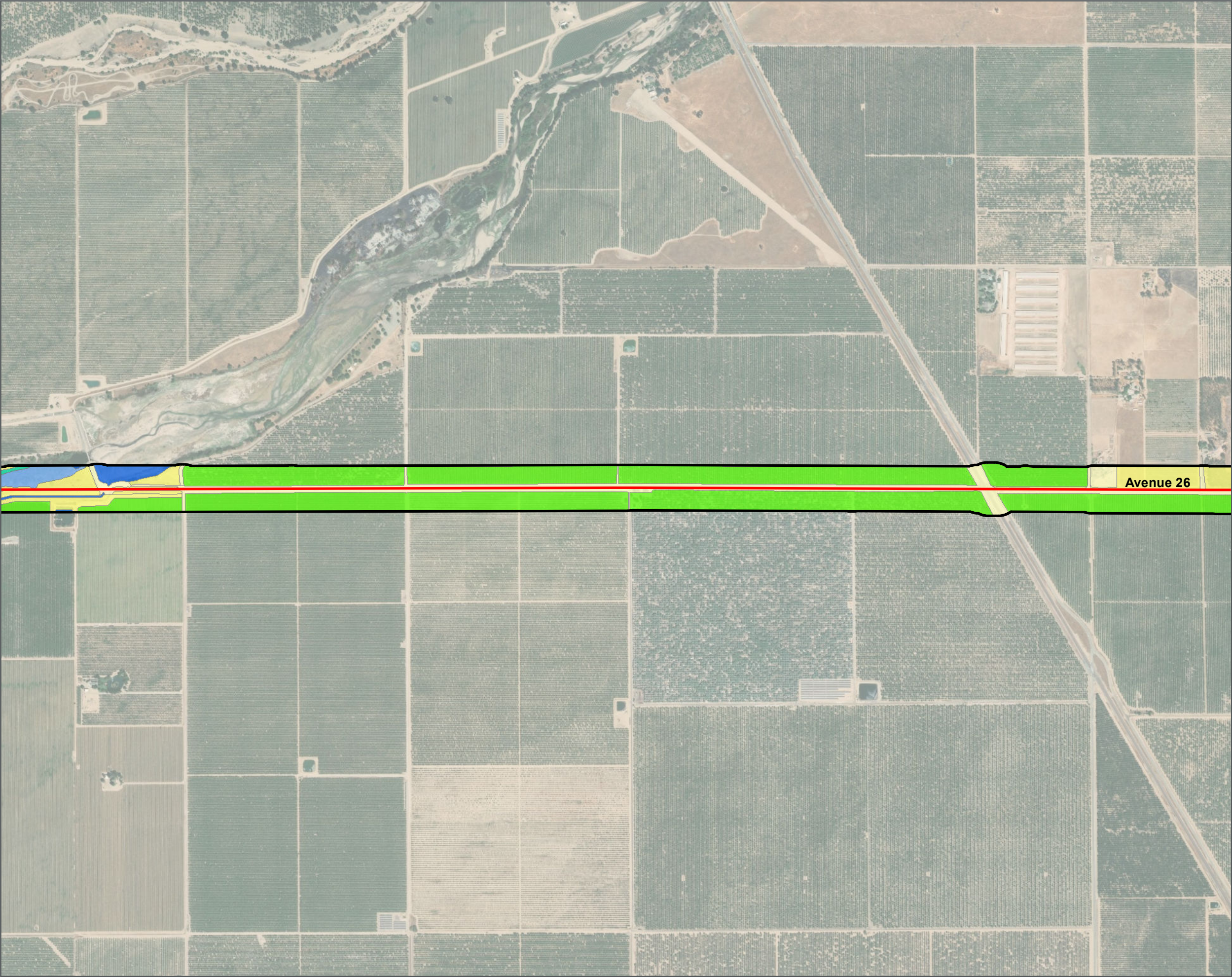
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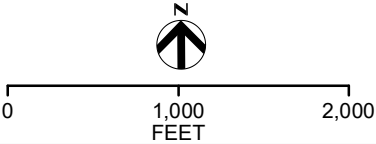


- LEGEND**
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities**
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
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    - Riparian
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**VEGETATION COMMUNITIES**

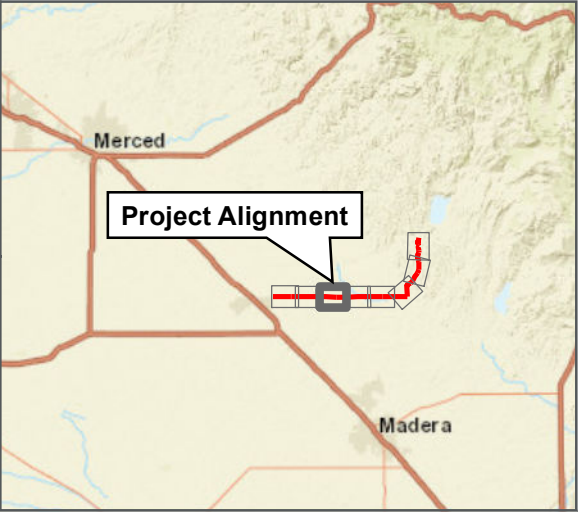
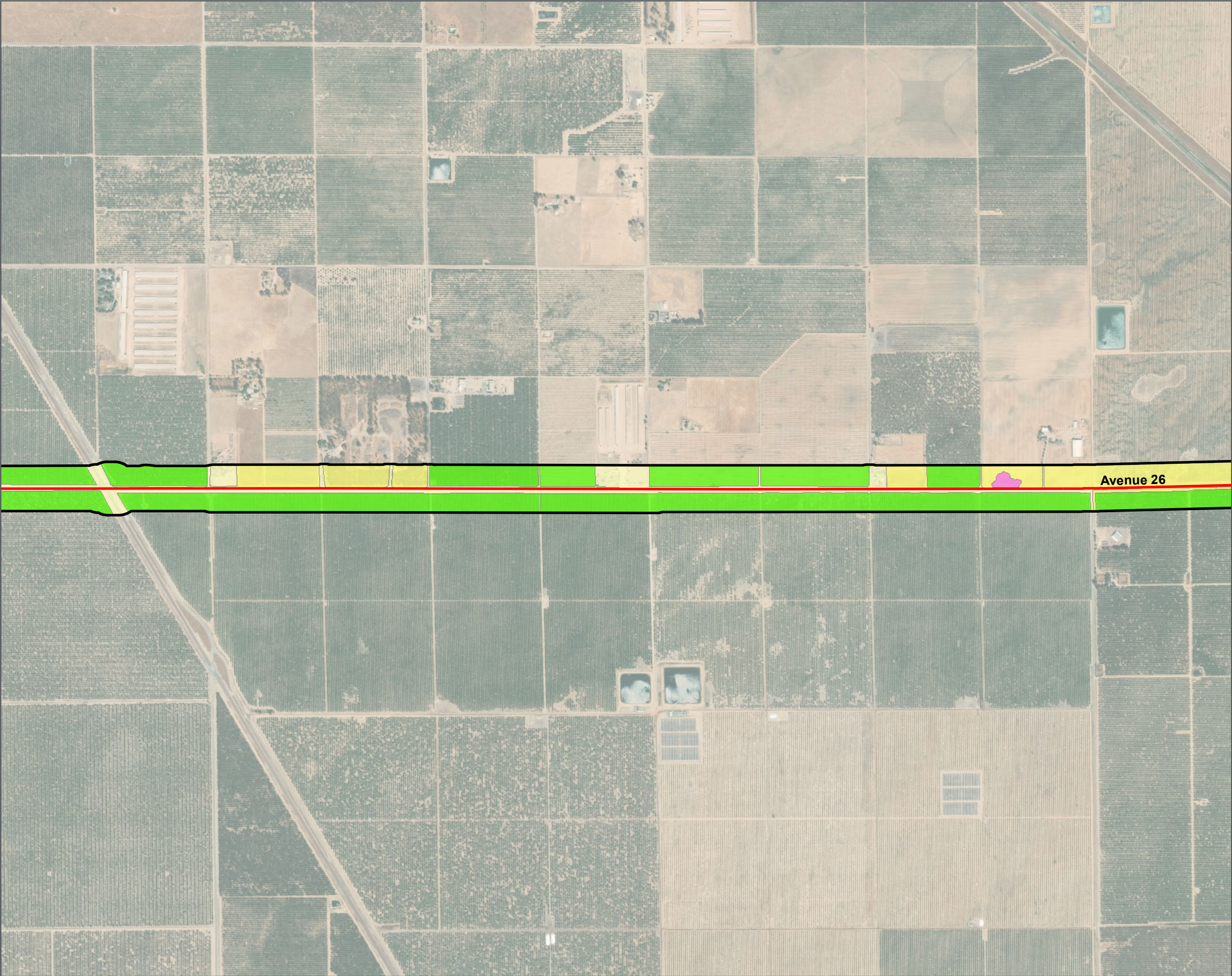
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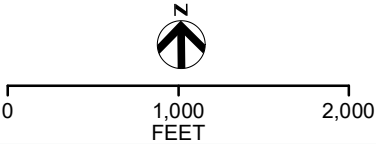


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

Map information was compiled from the best available sources.  
No warranty is made for its accuracy or completeness.

VEGETATION COMMUNITIES

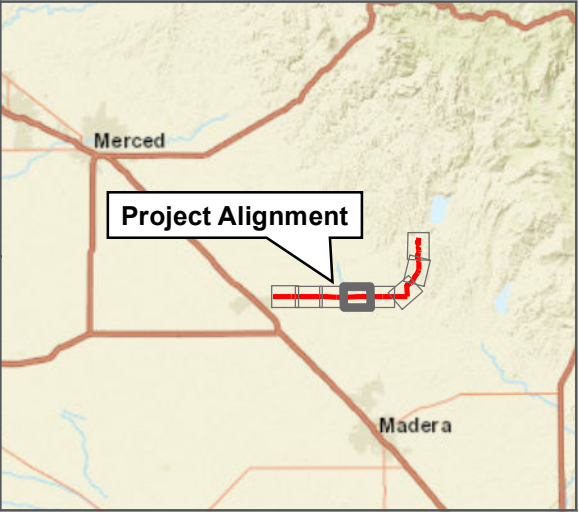
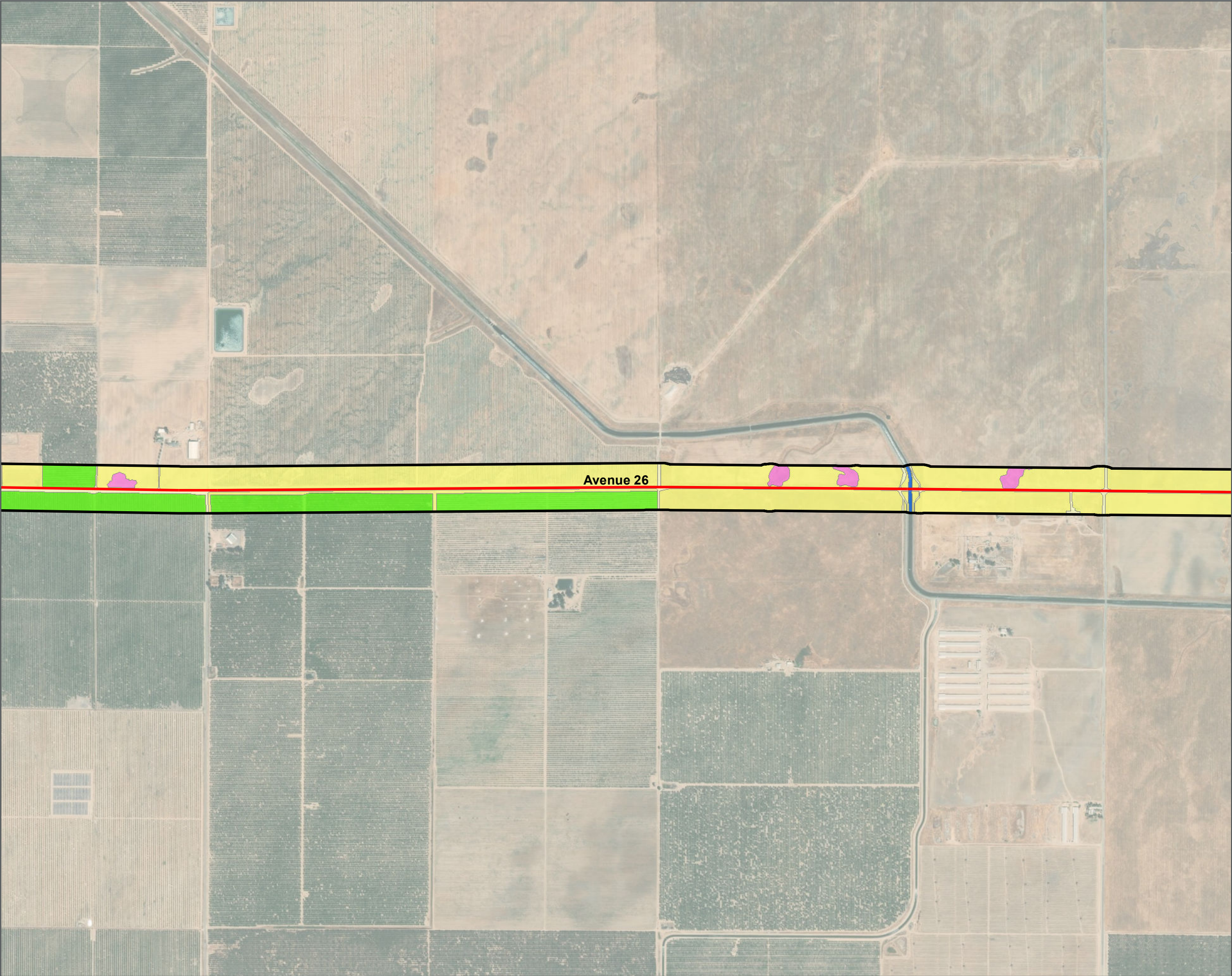
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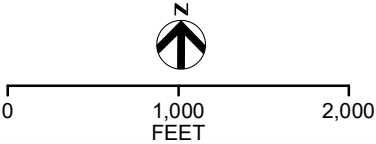


- LEGEND**
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities**
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

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**VEGETATION COMMUNITIES**

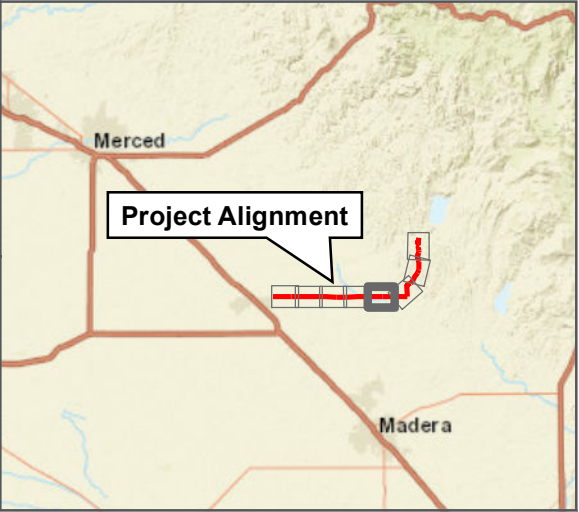
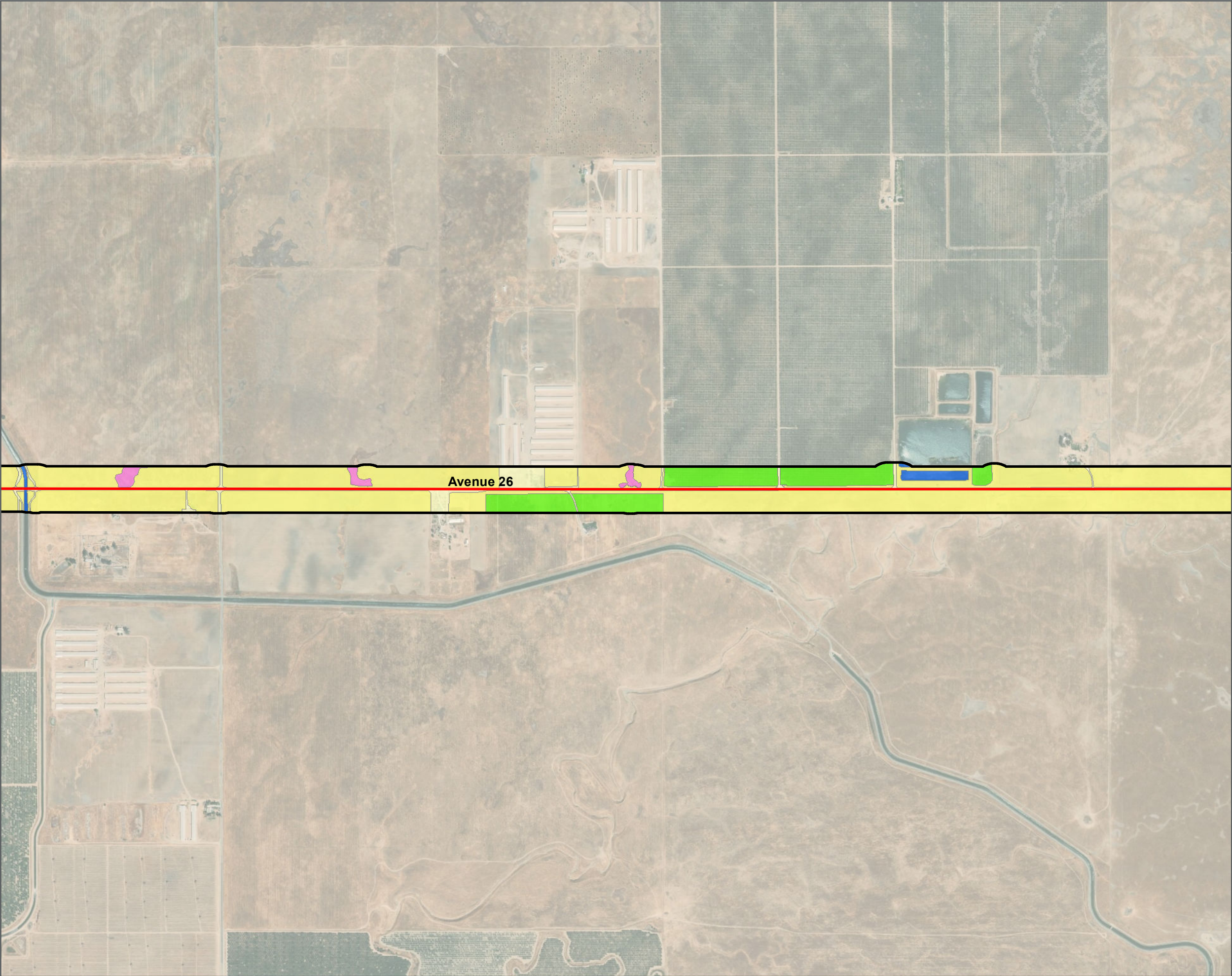
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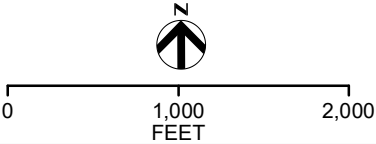


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

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VEGETATION COMMUNITIES

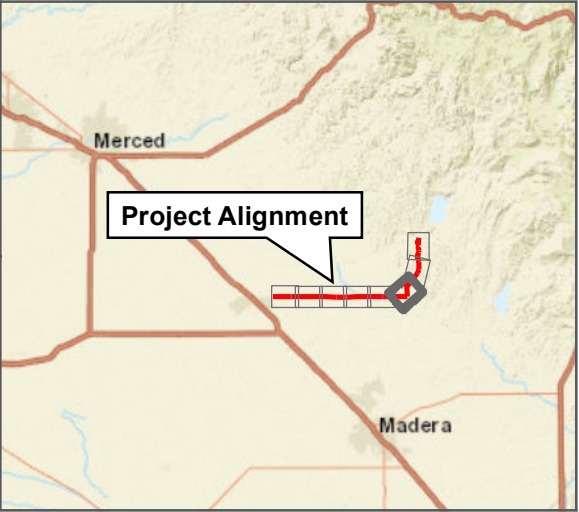
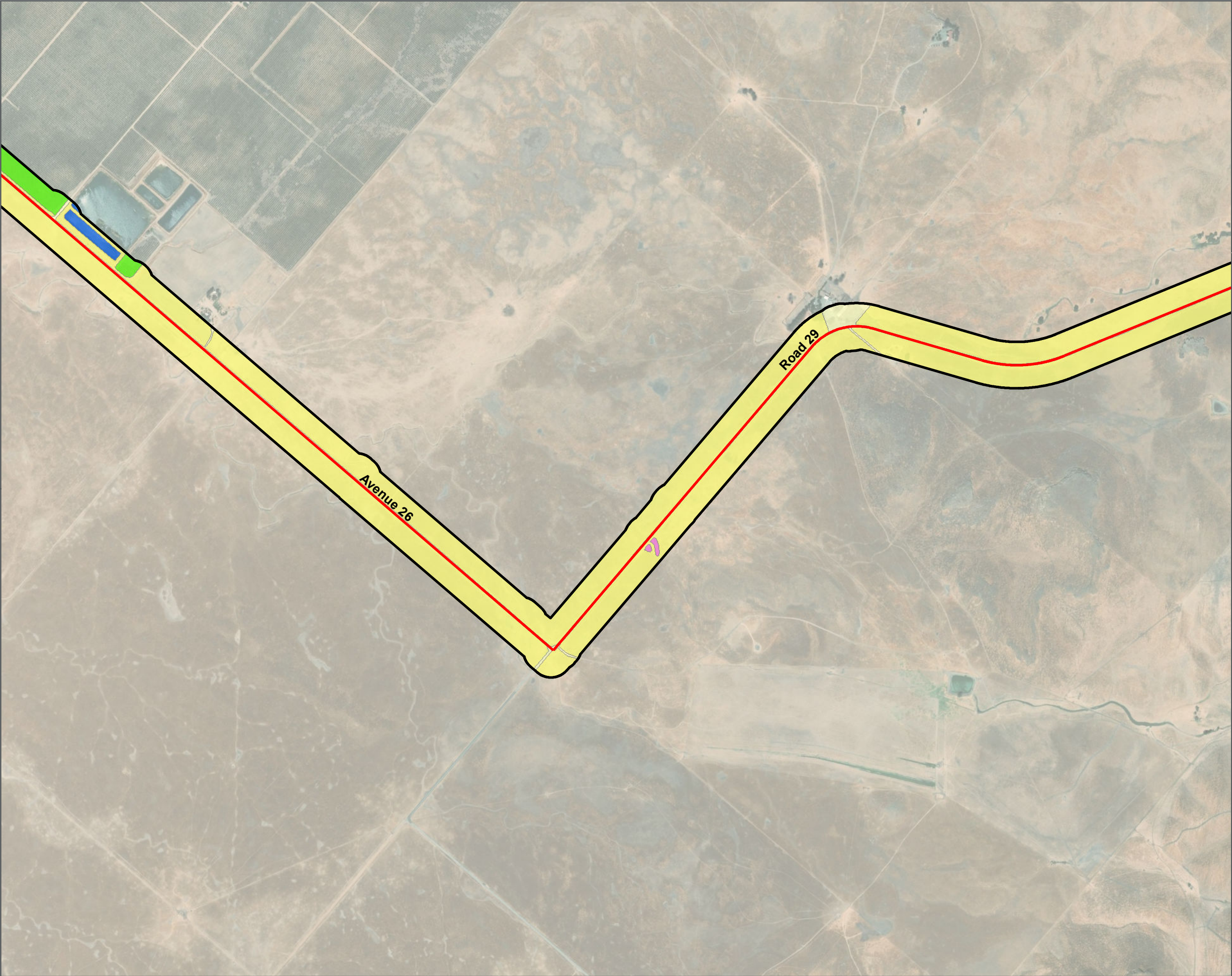
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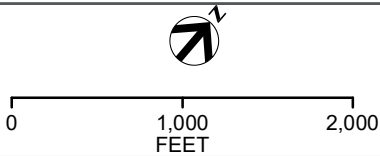
LEGEND

- Road Centerline
- ▭ ActionArea
- Vegetative Communities
  - Agriculture
  - Annual Grassland
  - Developed/Bare Ground
  - Freshwater Marsh
  - Open Water
  - Riparian
  - Vernal Pool

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VEGETATION COMMUNITIES

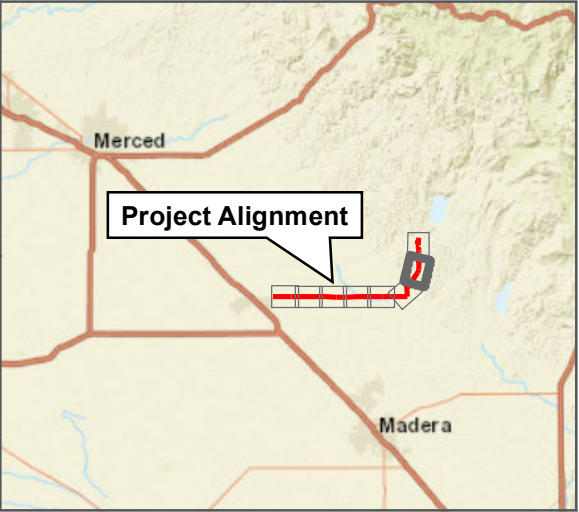
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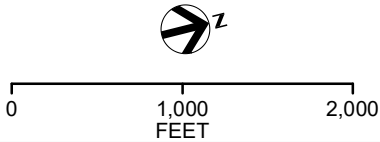


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
    - Open Water
    - Riparian
    - Vernal Pool

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VEGETATION COMMUNITIES

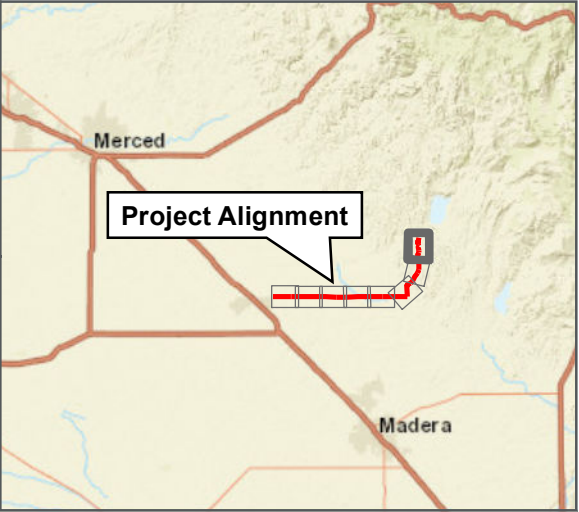
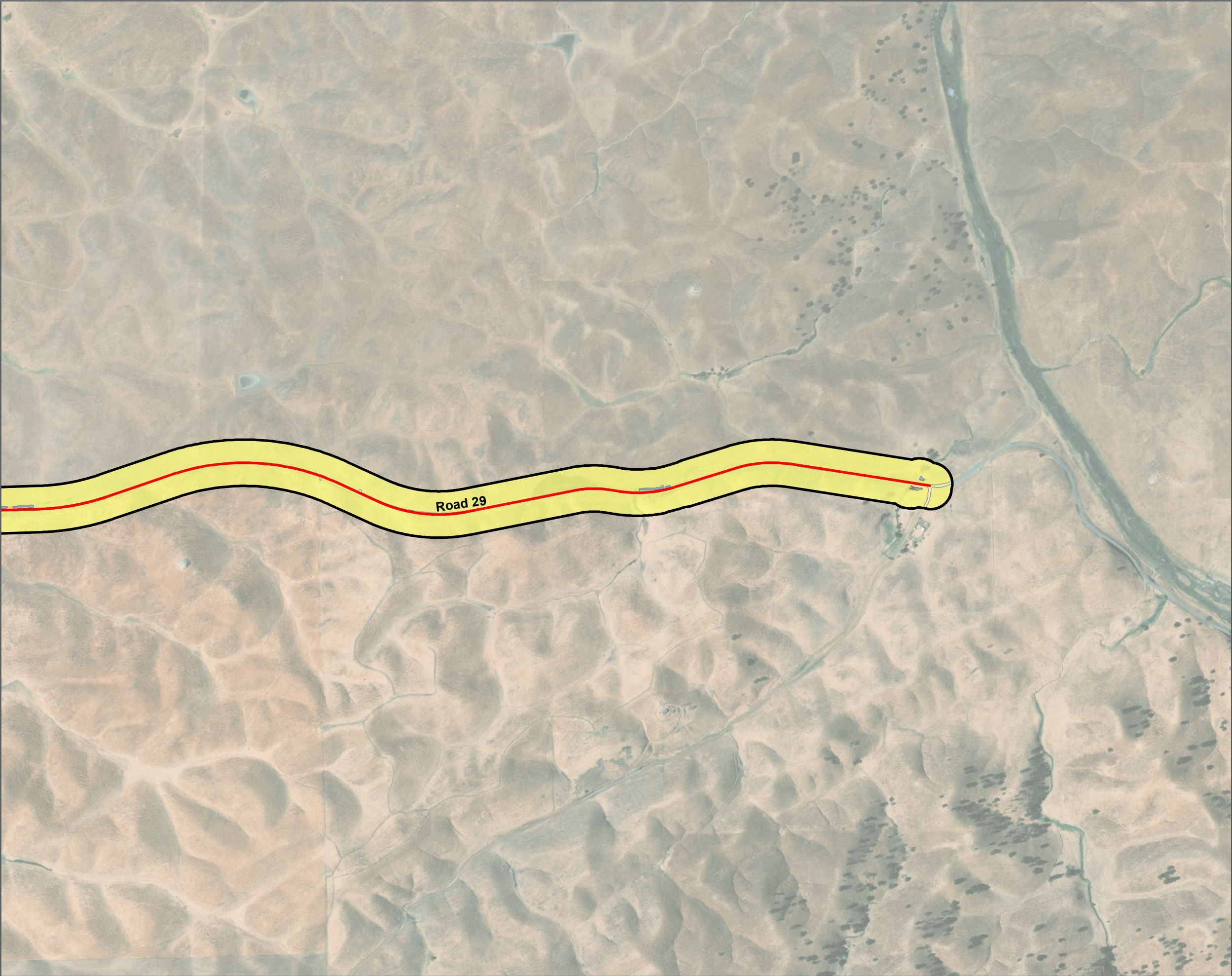
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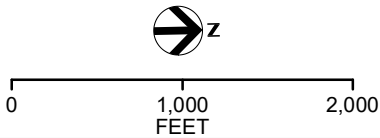


- LEGEND
- Road Centerline
  - ▭ ActionArea
  - Vegetative Communities
    - Agriculture
    - Annual Grassland
    - Developed/Bare Ground
    - Freshwater Marsh
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    - Vernal Pool

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VEGETATION COMMUNITIES

Page Number: 8





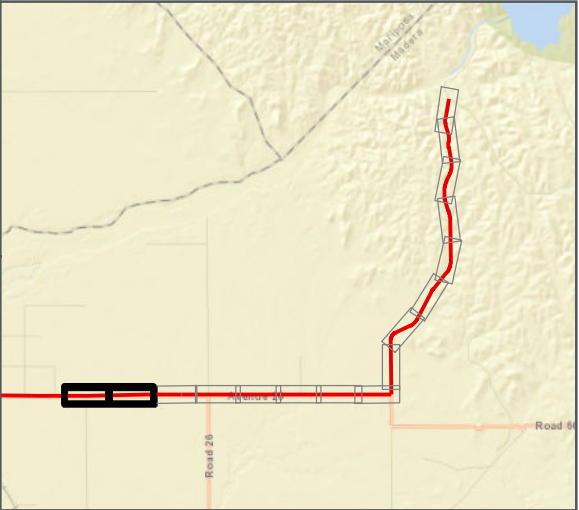


## **Appendix F.Vernal Pool Species Impact Maps**



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- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
  - ▤ Temporary Impact
- Vegetation**
- Annual Grassland
  - Developed
  - Disturbed
  - Intermittent Channel
  - Seasonal Wetland
  - Swale
  - Vernal Pool



**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
●	●	●	2 - 5
●	●	●	6 - 10
●	●	●	11 - 15

Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

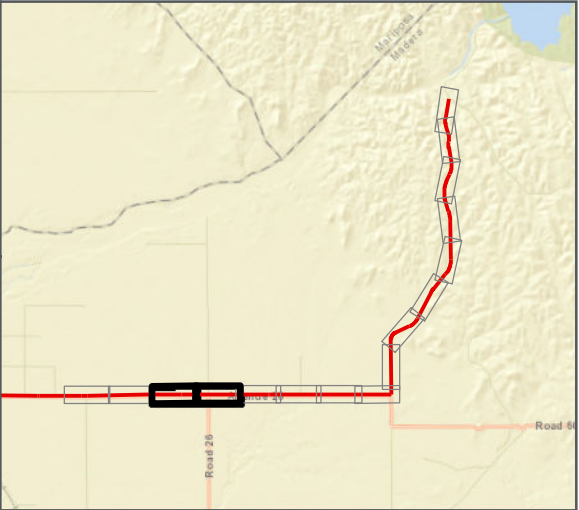
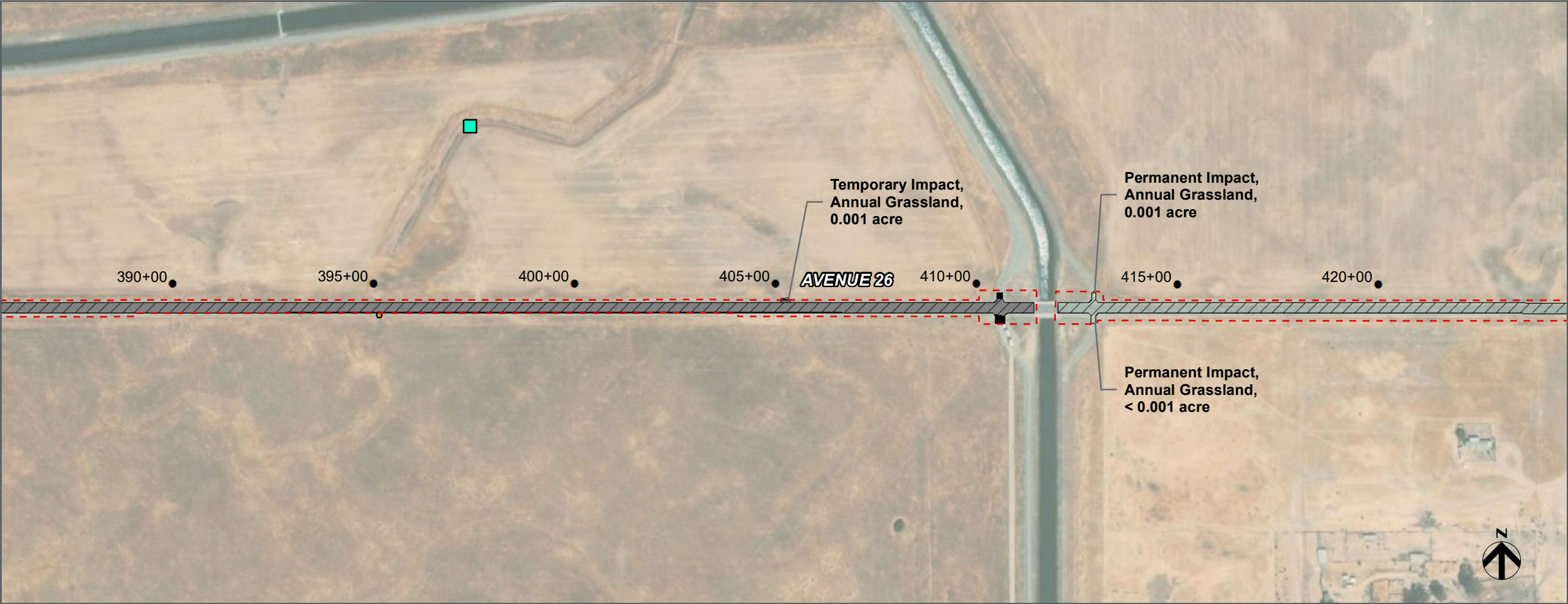
**VERNAL POOL SPECIES IMPACTS**



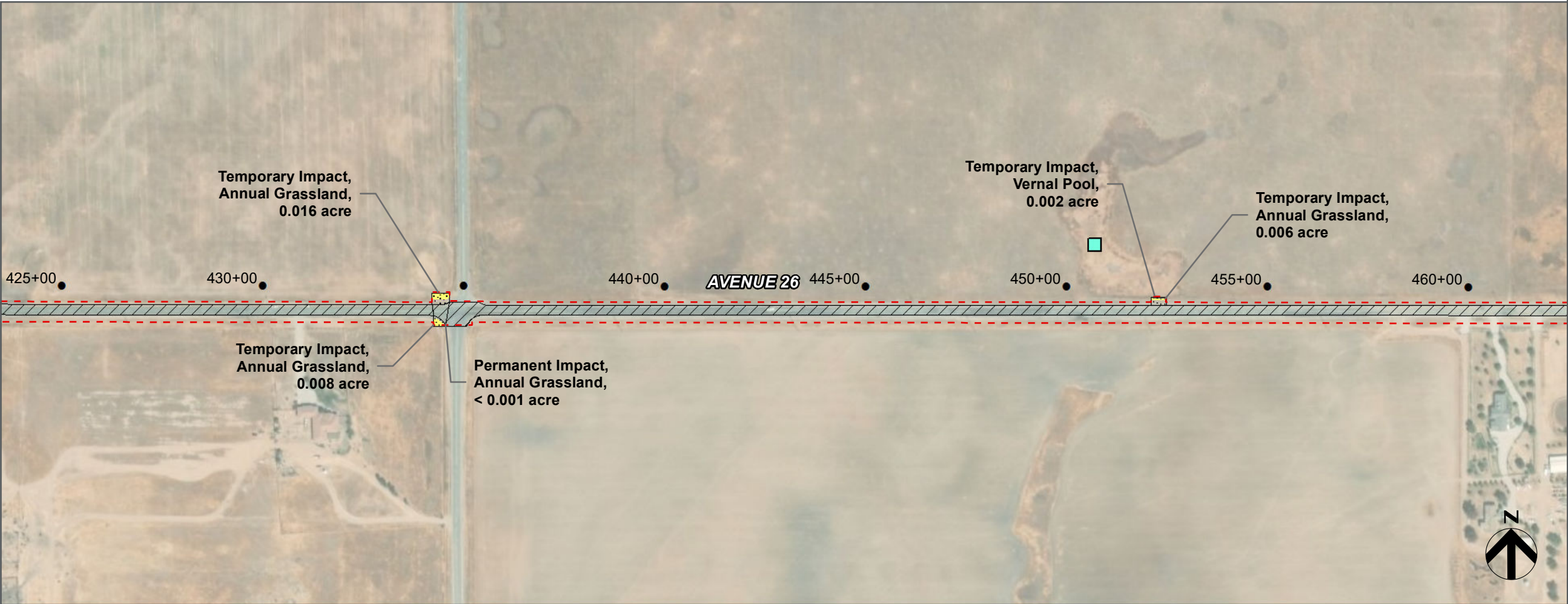








- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
  - ▤ Temporary Impact
- Vegetation**
- Annual Grassland
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  - Disturbed
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●	●	●	0 - 1
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●	●	●	6 - 10
●	●	●	11 - 15

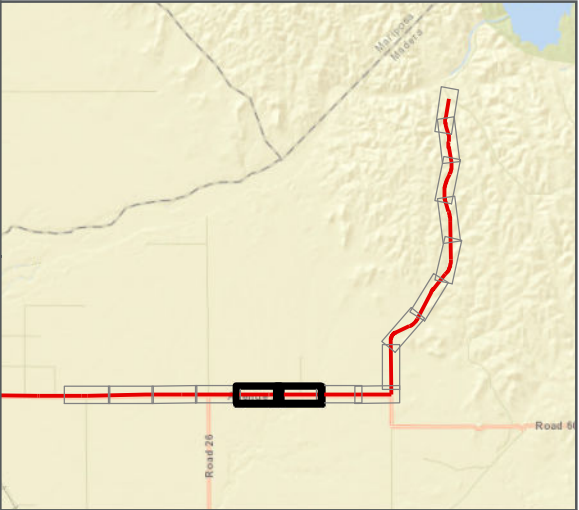
Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

**VERNAL POOL SPECIES IMPACTS**

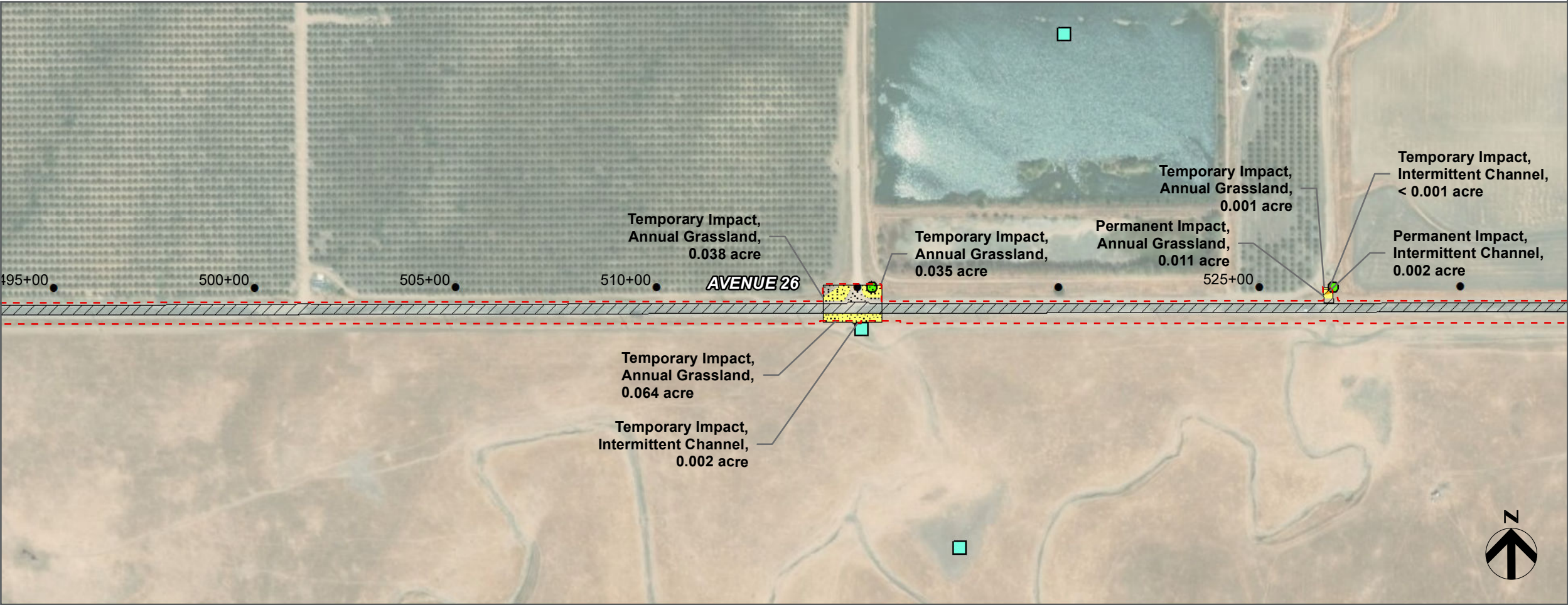








- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
  - ▤ Temporary Impact
- Vegetation**
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●	●	●	0 - 1
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●	●	●	11 - 15

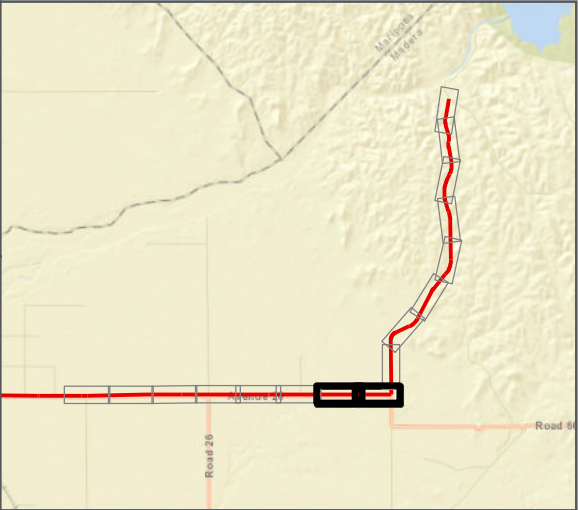
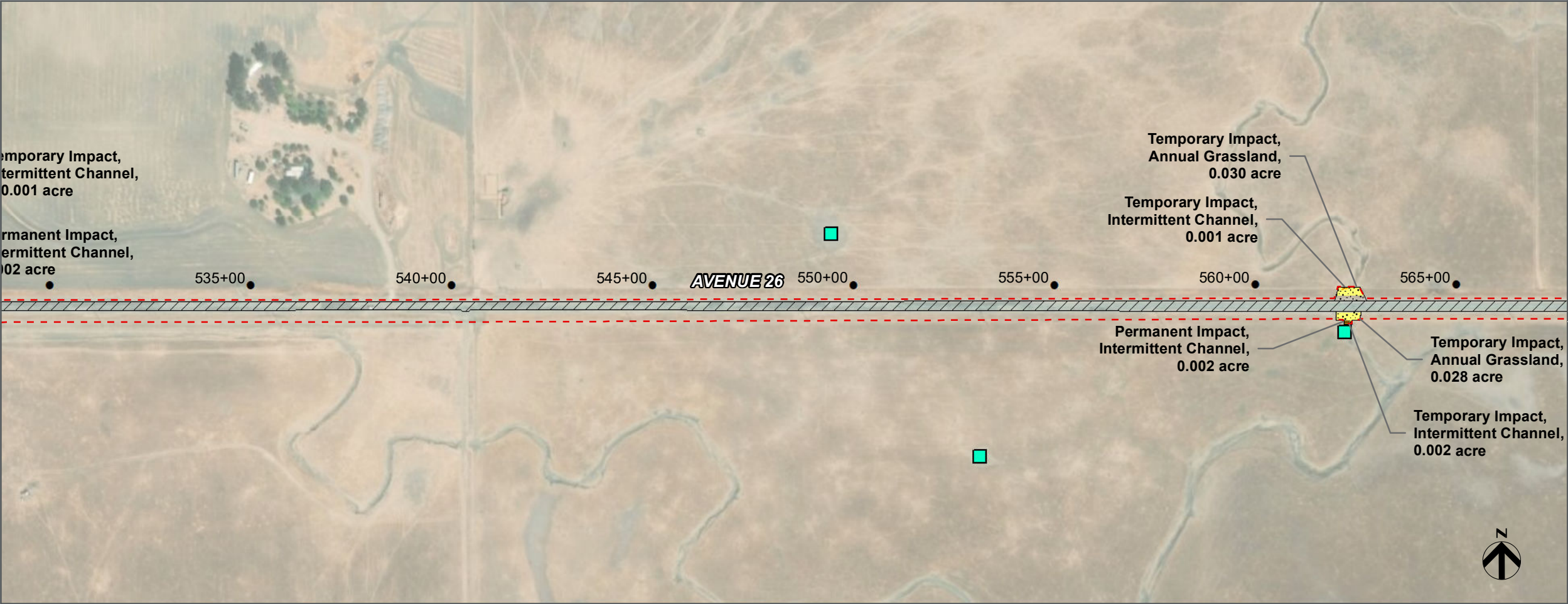
Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

**VERNAL POOL SPECIES IMPACTS**







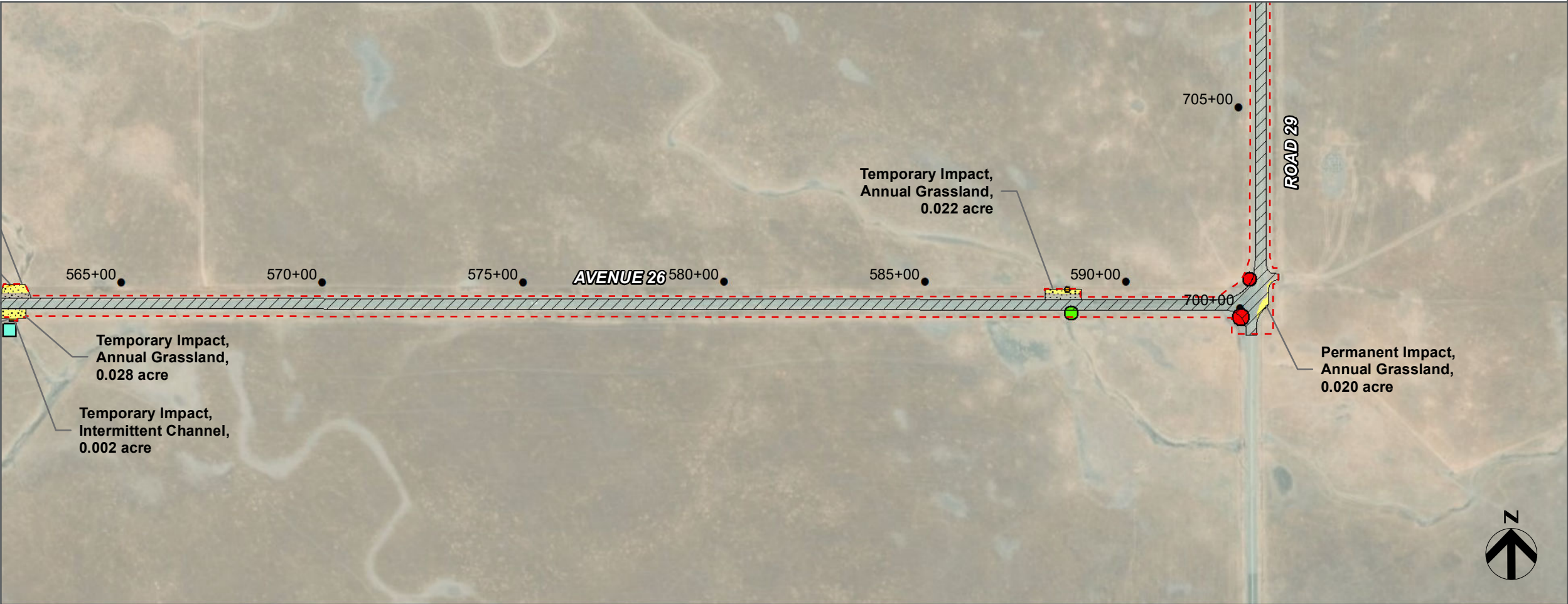


**LEGEND**

- Project Stationing
- Potential California Tiger Salamander Breeding Pools
- - - Temporary Workspace
- ▨ Permanent Impact
- ▤ Temporary Impact

**Vegetation**

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**Ground Squirrel Burrow**

Active	Inactive	Abandoned	Burrow Complex Size
●	●	●	0 - 1
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●	●	●	11 - 15

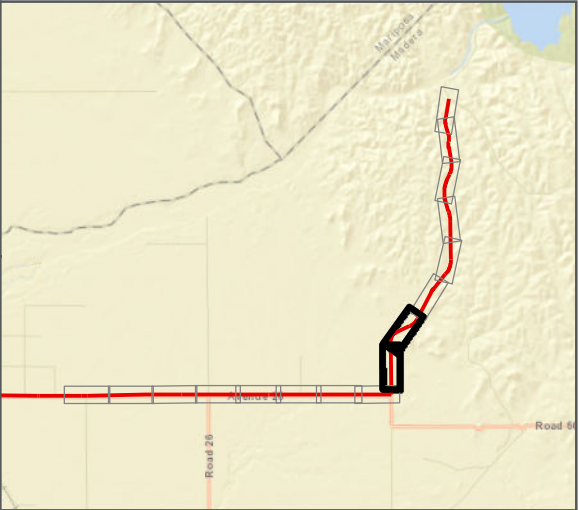
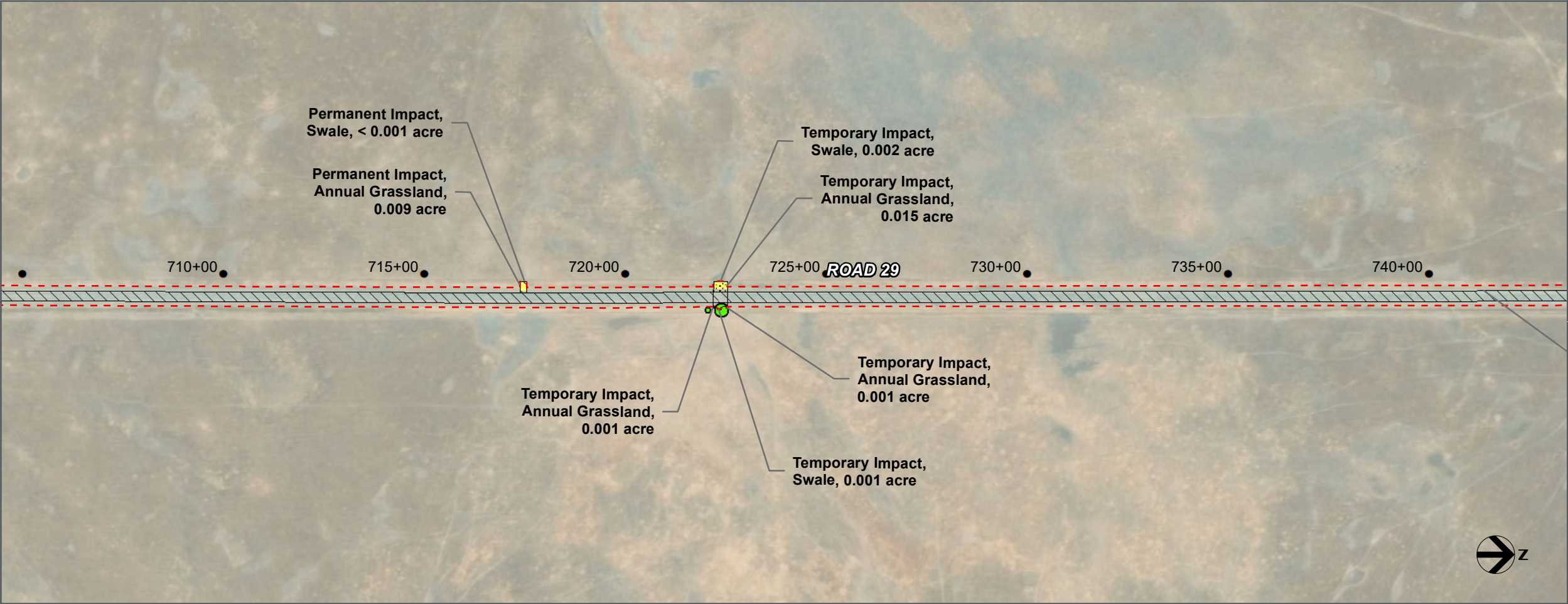
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**VERNAL POOL SPECIES IMPACTS**









- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
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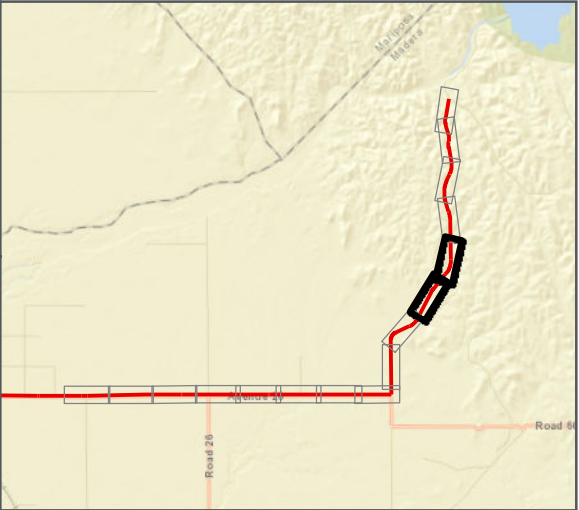


**VERNAL POOL SPECIES IMPACTS**

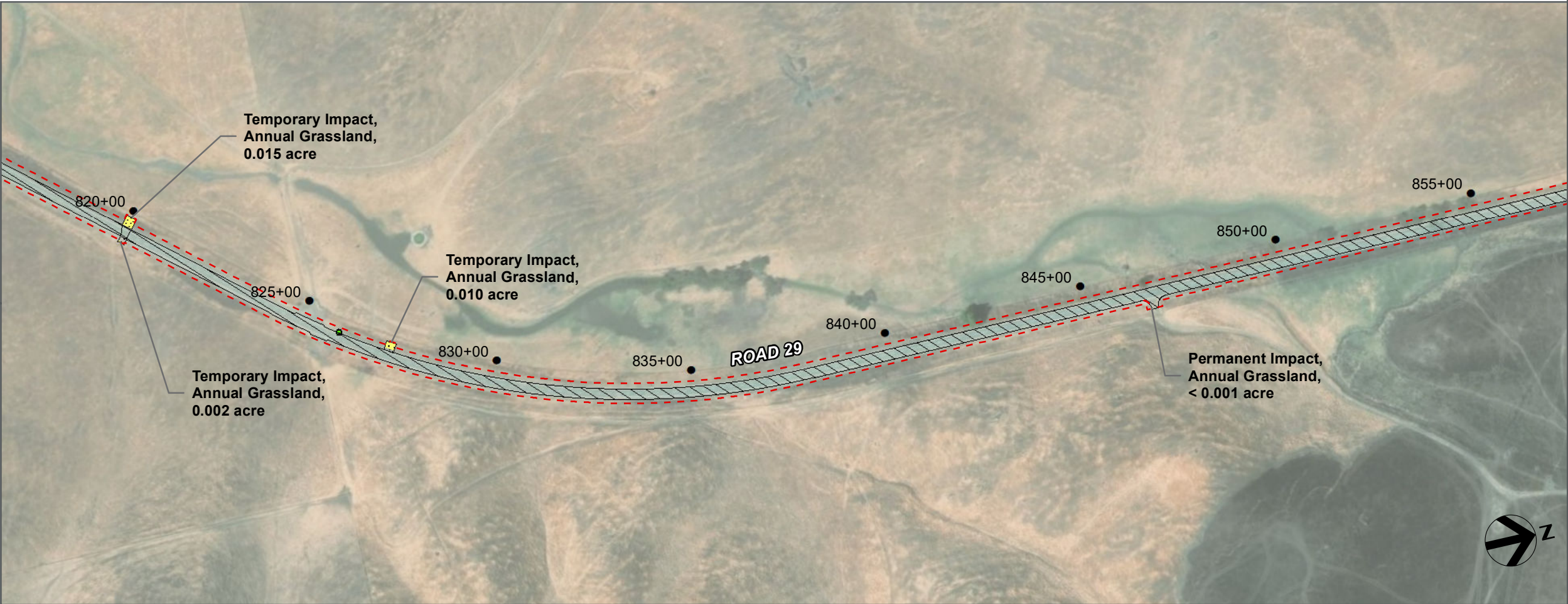








- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
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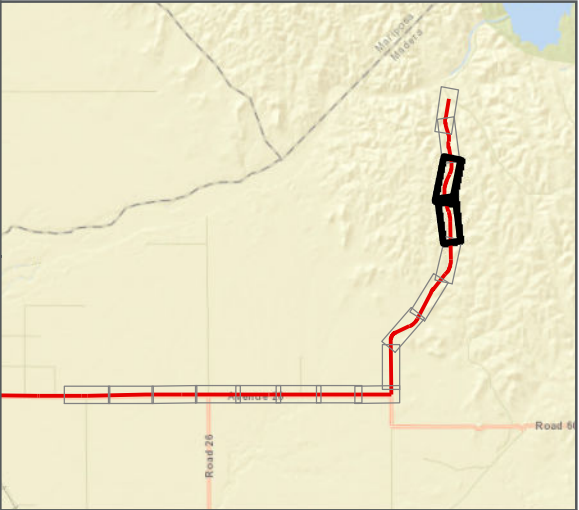
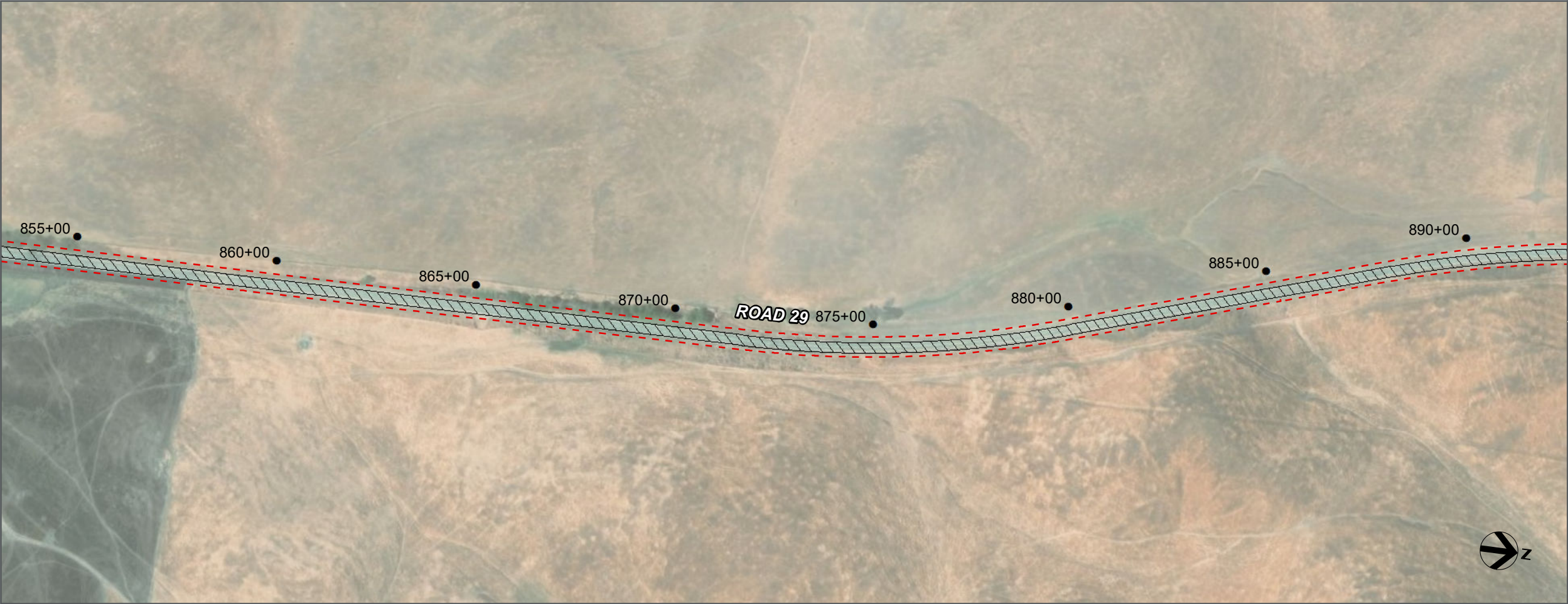
**VERNAL POOL SPECIES IMPACTS**











- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
  - ▤ Temporary Impact
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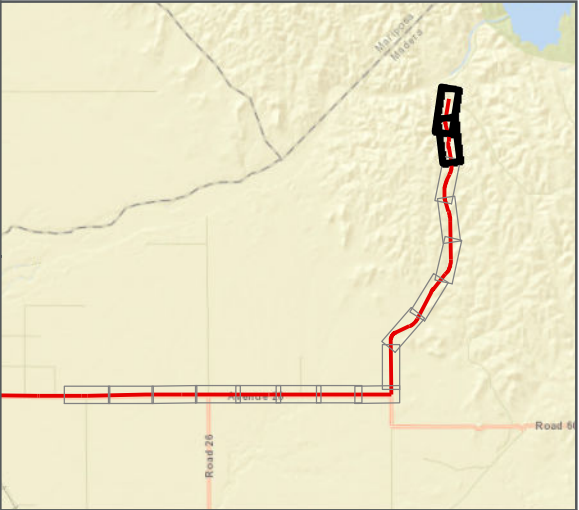
**VERNAL POOL SPECIES IMPACTS**



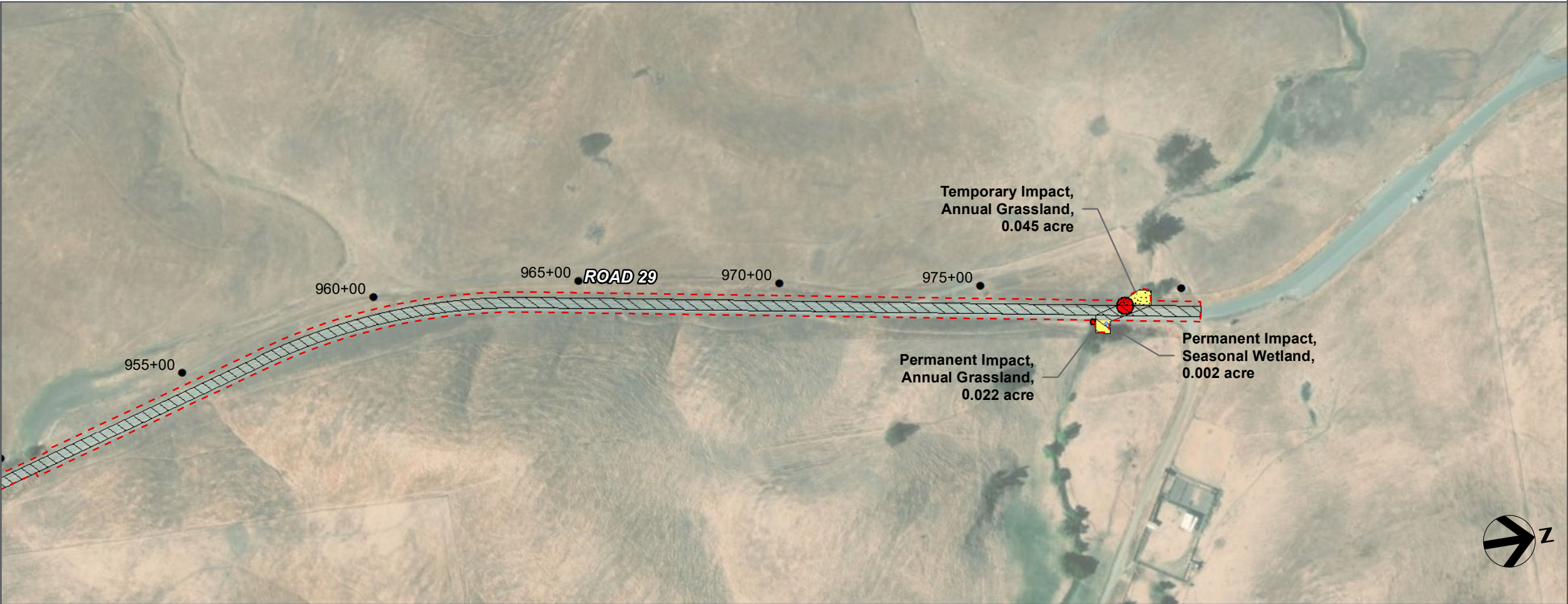








- LEGEND**
- Project Stationing
  - Potential California Tiger Salamander Breeding Pools
  - - - Temporary Workspace
  - ▨ Permanent Impact
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**VERNAL POOL SPECIES IMPACTS**





## **APPENDIX G - CULTURAL RESOURCE LETTERS SHPO**

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.ohp.parks.ca.gov



May 23, 2017

VIA EMAIL

In reply refer to: FHWA\_2017\_0424\_001

Vince Auriemma  
Project Manager  
Central Federal Land Highway Division  
Federal Highway Administration  
12300 West Dakota Avenue, Suite 380  
Lakewood, CO 80228-2583

Subject: Determinations/Findings of Eligibility and Effect for the Avenue 26 and Road 29 Rehabilitation Project, Madera County, CA

Dear Mr. Auriemma:

You have provided me with the results of your efforts to determine whether the project described above may involve or affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The Federal Highway Administration (FHWA), in cooperation with Madera County, is proposing improvements to Avenue 26 and Road 29 in Madera County, CA.

The FHWA has determined that the following properties are not eligible for the National Register of Historic Places:

- P-20-003120 – a 11 mile segment of historic Avenue 26 with 5 historic culverts
- P-20-003121 – a 5.4 mile segment of historic Road 29
- P-20-002662 – a 115 foot segment of the historic AT&SF Railroad

In addition, the FHWA has determined that P-20-002308, a 100 foot segment of the Madera Canal is eligible for the NRHP under Criteria A and C as a contributor to the Central Valley Project.

P-20-002308 passes under an Avenue 26 concrete beam bridge that is approximately 40 feet in width. P-20-002308 and the bridge it passes under will not be altered or affected by the repaving or widening of Avenue 26. As a result, the FHWA has determined that no historic properties will be affected by this undertaking.



Based on my review of the submitted documentation I have the following comments:

- 1) The APE for the proposed project appears adequate.
- 2) I concur that P-20-003120, P-20-003121 and P-20-002662 are not eligible for the NRHP.
- 3) I concur that P-20-002308, the segment of the Madera Canal within the APE, is eligible for the NRHP as a contributor to the Central Valley Project.
- 4) I have no objections to the FHWA's finding of no historic properties affected for this undertaking
- 5) Your letter requests assistance from the SHPO "in identifying any interests or concerns regarding traditional [Native American] resources or properties within the project area." Please note that it is not the role of the SHPO to provide this information to a federal agency. The SHPO does not embody the knowledge nor the expertise that consulting Indian tribes and additional consulting Native American tribes, groups and individuals have in identifying historic properties of religious and cultural significance to them.
- 6) Be advised that under certain circumstances, like unanticipated discovery, the FHWA may have additional responsibilities under 36 CFR Part 800.

If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 with e-mail at [natalie.lindquist@parks.ca.gov](mailto:natalie.lindquist@parks.ca.gov) or Alicia Perez at (916) 445-7020 with e-mail at [alicia.perez@parks.ca.gov](mailto:alicia.perez@parks.ca.gov).

Sincerely,



Julianne Polanco  
State Historic Preservation Officer



**DEPARTMENT OF PARKS AND RECREATION  
OFFICE OF HISTORIC PRESERVATION**

Lisa Ann L. Mangat, Director

Julianne Polanco, State Historic Preservation Officer  
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100  
Telephone: (916) 445-7000 FAX: (916) 445-7053  
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

May 22, 2018

VIA EMAIL

In reply refer to: FHWA\_2017\_0424\_001

Mr. Vince Auriemma  
Project Manager  
Central Federal Land Highway Division  
Federal Highway Administration  
12300 West Dakota Avenue, Suite 380  
Lakewood, CO 80228-2583

Subject: Determinations/Findings of Eligibility and Effect for the Avenue 26 and Road 29  
Rehabilitation Project, Madera County, CA

Dear Mr. Auriemma:

The Federal Highway Administration (FHWA) is re-initiating consultation with the California State Historic Preservation Officer (SHPO) regarding the above undertaking. The FHWA previously concluded consultation in May of 2017 when the SHPO concurred with the FHWA's finding of No Historic Properties Affected.

The FHWA, in cooperation with Madera County, is proposing improvements to 11 miles of Avenue 26 and 5.52 miles of Road 29 in Madera County, CA. Since the last correspondence, the proposed scope of the project has changed. The project now includes the potential to pave an additional section of Road 29.

You have provided me with the results of your efforts to determine whether the project described above may involve or affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The FHWA has determined that the following properties are not eligible for the National Register of Historic Places:

- P-20-003121 – a 5.52 mile segment of historic Road 29 (an additional previously unrecorded section of road has been added)
- MAD HDR-4 – an early to late twentieth century culvert

FHWA has determined that no historic properties will be affected as part of this project.

Based on my review of the submitted documentation I have the following comments:

- 1) The amended APE for the proposed project appears adequate.
- 2) I concur that P-20-003121 and MAD HDR-4 are not eligible for the NRHP.
- 3) I have no objections to the FHWA's finding of no historic properties affected for this undertaking
- 4) Be advised that under certain circumstances, like unanticipated discovery, the FHWA may have additional responsibilities under 36 CFR Part 800.

If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 with e-mail at [natalie.lindquist@parks.ca.gov](mailto:natalie.lindquist@parks.ca.gov) or Alicia Perez at (916) 445-7020 with e-mail at [alicia.perez@parks.ca.gov](mailto:alicia.perez@parks.ca.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Julianne', followed by a horizontal line extending to the right.

Julianne Polanco  
State Historic Preservation Officer