Chapter 3
Alternatives Description

This section describes the alternatives that are evaluated throughout this Final Environmental Impact Report (FEIR). Prior to development of this FEIR, potential alternatives were screened in an Alternatives Screening Report (ASR) (Appendix B). The alternatives carried forward for full analysis in this FEIR are the product of this screening process, which is summarized in Section 3.2. Refer to Appendix B for a detailed discussion of the ASR screening process and results.

3.1 CEQA Requirements for Alternatives

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) evaluate a reasonable range of potentially feasible alternatives to the proposed project, including the No Project Alternative. The No Project Alternative allows decision-makers to compare the impacts of approving the action against the impacts of not approving the action. While there is no clear rule for determining a reasonable range of alternatives to the proposed project, CEQA provides guidance that can be used to define the range of alternatives for consideration in the environmental document.

The alternatives described in an EIR must feasibly accomplish most of the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project (although the alternative could have greater impacts overall), and must be potentially feasible (CEQA Guidelines Section 15126.6[a]). In determining whether alternatives are potentially feasible, Lead Agencies are guided by the general definition of feasibility found in State CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In accordance with CEQA Guidelines Section 15126.6(f), the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries in determining the feasibility of alternatives to be evaluated in an EIR. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the Lead Agency relied on in making the selection. It also should identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (CEQA Guidelines Section 15126.6[c]).

CEQA Guidelines Section 15126.6(e)(2) states that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

3.2 Alternatives Screening Process

The California Public Utilities Commission (CPUC) conducted an alternatives screening process for the Proposed Project, as documented in the ASR (Appendix B). Alternatives considered in the

ASR included those identified in the Applicants' Proponent's Environmental Assessment (PEA), as well as those independently developed by the CPUC based on public and stakeholder scoping comments and a preliminary evaluation of environmental impacts of the Proposed Project.

The screening process considered the following primary criteria:

- Does the alternative accomplish all or most of the basic project objectives?
- Is the alternative potentially feasible (e.g., from economic, environmental, legal, social, and technical standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Project?

3.2.1 Consistency with Basic Project Objectives

As described in Chapter 2, *Project Description,* the CPUC identified the following basic project objectives for the Proposed Project:

- **Transmission Objective:** Mitigate thermal overload and low voltage concerns in the Los Padres 70 kV system during Category B contingency scenarios, as identified by the California Independent System Operator (CAISO) in its 2013-2014 Transmission Plan.
- **Distribution Objective:** Accommodate expected future increased electric distribution demand in the Paso Robles Distribution Planning Area (DPA), particularly in the anticipated growth areas in northeast Paso Robles.

The screening process considered whether a potential alternative addressed at least one of the two basic objectives. Because the two fundamental project objectives address two essentially separate (although interconnected in some ways) issues, alternatives addressing either one of the two objectives could potentially be combined or constructed in tandem to meet all of the basic project needs. Additionally, because the Proposed Project involves two primary components (i.e., substation and a new/reconductored power line), certain alternatives (e.g., substation siting alternatives or power line routing alternatives) may not on their own meet the project objectives, but could be combined with other alternatives to meet the project needs.

3.2.2 Feasibility

The alternatives screening process also considered whether the alternative is potentially feasible. This included evaluation of the following factors:

- **Economic Feasibility.** Is the alternative so costly that implementation would be prohibitive? CEQA Guidelines Section 15126.6(b) requires consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of the project objectives, or would be more costly". The Court of Appeals determined in Citizens of Goleta Valley v. Board of Supervisors (2nd Dist. 1988) 197 Cal.App.3d 1167, p. 1181 (see also Kings County Farm Bureau v. City of Hanford [5th Dist. 1990] 221 Cal.App.3d 692, 736): "[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project."

- **Environmental Feasibility.** Would implementation of the alternative cause substantially greater environmental damage than the Proposed Project, thereby making the alternative clearly inferior from an environmental standpoint? To the extent that the alternative could introduce a new significant effect, or increase the severity of a significant effect, this could render the alternative environmentally infeasible.

- **Legal Feasibility.** Does the alternative have the potential to encounter lands that have legal protection that may prohibit or substantially limit the feasibility of permitting a substation and power line, or energy storage facility? Lands that are afforded legal protections that would prohibit the construction of the project, or that would require an act of Congress for permitting, are generally considered infeasible locations for the project. These land use designations include wilderness areas, wilderness study areas, restricted military bases, airports, and Native American reservations.

- **Social Feasibility.** Is the alternative inconsistent with an adopted goal or policy of the CPUC or other applicable agency?

- **Technical Feasibility.** Is the alternative potentially feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome? Can the transmission, distribution, or energy storage facilities associated with the alternative be feasibly connected to existing transmission and/or distribution system infrastructure?

3.2.3 Potential to Eliminate Significant Environmental Effects

Finally, the screening process determined whether the alternative could avoid or substantially lessen any of the significant effects of the Proposed Project. At the time the Draft ASR was prepared, the following impacts were considered potentially significant and unavoidable:

- Aesthetic impacts from the placement of the approximately 15-acre Estrella Substation along Union Road, which traverses an area typified by rolling hills and vineyards;

- Aesthetic impacts from the new overhead 70 kV power line, particularly in the area of Golden Hill Road, where the line would pass through industrial, commercial, and residential areas that do not currently have overhead power lines; and

- Agricultural resources impacts from permanent conversion of at least 15 acres of Important Farmland as a result of construction of the proposed Estrella Substation and power line.

Additionally, the screening process at the Draft ASR phase considered potential impacts of the Proposed Project on biological resources and cultural resources, as well wildfire risk, although it was anticipated that applicant proposed measures (APMs) and/or mitigation measures could reduce these potential impacts to a level that is less than significant.

3.2.4 Alternatives Screening Process Results

Figure 3-1 shows a summary map depicting the alternatives considered in the screening analysis. Refer to Appendix B for a detailed description of the results, including the reasoning for retaining or screening out alternatives for full analysis in the EIR.

3.3 Project Alternatives Carried Forward for Analysis in the EIR

3.3.1 Alternative SS-1: Bonel Ranch Substation Site

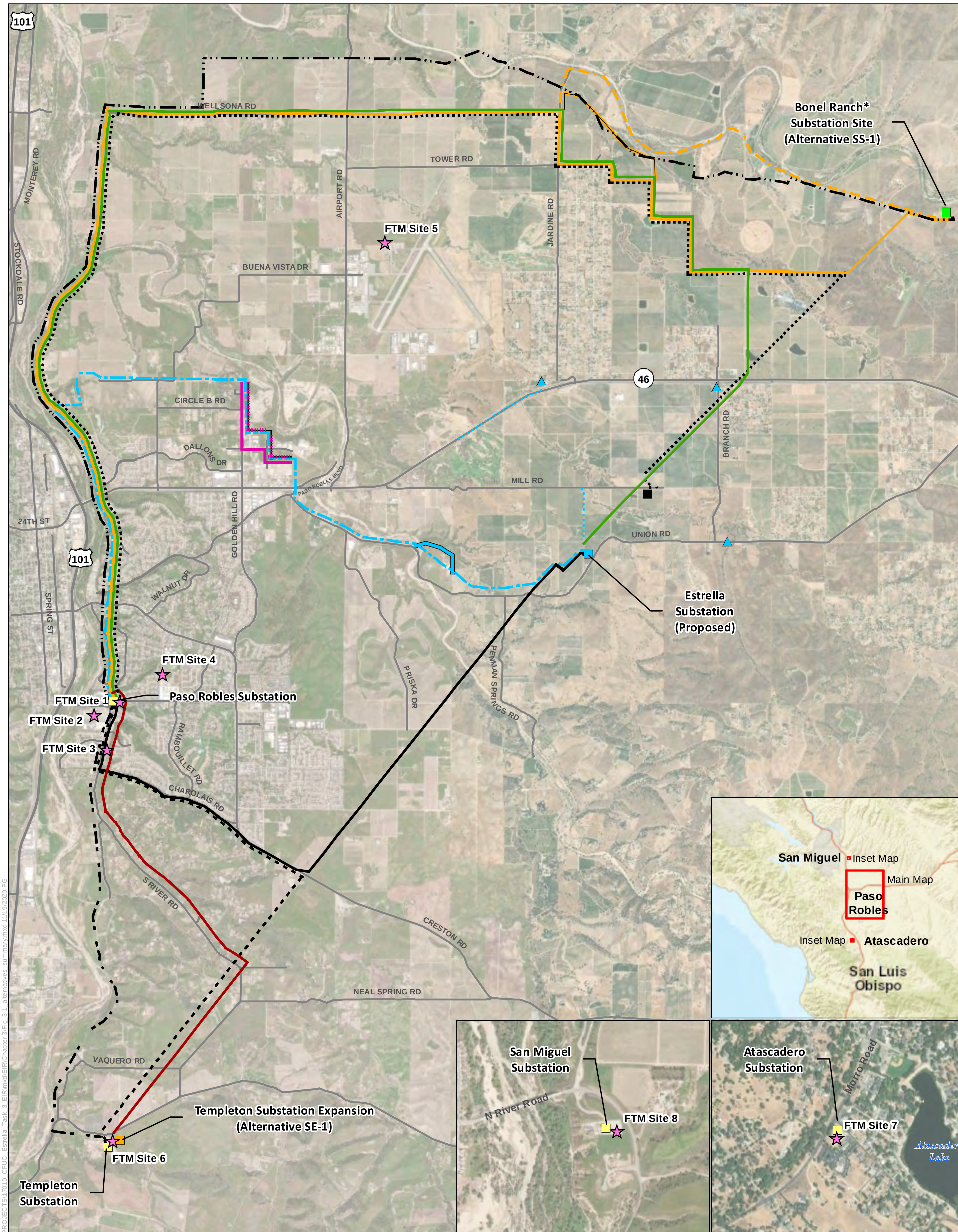
Description

The Bonel Ranch (formerly McDonald Ranch) Substation Site is situated on an approximately 72-acre parcel, of which the substation would occupy approximately 15 acres. This site is bordered by the Estrella River to the north and Estrella Road to the south, and is generally surrounded by rural development. The Bonel Ranch site is located within the County of San Luis Obispo North County Planning Area, El Pomar-Estrella Sub Area, and is currently used to grow alfalfa. Adjacent land uses are also agricultural, including fallow land, livestock grazing, alfalfa, dry farming, and vineyards. Scattered residences are present in the area.

If the substation were constructed at the Bonel Ranch Substation Site, it would be connected to the existing Paso Robles Substation via a 70 kV power line following Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1 (see Section 3.3.3). Figure 3-2 shows Alternative SS-1: Bonel Ranch Substation Site.

Electrical components, equipment, and site infrastructure included in a substation located at this alternative site would be essentially the same as for the proposed Estrella Substation. Refer to Section 2.3 of Chapter 2, *Project Description,* for information on the facilities/components that would be included within the substation. The impervious surface area of the substation at the Bonel Ranch site would also be roughly the same as the proposed Estrella Substation, at approximately 2 acres. Figure 3-3 shows a detailed view of the substation layout under Alternative SS-1.

On-site stormwater infrastructure/features to be included as part of the facilities for Alternative SS-1 would be the same as the proposed Estrella Substation and would include a secondary containment basin in the 230 kV substation and a concrete skimmer and weir device within the 70 kV substation. The secondary containment basin would measure 42 feet long by 36 feet wide by 2.5 feet deep. The quantity of mineral oil to be used for transformers for Alternative SS-1 would be the same (approximately ~~15,290~~16,000-18,000 gallons) as the Proposed Project.



Proposed Project

- Estrella Substation
- Proposed Project 70kV Route
- 70 kV Minor Route Variation 1

Reasonably Forseeable Distribution Components

- New Distribution Line Segments
- Additional 21/12 kV Pad-Mounted Transformer

Existing Infrastructure

- Existing Substations

N

0 1
Miles

Horizon
WATER and ENVIRONMENT

Project Alternatives Carried Forward for Full Analysis

- Front-of-the-Meter (FTM) Battery Storage Sites (Alternative BS-2)
- Alternative SS-1: Bonel Ranch Substation Site
- Alternative SE-1A: Templeton Substation Expansion - 230/70 kV Substation
- Alternative PLR-1A: Estrella Route to Estrella Substation
- Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1
- Alternative PLR-1C: Minor Route Variation 1
- Alternative PLR-1C: Minor Route Variation 2
- Alternative PLR-3A: Strategic Undergrounding, Option 1
- Alternative PLR-3B: Strategic Undergrounding, Option 2
- Alternative SE-PLR-2: Templeton-Paso South River Road Route

Other Project Alternatives Considered

- Alternative PLR-1D: Estrella Route to Bonel Ranch, Option #2
- Alternative SS-2: Mill Road West Substation Site
- Alternative PLR-1B: Estrella Route to Mill Road West
- Alternative PLR-2: Creston Route (Variations not shown; not carried forward)
- Alternative SE-PLR-1:Templeton-Paso 70kV Route (Existing)
- Alternative SE-PLR-3: Templeton-Paso Creston Route

Figure 3-1
Alternatives Summary Map

Note: The route variations shown are offset in order to display the alignments of the alternative routes that may overlap in places.

* formerly McDonald Ranch

Source: NEET West and PG&E 2017

Estrella Substation and
Paso Robles Area Reinforcement Project

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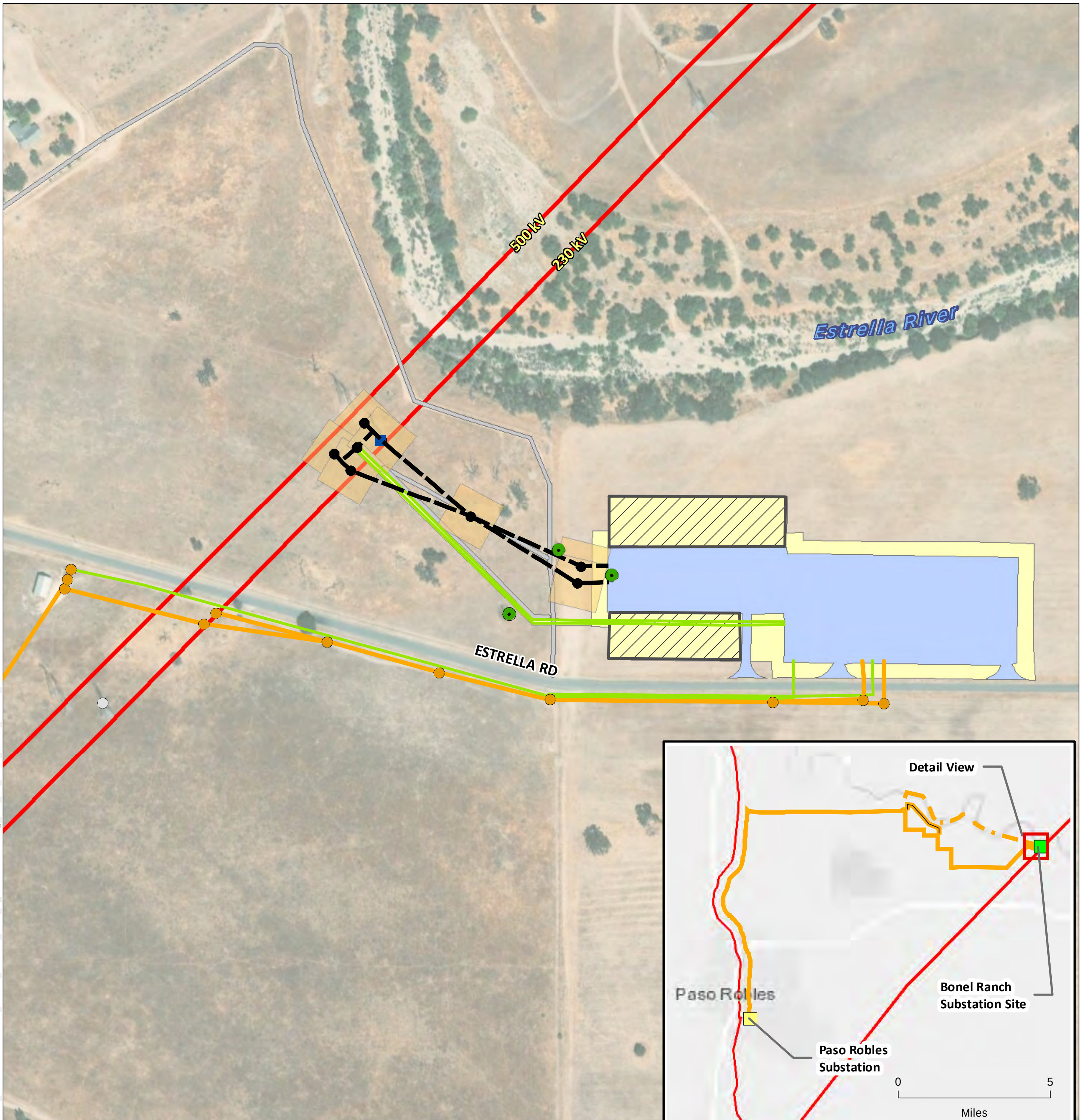

Figure 3-2
Alternative SS-1
Bonel (formerly McDonald) Ranch Substation Site

Source: NEET West and PG&E 2017; California Energy Commision 2019

Horizon WATER and ENVIRONMENT

Estrella Substation and Paso Robles Area Reinforcement Project

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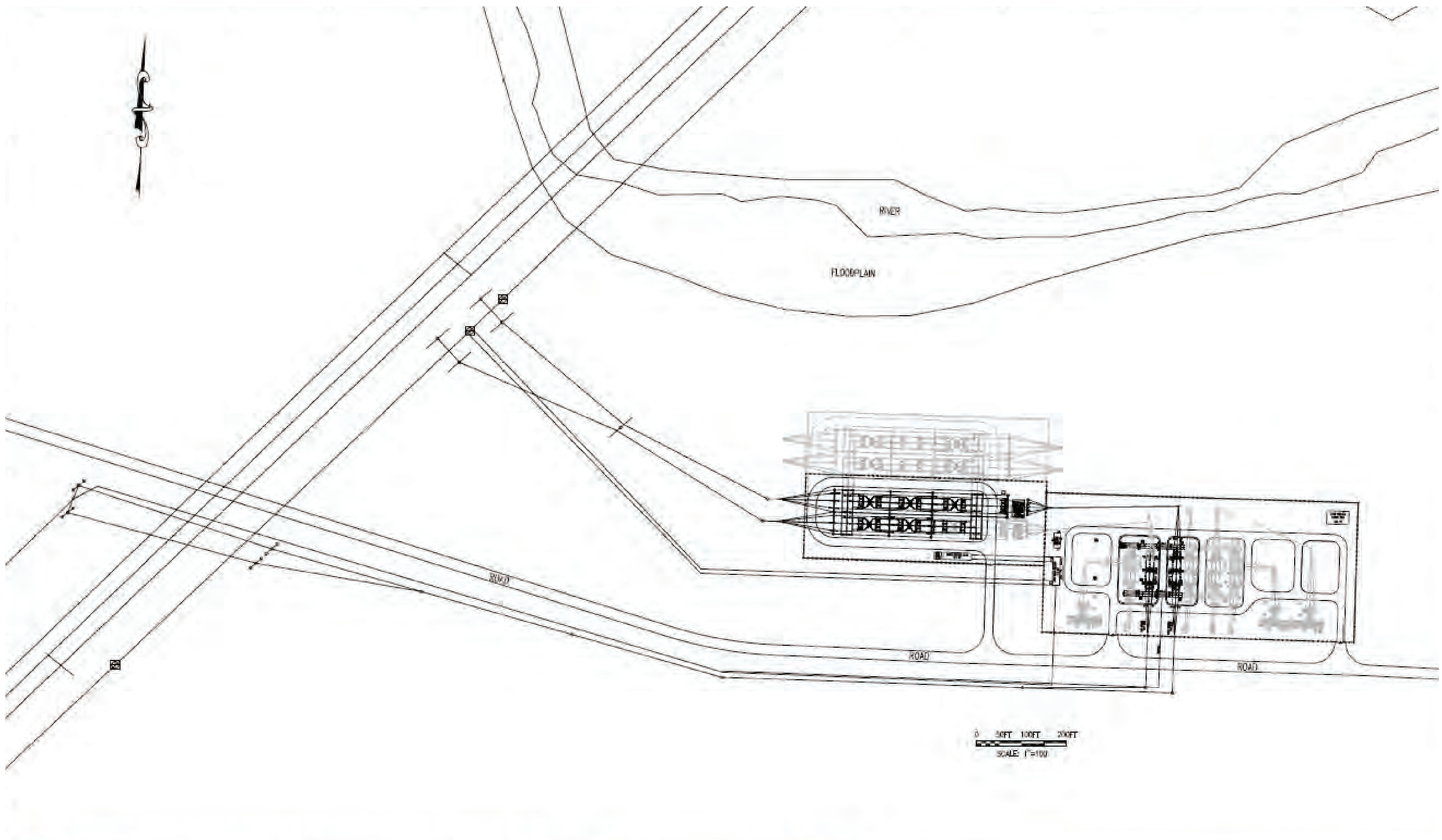

Source: PG&E and HWT 2019

**Figure 3-3. Alternative SS-1:
Bonel Ranch Substation Site – Detailed Layout View**

**Estrella Substation and Paso Robles Area
Reinforcement Project**

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Construction

In general, construction processes for Alternative SS-1 would be similar to those for the Estrella Substation component of the Proposed Project. Refer to Section 2.5 of Chapter 2, *Project Description,* for description of the construction processes/steps involved for the substation construction. The construction schedule for Alternative SS-1 would be slightly longer (by 1 month) compared to the proposed Estrella Substation due to a longer 230 kV interconnection. Table 3-1 shows the construction phasing and duration for Alternative SS-1.

Table 3-1. Alternative SS-1: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
Substation Site	Site Work Area Preparation Mobilization	Month 1-2	No
	Access Roads	Month 1	No
	Fence and Gate Installation	Month 2	No
230 kV Substation	Foundation Construction	Month 2-3	No
	Ground Grid / Conduit Installation	Month 3-4	No
	Steel / Bus Erection	Month 4	No
	Install Yard Rock	Month 4-5	No
	Transformer and Equipment Delivery and Installation	Month 4-5	No
	Control Enclosure Delivery and Install	Month 5	No
	Equipment Delivery and Install	Month 5-6	No
	Cable Installation and Termination	Month 5-6	No
	Testing and Commissioning	Month 6-7	No
	Cleanup and Restoration	Month 7	No
70 kV Substation	Foundation Construction	Month 2-3	No
	Ground Grid / Conduit Installation	Month 2-3	No
	Steel / Bus Erection	Month 3-4	No
	Control Enclosure Delivery and Install	Month 4	No
	Equipment Delivery and Installation	Month 4	No
	Cable Installation and Termination	Month 4-5	No

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
	Install Yard Rock	Month 5	No
	Cleanup and Restoration	Month 5	No
	Testing and Commissioning	Month 6	No
230 kV Transmission Interconnection	Foundation Tower Installation / Removal of One Tower	Month 2-4	Yes
	Conductor	Month 4-5	Yes
	Cleanup and Restoration	Month 6	Yes

Note that the extension to the Proposed Project Estrella Substation construction schedule made as part of the Recirculated DEIR[1] changes would also apply to Alternatives SS-1 and SE-1A; however, that extension is not reflected in the work dates provided in this table.

The types of equipment to be used in each phase of construction for Alternative SS-1 and hours per day that equipment would be used during construction would be the same as for the Proposed Project (refer to Table 2-10 in Chapter 2, *Project Description,* and Appendix J of the Applicants' PEA for information).

Because geotechnical studies have not been completed for the Bonel Ranch site, the volume of soil/material to be imported/exported during construction and the associated number and length of haul trips during construction cannot be determined. However, due to the site's close proximity to the Estrella River, it is possible that soft soils could be encountered during construction of the substation or 230 kV connection, which could necessitate greater excavation and off-haul of unsuitable soils and/or importation of engineered fills.

Construction staging areas for Alternative SS-1 would be located immediately adjacent to the proposed substation, as shown on Figure 3-2. During construction, parking areas for construction workers would be located at staging areas and/or temporary work areas. Construction of the substation and 230 kV interconnection would be unlikely to necessitate any temporary road or lane closures; however, any lane changes would be in accordance with traffic control plans filed with the encroachment permit application. The number of construction vehicle trips and the frequency of the trips for Alternative SS-1 is estimated to be the same as for the Proposed Project (refer to Table 4.17-3 in Section 4.17, "Transportation"); although, as noted above, the number and frequency of haul trips associated with soil import/export cannot be determined since geotechnical studies have not been completed. Helicopters would be used for construction of the facilities in Alternative SS-1. Helicopter flight paths would generally be between the airport and the helicopter landing zones.

[1] All documents related to the Recirculated DEIR are available here: https://ia.cpuc.ca.gov/environment/info/horizonh2o/estrella/RDEIR.html

The amount of water necessary to construct Alternative SS-1 is expected to be similar to the proposed Estrella Substation; however, geotechnical studies would be needed to determine the amount of water needed for soil compaction. As described in Chapter 2, *Project Description,* construction of the substation is estimated to require 8.3 million gallons of water, with the majority (75 percent) of the water used for dust control. Water sources are anticipated to be the same as for the Proposed Project. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas for Alternative SS-1.

Horizon West Transmission (HWT) anticipates that the 230 kV interconnection for Alternative SS-1 would require more overall vegetation removal (both temporary and permanent) compared to the proposed Estrella Substation due to the presence of riparian habitat that extends along the Estrella River. However, the precise amount of riparian habitat removal required is unknown because access to the property for conducting field surveys was denied by the landowner.

Operation and Maintenance

Operation and maintenance of Alternative SS-1 would be similar to that of the proposed Estrella Substation. Refer to Chapter 2, *Project Description,* for detailed description of anticipated operations and maintenance activities. Specifically, the amount and frequency of hazardous materials transport and disposal required during operation of Alternative SS-1 would be the same as the proposed Estrella Substation. The mineral oil stored in the transformer on the 230 kV substation would be filtered and replaced on site.

Vehicles accessing the substation during operation would use Estrella Road. The estimated number of vehicle trips and frequency of the trips necessary for operation and maintenance of the facilities under Alternative SS-1 would be the same as for the Proposed Project.

3.3.2 Alternative PLR-1A: Estrella Route to Estrella Substation

Description

Alternative PLR-1A is an alternative route for the 70 kV power line that would connect the proposed Estrella Substation to the Paso Robles Substation. This route would allow for the power line to pass north of the Paso Robles Municipal Airport in a low-density area (see Figure 3-4). Starting at the Estrella Substation, Alternative PLR-1A would follow the existing 230/500 kV transmission corridor northeast until veering north at roughly the intersection of the transmission corridor with State Route (SR) 46. The route would then zig zag in a northwest direction through agricultural lands until meeting Wellsona Road. At this point, the route would follow Wellsona Road due west until meeting the existing San Miguel-Paso Robles 70 kV Transmission Line. This existing line would then be reconductored south to the existing Paso Robles Substation.

Land uses surrounding the Estrella Route primarily consist of urban and rural residential developments and agricultural areas dominated by vineyards. Table 3-2 shows the length of the Alternative PLR-1A components.

Table 3-2. Alternative PLR-1A: Length of Power Line Components

Component	Length of Improvements / New Construction (miles)
New Double-Circuit 70 kV Power Line	10.5
Reconductoring of Existing 70 kV San Miguel-Paso Robles Power Line	6
Total	**16.5**

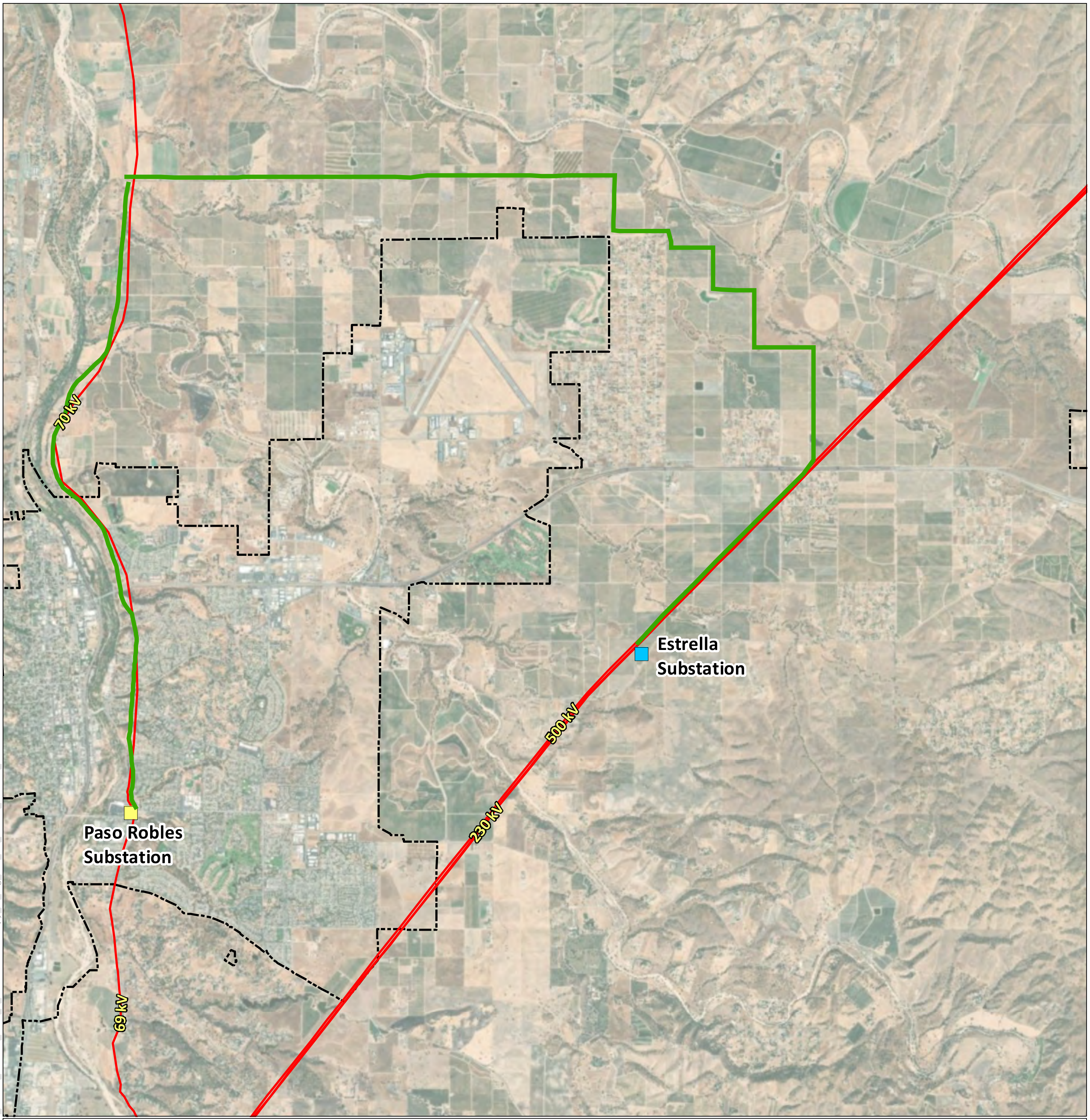

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Figure 3-4
Alternative PLR-1A: Estrella Route to Estrella Substation - Overview

Proposed Project

Estrella Substation

Alternative

Alternative PLR-1A: Estrella Route to Estrella Substation

Existing Infrastructure

Existing Substations

Transmission Line

Paso Robles City Limits

N

0 1
Miles

Note: The route variations shown are offset in order to display the alignments of the alternative routes.

Horizon WATER and ENVIRONMENT

Source: Source: NEET West and PG&E 2017

Estrella Substation and Paso Robles Area Reinforcement Project

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Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Feet

Horizon
WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)

- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas

- Pole Temporary Work Area
- Construction Staging Area
- Temporary Pull Sites
- Temporary Crossing Structure Work Area
- Access Routes
- Helicopter Landing Zones

Existing Infrastructure

- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

National Wetland Inventory

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

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 1 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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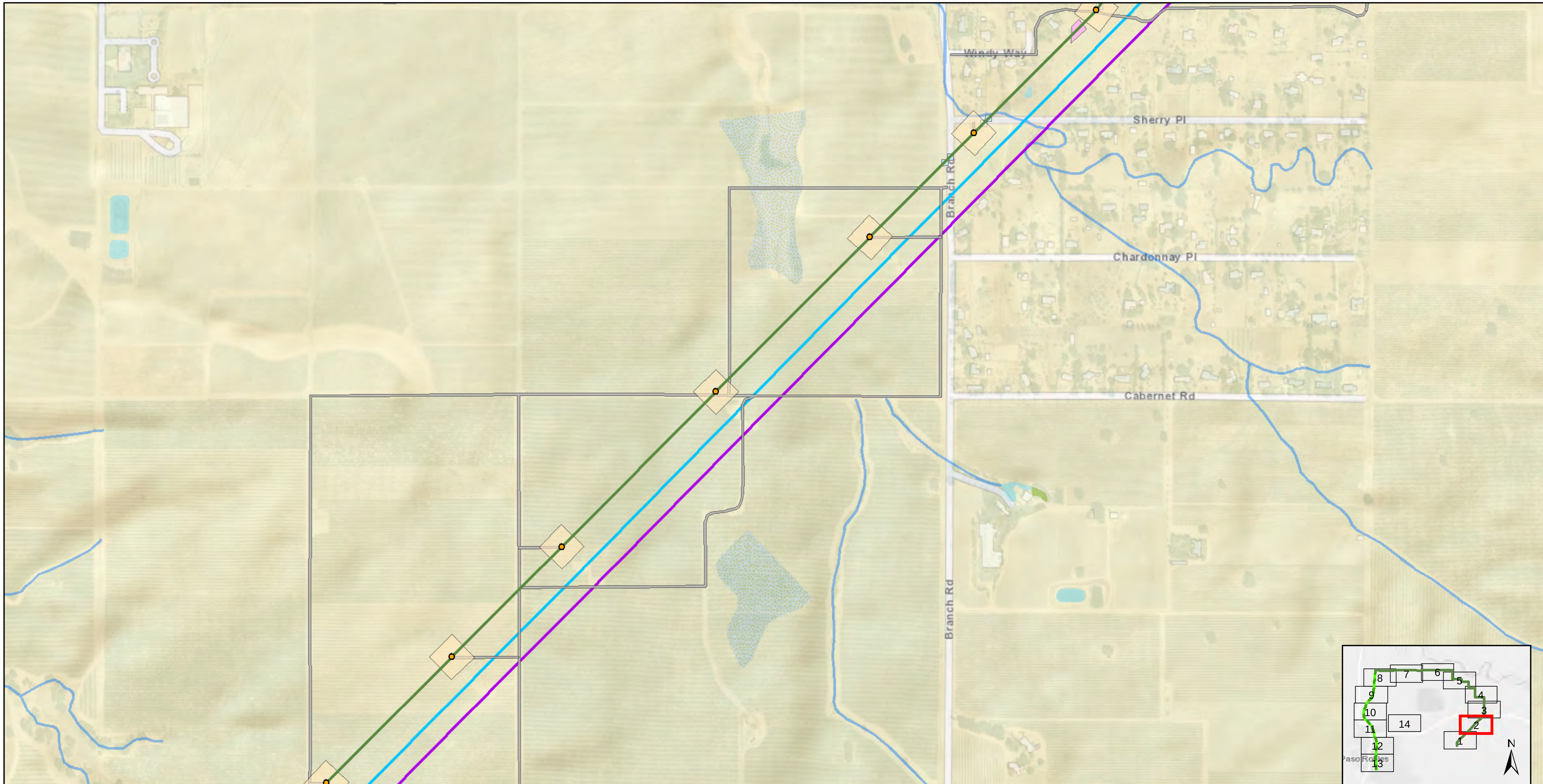

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Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)
- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas
- Pole Temporary Work Area
- Construction Staging Area
- Temporary Pull Sites
- Temporary Crossing Structure Work Area
- Access Routes
- Helicopter Landing Zones

Existing Infrastructure
- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

National Wetland Inventory
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 2 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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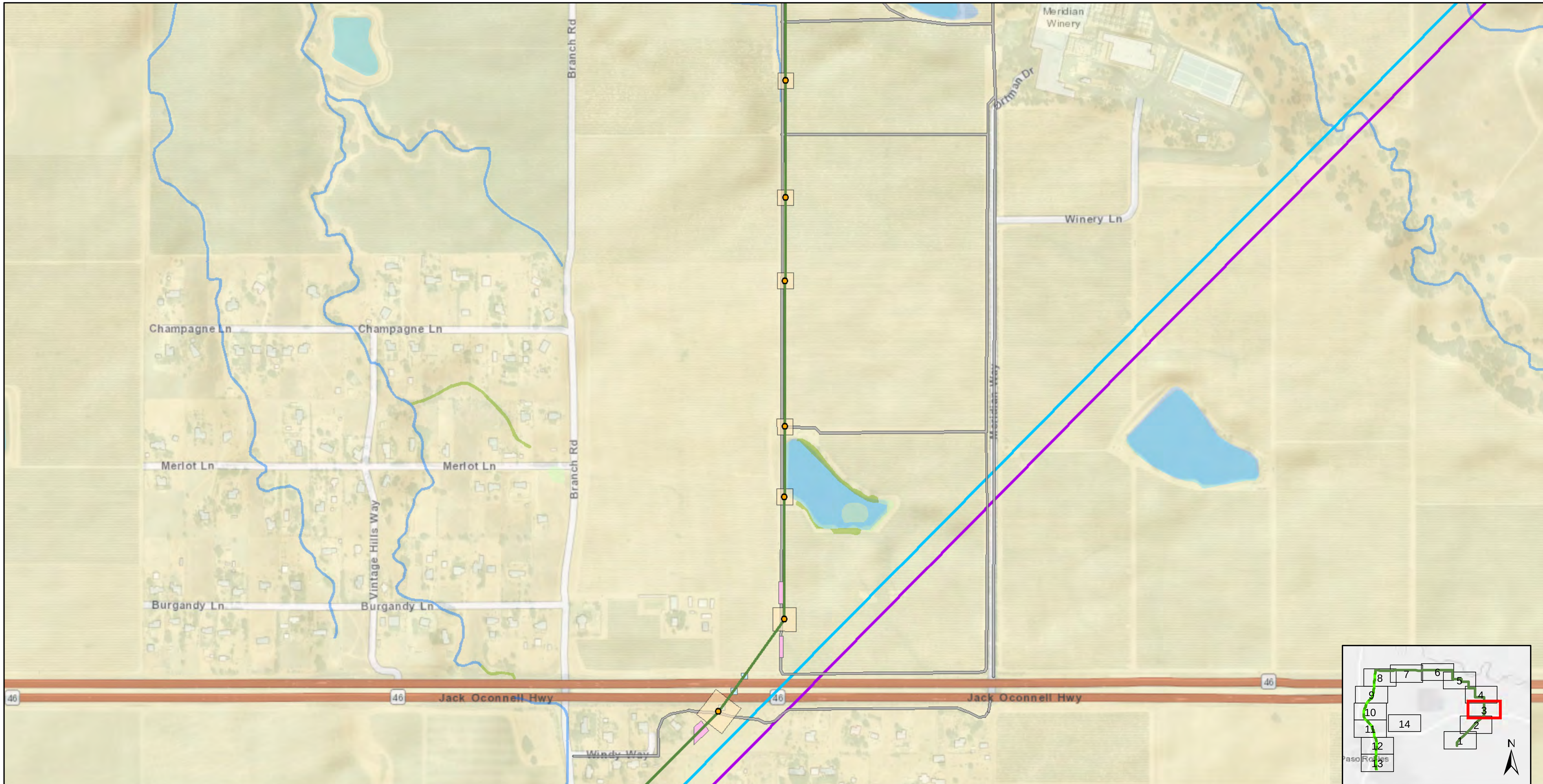

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Horizon WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)

- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas

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- Riverine

Figure 3-5

Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View

Sheet 3 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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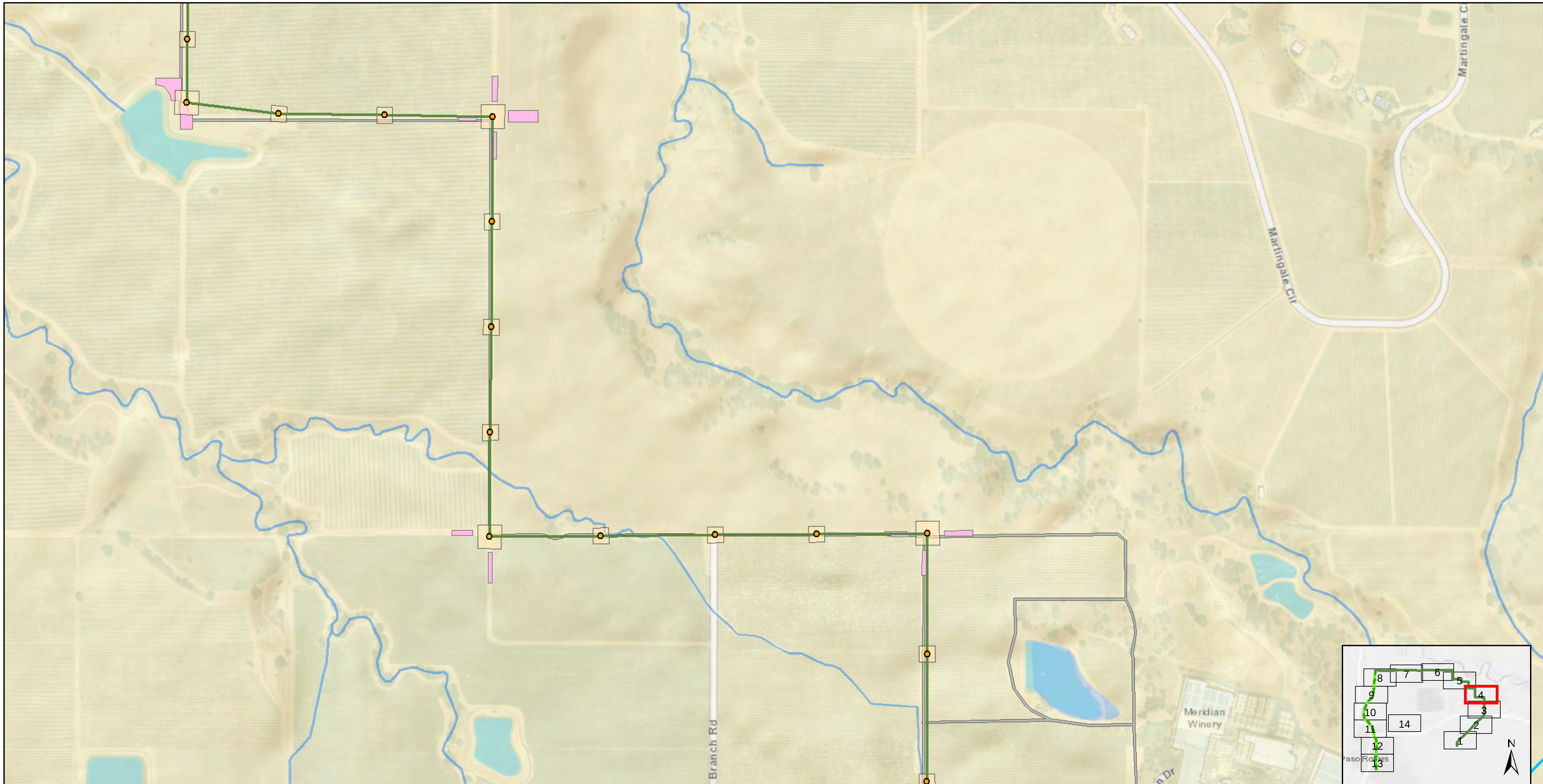

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Horizon WATER and ENVIRONMENT

Alternative Components

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- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)

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- Lake
- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 4 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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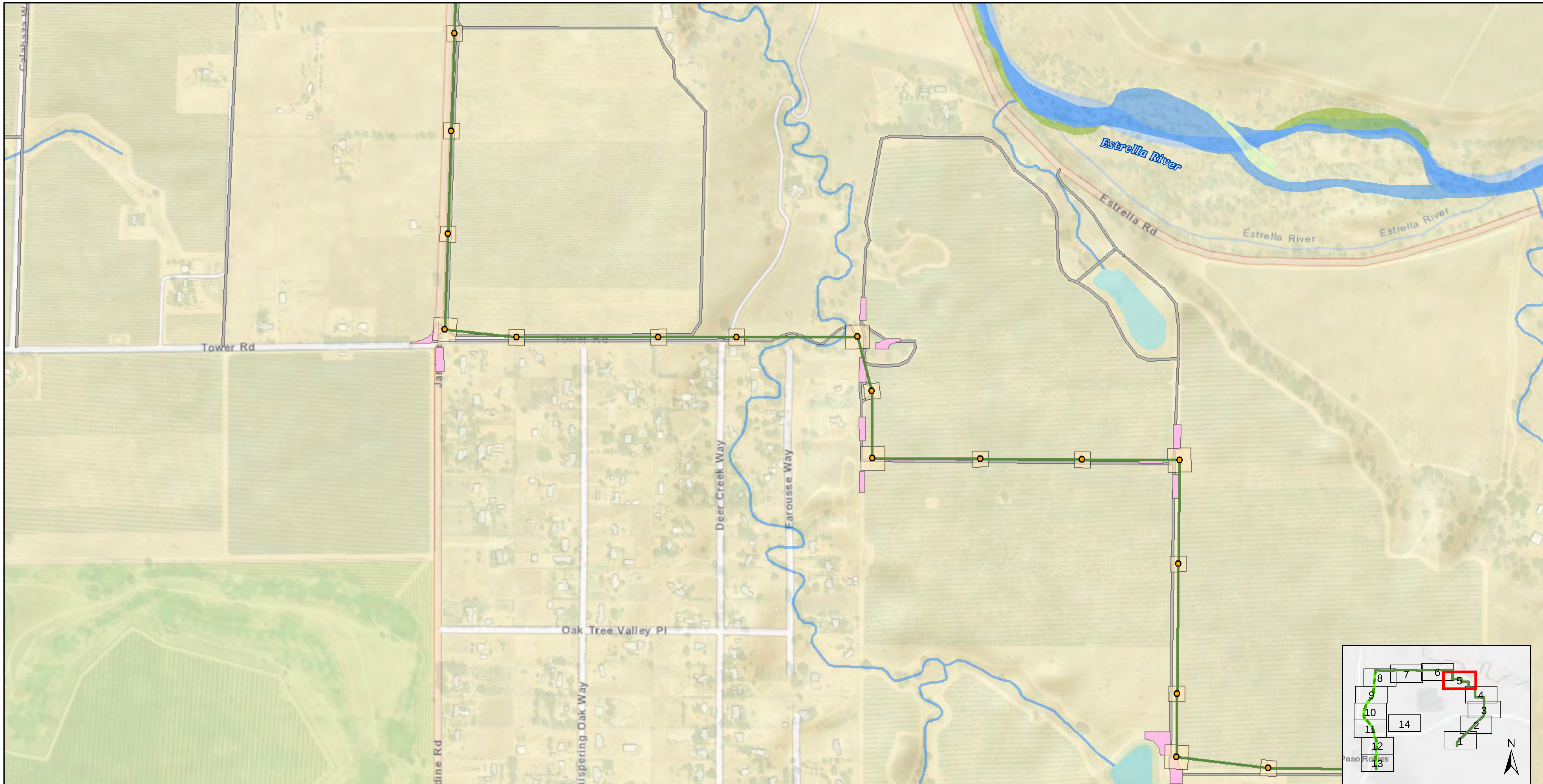

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Horizon WATER and ENVIRONMENT

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- New 70 kV Poles
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- Lake
- Riverine

Figure 3-5

Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View

Sheet 5 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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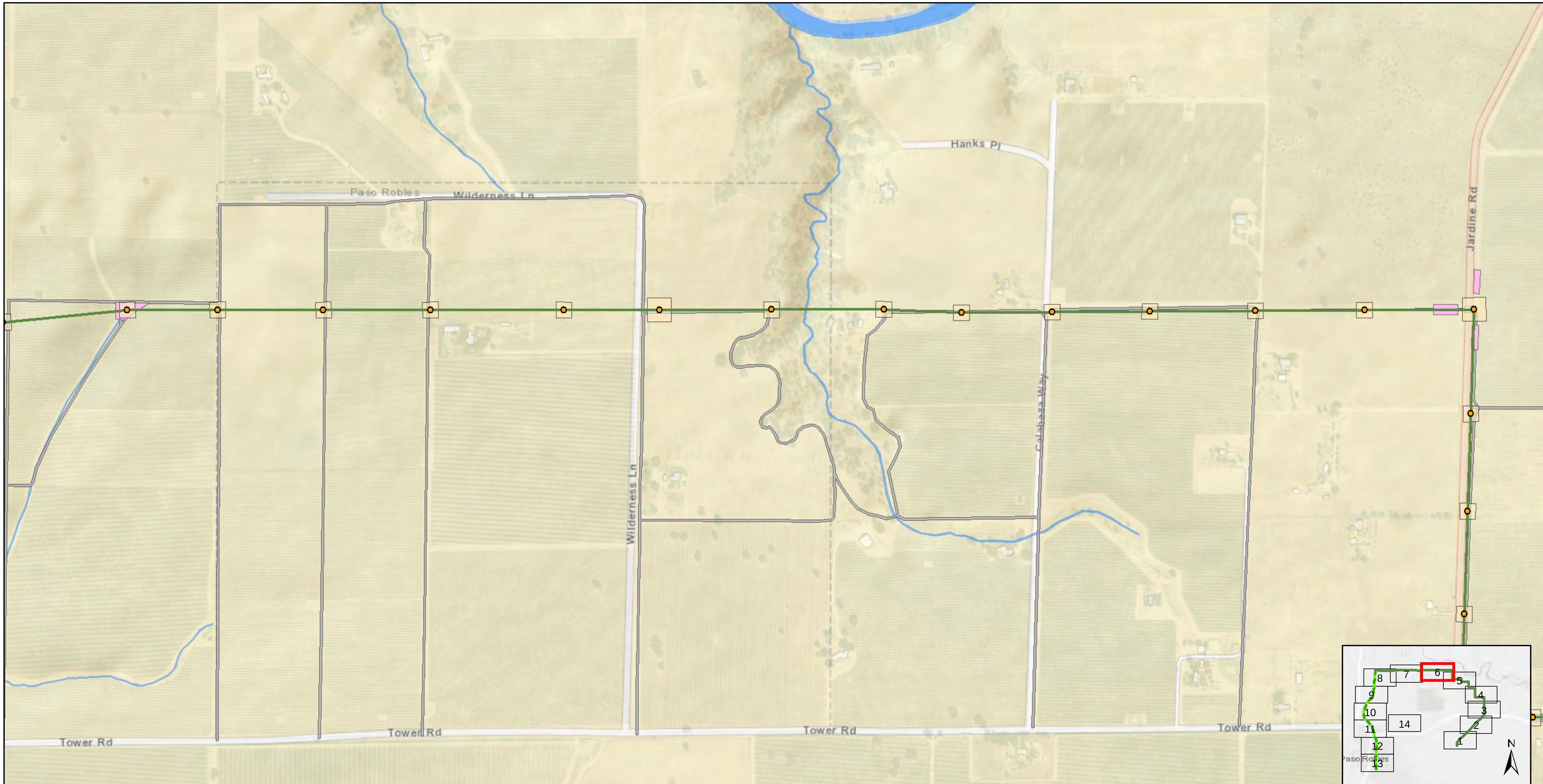

Basemap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Feet

Horizon WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)

- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas

- Pole Temporary Work Area
- Construction Staging Area
- Temporary Pull Sites
- Temporary Crossing Structure Work Area
- Access Routes
- Helicopter Landing Zones

Existing Infrastructure

- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

National Wetland Inventory

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

Figure 3-5

Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View

Sheet 6 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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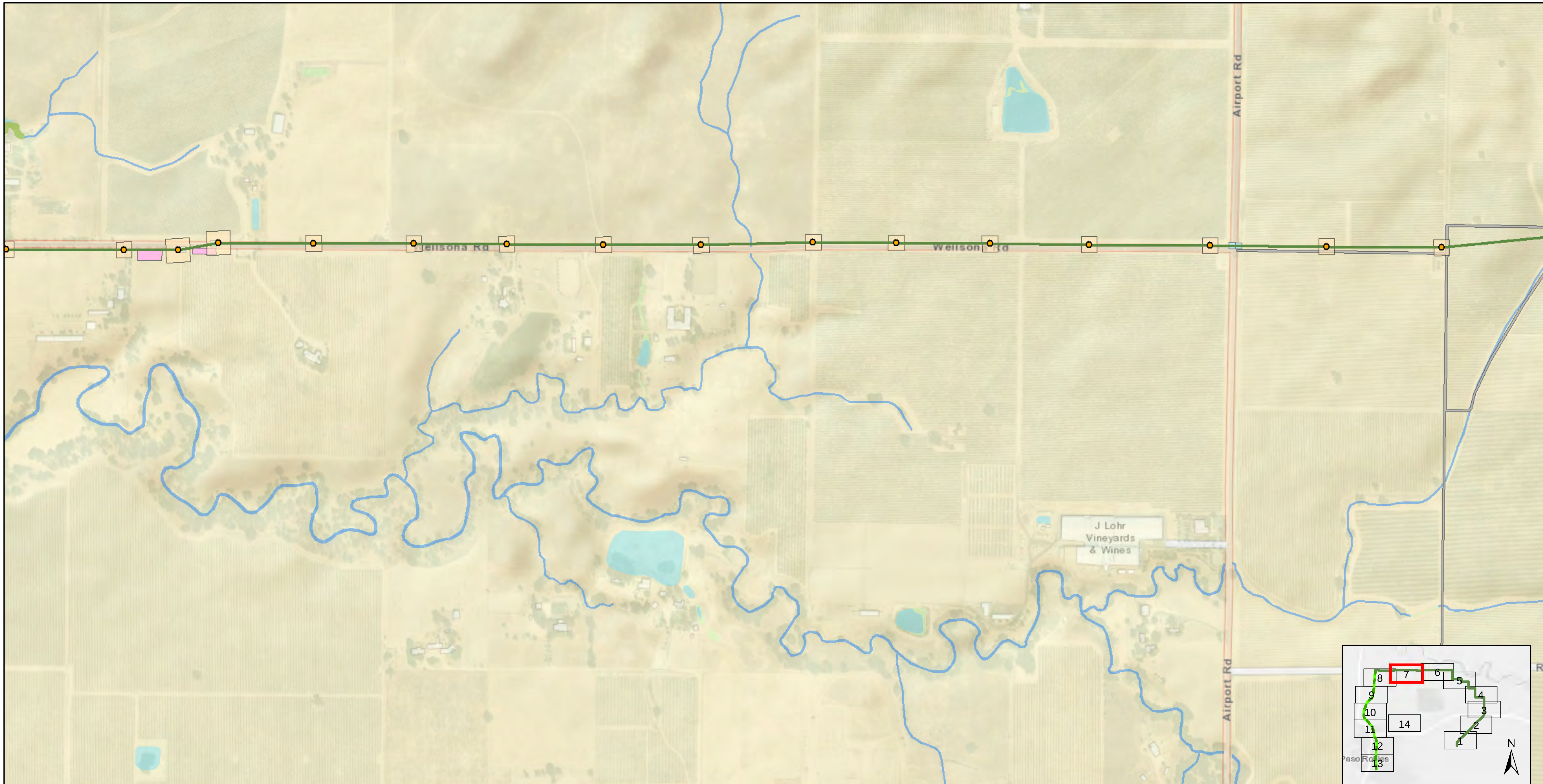

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)
- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas
- Pole Temporary Work Area
- Construction Staging Area
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Existing Infrastructure
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- 230 kV Transmission Line
- 70 kV Power Line

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Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 7 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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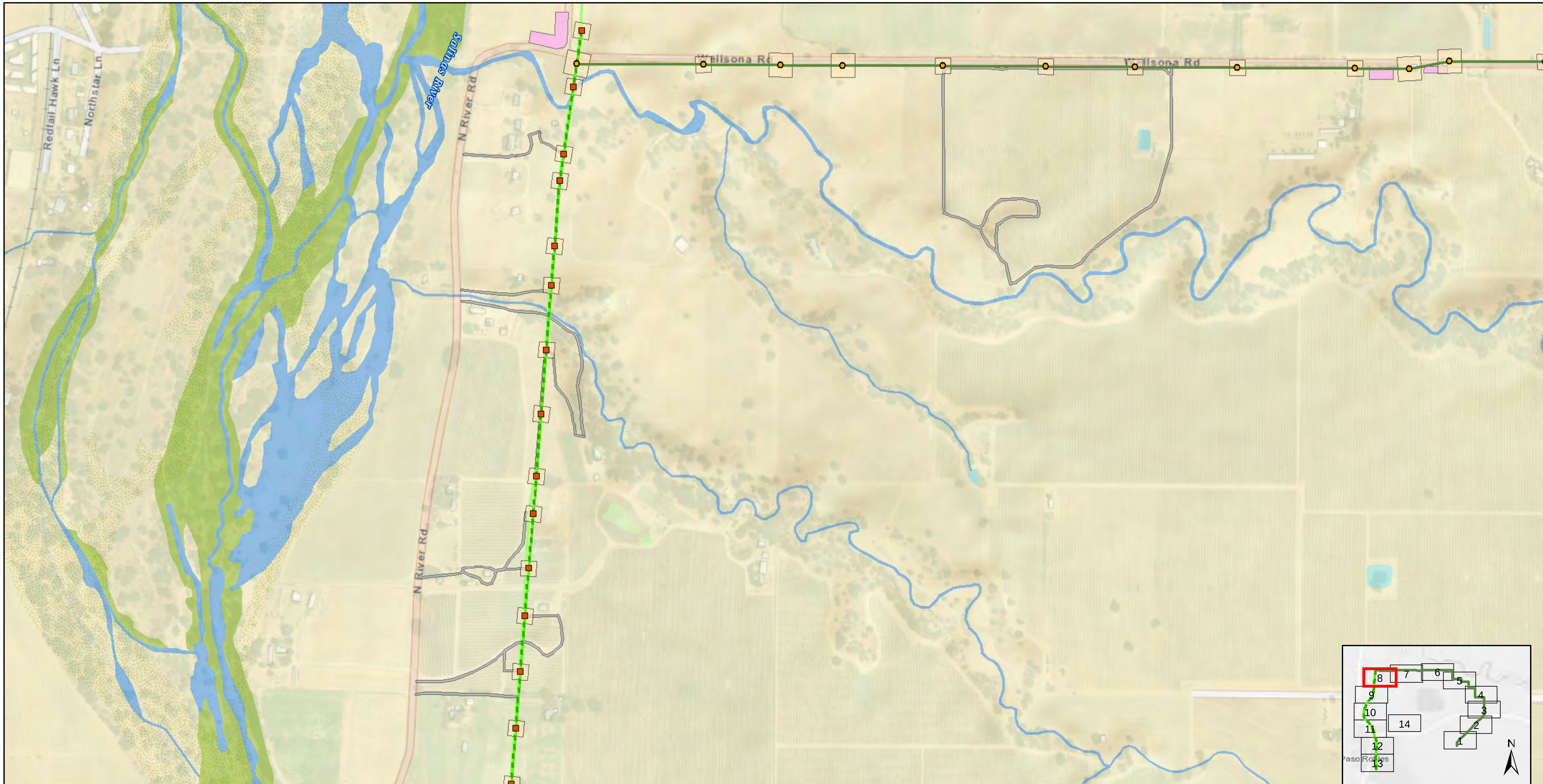

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)
- Substation Interconnection
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Existing Infrastructure
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- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

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- Freshwater Pond
- Lake
- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 8 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)
- Substation Interconnection
- Temporary Substation Staging Area
- Substation Permanent Disturbance Area
- New Distribution Line Segments

Contruction Temporary Disturbance Areas
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- Construction Staging Area
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Existing Infrastructure
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- 230 kV Transmission Line
- 70 kV Power Line

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- Lake
- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
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Estrella Substation and Paso Robles Area Reinforcement Project

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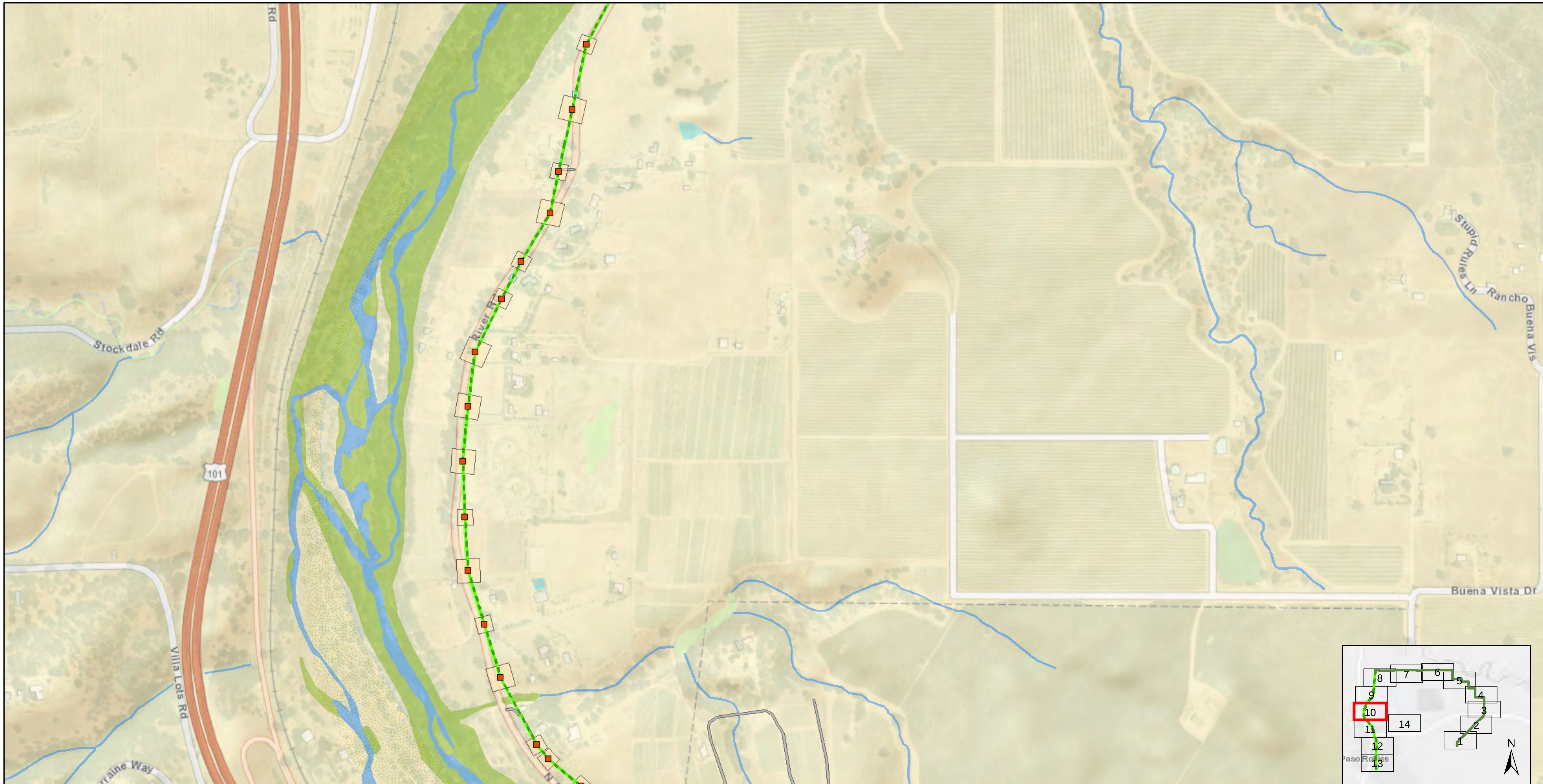

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Horizon WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)

- Substation Interconnection
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- Substation Permanent Disturbance Area
- New Distribution Line Segments

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- Lake
- Riverine

Figure 3-5

Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View

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Estrella Substation and Paso Robles Area Reinforcement Project

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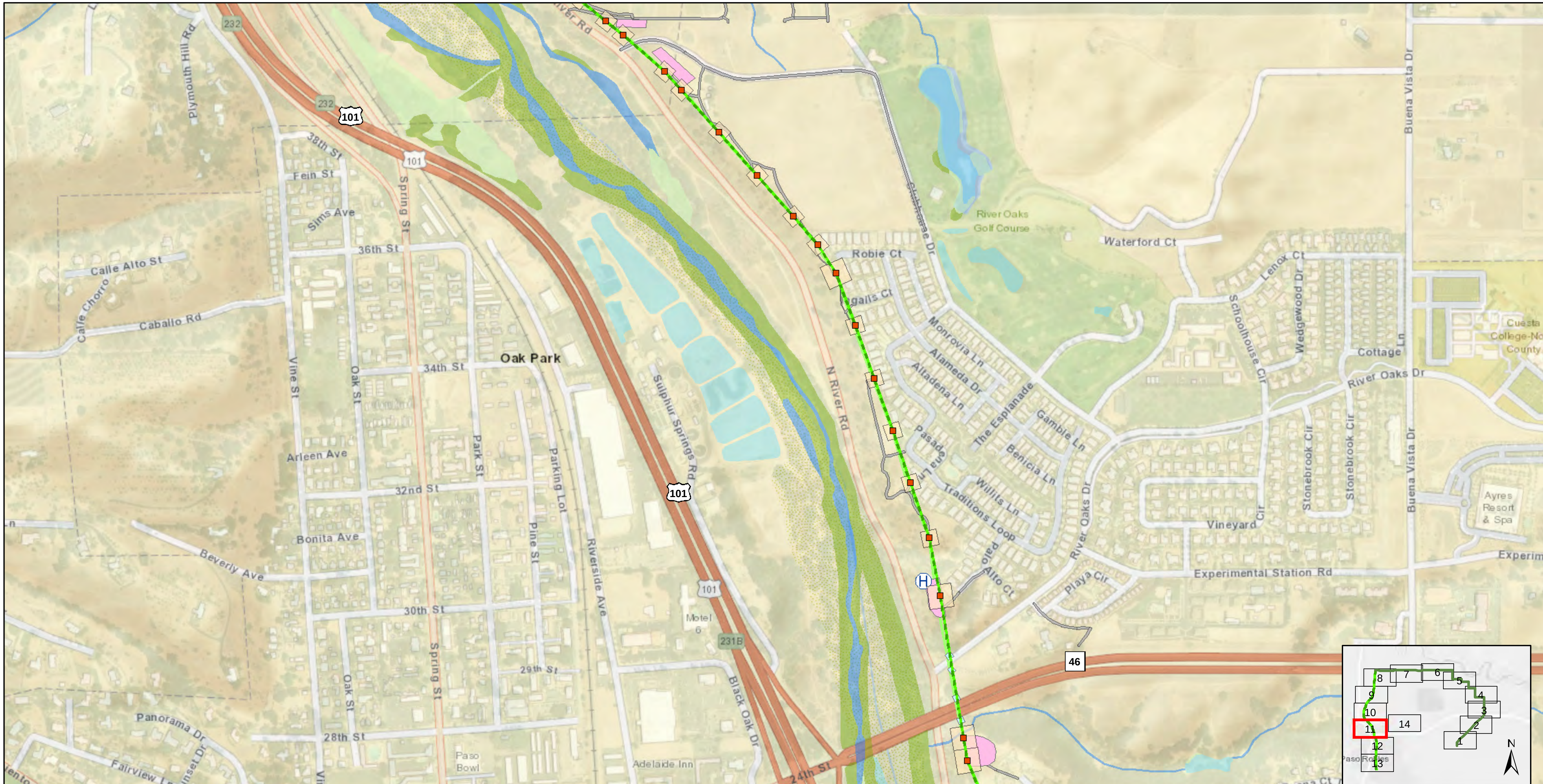

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- New 70 kV Poles
- Existing 70kV Pole to be Replaced

Substation Components (Proposed Project)
- Substation Interconnection
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- Lake
- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
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Estrella Substation and Paso Robles Area Reinforcement Project

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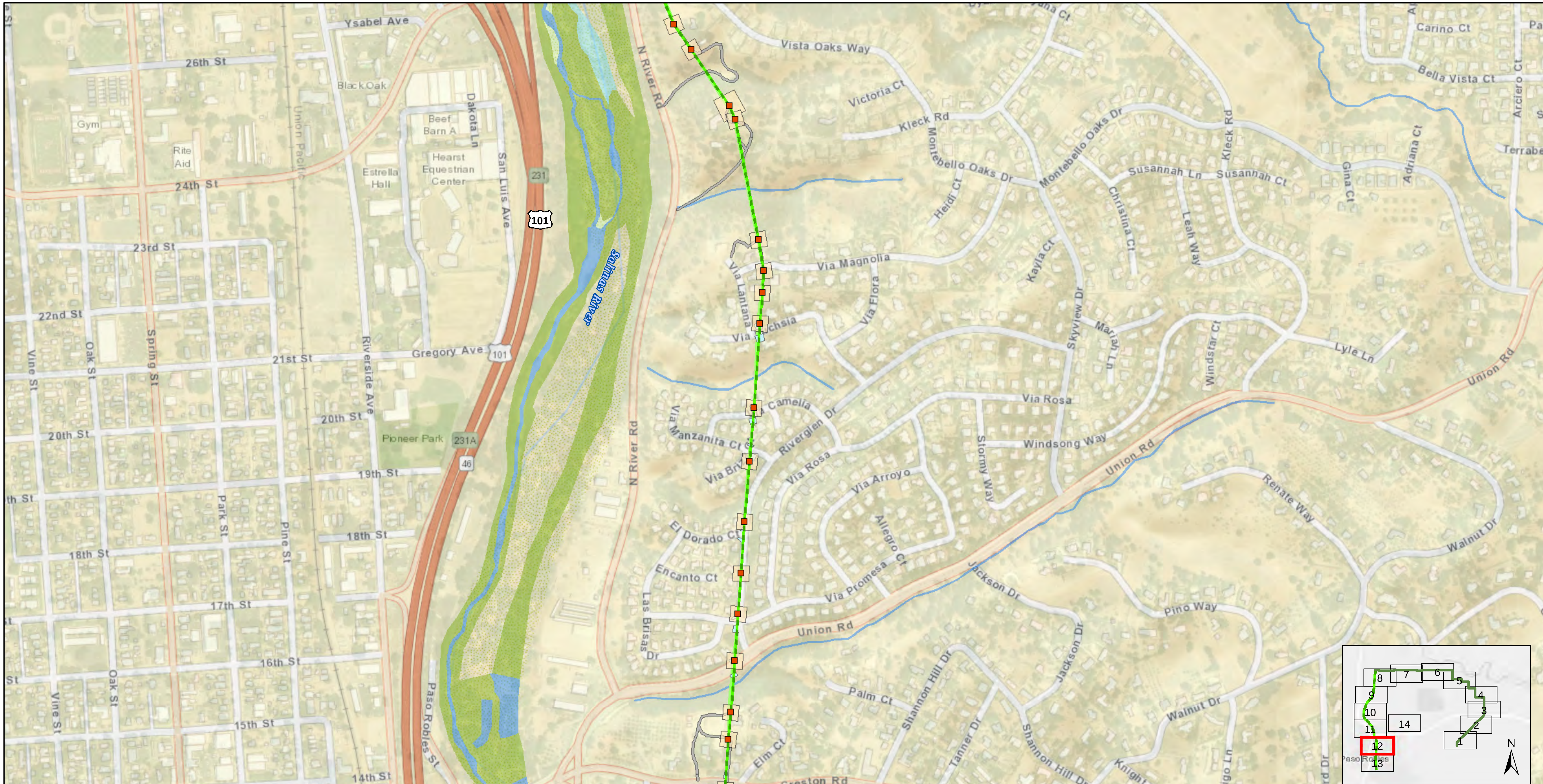

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Horizon WATER and ENVIRONMENT

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- Riverine

Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 12 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Alternative Components

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- Existing 70kV Pole to be Replaced

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Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 13 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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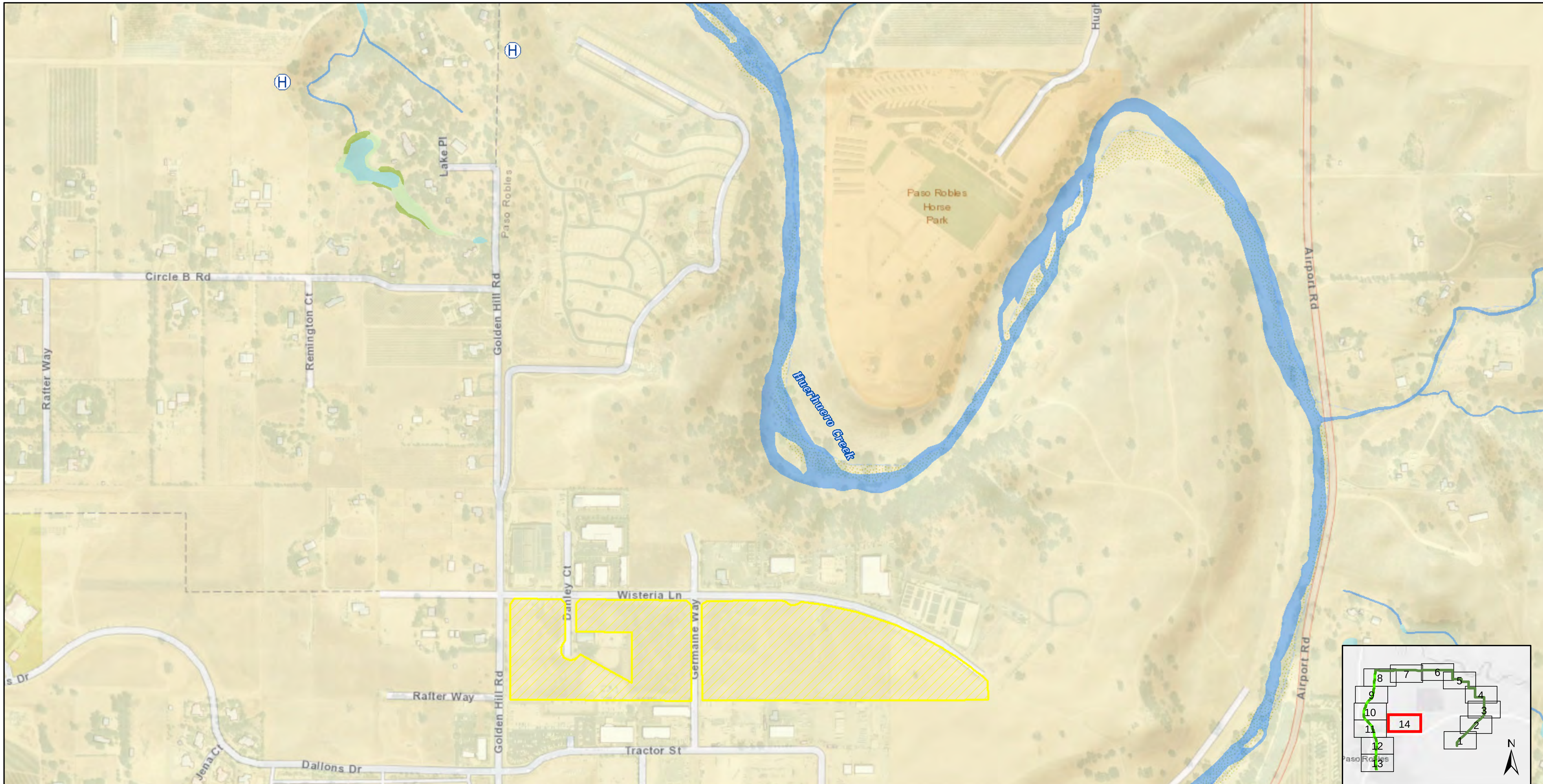

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Horizon WATER and ENVIRONMENT

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- New 70 kV Poles
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Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

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- Lake
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Figure 3-5
Alternative PLR-1A: Estrella Route to Estrella Substation – Detailed View
Sheet 14 of 14

Estrella Substation and Paso Robles Area Reinforcement Project

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Conductors on the new 70 kV power line and the reconductoring segment for Alterative PLR-1A would be supported by a combination of the same types of structures and conductor configuration as the Proposed Project route. Specifically, portions of the alignment along the existing 230/500 kV transmission corridor would use lattice steel towers (LSTs), with average span lengths of 1,100 feet. Each LST would be installed on four individual concrete pier foundations. The remainder of the new 70 kV power line would use either tubular steel poles (TSPs) or light-duty steel poles (LDSPs), with average span lengths of approximately 300 to 500 feet. Refer to Figure 2-17 in Chapter 2, *Project Description,* for diagrams of typical structures for the new 70 kV power line and reconductoring segments.

Construction

Construction methods for Alternative PLR-1A would generally be similar to the Proposed Project 70 kV route. Refer to Chapter 2, *Project Description,* for a detailed description of the steps and processes involved in constructing the new power line and reconductoring segment. Due to the longer length of Alternative PLR-1A compared to the Proposed Project 70 kV route, the construction schedule would be extended, as shown in Table 3-3.

Table 3-3. Alternative PLR-1A: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
Reconductoring Segment	Site Work Area Preparation Mobilization	Month 1	No
	Pole Installation / Transfer / Distribution / Removal	Month 2-13	Yes
	Conductor Installation	Month 3-14	Yes
	Cleanup and Restoration	Month 15	Yes
New 70 kV Power Line Segment	Site Work Area Preparation Mobilization	Month 15	Yes
	Pole Installation / Transfer / Distribution	Month 16-30	Yes
	Conductor Installation	Month 30-33	Yes
	Cleanup and Restoration	Month 34	Yes

In total, construction of the reconductoring and new 70 kV power line segments for Alternative PLR-1A would take 16 months longer than the Proposed Project’s 18-month schedule for construction of the proposed power line. The types of equipment to be used in each phase of construction for Alternative PLR-1A and hours per day that equipment would be used during construction would be the same as for the Proposed Project (refer to Table 2-9 in Chapter 2, *Project Description,* and Appendix J of the Applicants’ PEA for information).

Staging areas and other temporary disturbance areas (e.g., pole work areas, crossing structure work areas, pull sites, access roads, and helicopter landing zones) required for construction of Alternative PLR-1A are shown in Figure 3-5 and summarized in Table 3-4. Alternative PLR-1A would use the same main staging area in Golden Hill Industrial Park as the Proposed Project.

Table 3-4. Alternative PLR-1A: Temporary Disturbance Areas

Temporary Work Area	Anticipated Site Preparation	Total Approximate Area (Acres)
Staging Areas	Vegetation removal may be required, temporary fencing and gates would be installed, gravel would be installed, and temporary power would be supplied by a distribution tap or generator.	35.24
Pole Work Areas[1]	Vegetation removal and minor grading may be required.	58.68
Crossing Structure Work Areas	Vegetation removal may be required.	1.25
Pull and Tension Sites	Vegetation removal may be required.	10.78
Landing Zones	Sites would be leveled free of obstacles and debris.	1.37
Access Roads	Existing unpaved roads may be improved within the existing road. Improvements include minor grading/blading and the placement of dirt and/or gravel.	56.21

Notes:

1. Includes TSPs, LDSPs, and existing and new distribution poles.

Parking areas for construction workers would be located at the staging areas and/or temporary work areas. The estimated number of construction vehicle trips and frequency of the trips associated with construction of Alternative PLR-1A are shown in Table 3-5.

Table 3-5. Alternative PLR-1A: Estimated Daily Worker and Truck Trips During Construction

Construction Phase / Task	Daily Worker Round-Trips	Daily Truck Round-Trips	Number of Days	Greater / More than Proposed Project?	Maximum # of Daily Round-Trips
Reconductoring Segmentt					
Site Development	6	5	24	No	11
Pole Installation / Transfer / Distribution / Removal	9	7	172	Yes	16
Conductor Installation	9	5	152	Yes	14
Clean-up and Site Restoration	6	3	6	No	9
New 70 kV Power Line Segment					
Site Preparation / Mobilization	6	5	6	No	11
Pole / Tower Installation	9	6-8	348	Yes	17
Conductor Installation	9	5	84	Yes	14
Clean-up and Site Restoration	6	4	24	No	10

Approximately 92 vehicle trips would be necessary for vegetation trimming/removal during construction of Alternative PLR-1A. Construction of portions of Alternative PLR-1A that cross over County roadways (see locations of crossing structures on Figure 3-5) would require lane closures and/or road closures, which would be up to 5 to 10 minutes at a time, similar to the Proposed Project.

The amount of water that would be required to construct Alternative PLR-1A is expected to be approximately 2.8 million gallons. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas. Sources of water are anticipated to be the same as for the Proposed Project.

Operation and Maintenance

Operation and maintenance of Alternative PLR-1A would be similar to that of the Proposed Project 70 kV power line. Refer to Chapter 2, *Project Description,* for detailed description of anticipated operations and maintenance activities. Vehicles accessing the power line during operation and maintenance activities would use the following public roads:

- Wellsona Road
- Dry Creek Road

- Jardine Road
- Tower Road
- Calabaza Way
- Wilderness Lane
- Airport Road
- Estrella Road
- Branch Road
- Union Road
- Mill Road
- Sherry Place

The estimated number of vehicle trips and frequency of the trips necessary for operation and maintenance of Alternative PLR-1A would generally be the same as for the Proposed Project. It is anticipated that one vehicle trip per year would be needed for vegetation management activities for Alternative PLR-1A.

3.3.3 Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1

Description

Alternative PLR-1C is the 70 kV power line route that would be used to connect a substation at the Bonel Ranch Substation Site (Alternative SS-1) to the Paso Robles Substation. This route would be largely similar to Alternative PLR-1A, but would have a different starting point at the Bonel Ranch site rather than the proposed Estrella Substation. Starting at the Bonel Ranch Substation Site, the Alternative PLR-1C route would follow Estrella Road west before meeting the existing 230/500 kV transmission corridor. The route would then turn and follow the existing 230/500 kV transmission corridor southwest for approximately 0.75-mile before veering west, crossing a riparian/drainage area, and then joining the Alternative PLR-1A route that zig zags northwest through agricultural lands until meeting Wellsona Road. The remainder of the route is identical to Alternative PLR-1A.

Two minor route variations are considered for Alternative PLR-1C:

- ***Alternative PLR-1C, Minor Route Variation 1.*** Starting at the Bonel Ranch Substation Site, this minor route variation would route the 70 kV line along Estrella Road west until turning south down Jardine Road and then joining the Alternative PLR-1C route that cuts west toward Wellsona Road.

- ***Alternative PLR-1C, Minor Route Variation 2.*** This minor route variation would start at the zig zag northwest to Wellsona Road and would instead go to the north and follow a portion of the existing distribution line just south of Estrella Road before turning south down Jardine Road and then re-joining the Alternative PLR-1C route.

Land uses surrounding the Alternative PLR-1C route primarily consist of urban and rural residential developments and agricultural areas dominated by vineyards. Table 3-6 shows the length of the Alternative PLR-1C components.

Table 3-6. Alternative PLR-1C: Length of Power Line Components

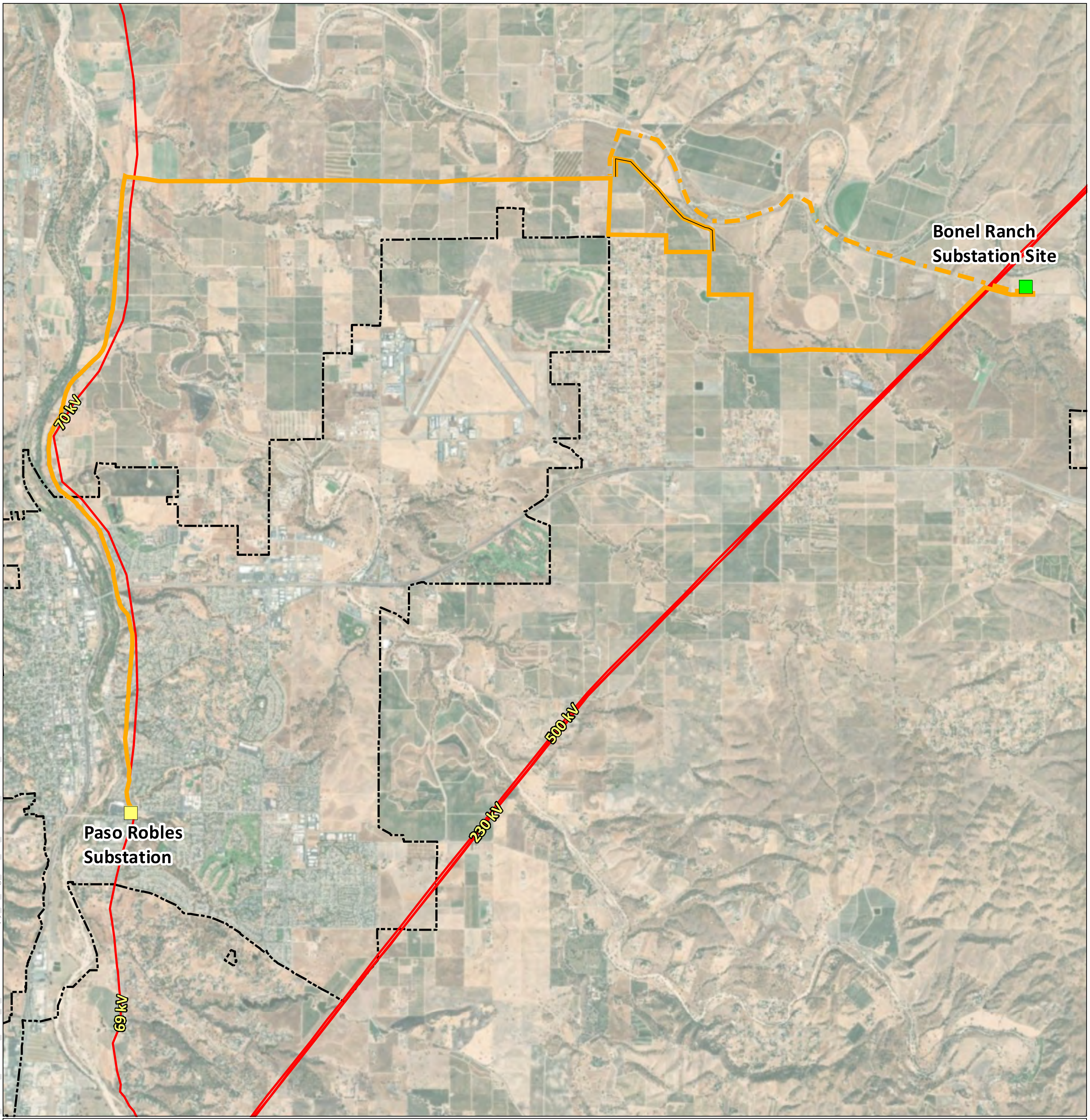
Component	Length of Improvements / New Construction (miles)		
	PLR-1C	PLR-1C w/ MRV #1	PLR-1C w/ MRV #2
New Double-Circuit 70 kV Power Line	10	9	9.5
Reconductoring of Existing 70 kV San Miguel-Paso Robles Power Line	6	6	6
Total	**16**	**15**	**15.5**

Notes: kV = kilovolt

Conductors on the new 70 kV power line and the reconductoring segment for Alternative PLR-1C would be supported by a combination of the same types of structures and conductor configuration as the Proposed Project route and Alternative PLR-1A. Specifically, portions of the alignment along the existing 230/500 kV transmission corridor would use LSTs, with average span lengths of 1,100 feet. Each LST would be installed on four individual concrete pier foundations. The remainder of the new 70 kV power line would use either TSPs or LDSPs, with average span lengths of approximately 300 to 500 feet. Refer to Figure 2-17 in Chapter 2, *Project Description,* for diagrams of typical structures for the new 70 kV power line and reconductoring segments.

Alternative PLR-1C Minor Route Variation 1 would be constructed on the southerly side of Estrella Road (away from Estrella River), and due to the narrow width of Estrella Road in this section, the double-circuit power line would be placed on private property adjacent to the roadway (about 2 to 4 feet on private property). Alternative PLR-1C Minor Route Variation 1 may also require use of a greater number of TSPs, due to the large number of angles along this route. Installing a TSP is a more labor- and time-intensive process than installing an LDSP, as foundations need to be drilled, framed, and poured, with a 30-day cure time, before TSPs can be set. Being close to the Estrella River, the soil may be especially sandy, which could make constructing concrete foundations for these TSPs extremely difficult.

Going from south to north, the first part of Alternative PLR-1C Minor Route Variation 2 (from where it leaves the main Alternative PLR-1C route) would continue along an existing dirt farm road until it intersects with the existing distribution line that runs diagonally from southeast to northwest (refer to Figure 3-6). Following the existing distribution line from that point, power line structures would need to be placed in the middle of several existing vineyards. At each structure location, a row of grapes would need to be removed for access. Vineyard properties along this section also may be severed with a new typically 70-foot-wide transmission easement, which would limit the available use of those properties and diminish their value and usefulness in the future. Once Alternative PLR-1C Minor Route Variation 2 intersects with Jardine Road, power line structures would be placed in an existing dirt farm road heading south on the easterly side of Jardine Road until it rejoins the main Alternative PLR-1C route.



Basebap Sources: Source: Esri, DigitalGlobe, GeoEye,

Alternative

- Alternative SS-1: Bonel Ranch Substation Site
- Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1
- Alternative PLR-1C: Minor Route Variation 1
- Alternative PLR-1C: Minor Route Variation 2

Existing Infrastructure

- Existing Substations
- Transmission Line
- Paso Robles City Limits

N

0 1
Miles

Figure 3-6
Alternative PLR-1C: Estrella Route to Bonel Ranch, Option 1

Note: The route variations shown are offset in order to display the alignments of the alternative routes.

Horizon WATER and ENVIRONMENT

Source: Source: NEET West and PG&E 2017

Estrella Substation and Paso Robles Area Reinforcement Project

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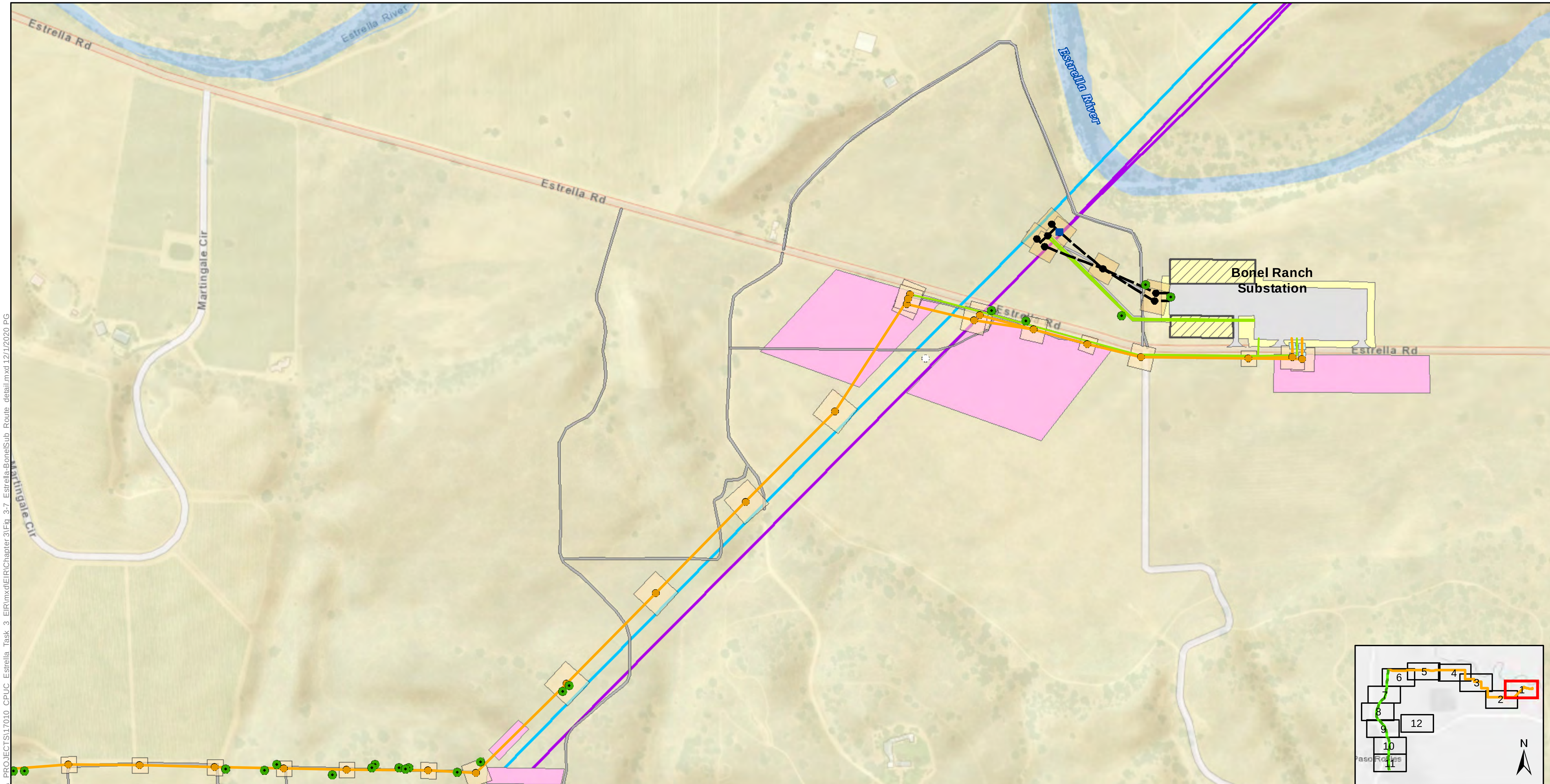

Source: NEET West, PG&E 2017, NWI 2020.

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Alternative Components
- New 70kV Power Line Alignment
- Reconductoring Segment
- 70kV Poles
- Existing 70kV Pole to be Replaced
- Oak Tree Trimming/Removal

Substation Components (Bonel Ranch)
- Existing 230 kV Pole to be Removed
- New 230kV Structures
- 230kV Interconnection
- Telecommunications Line
- Substation Permanent Disturbance Area

Contruction Temporary Disturbance Areas
- Construction Staging
- Temporary Crossing Structure Work Area
- Pole Temporary Work
- Access Routes
- Temporary Pull Sites
- Substation Temporary Disturbance Area

Existing Infrastructure
- 230 kV Tower
- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

National Wetland Inventory

N

0 125 250 500
Feet

Horizon WATER and ENVIRONMENT

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 1 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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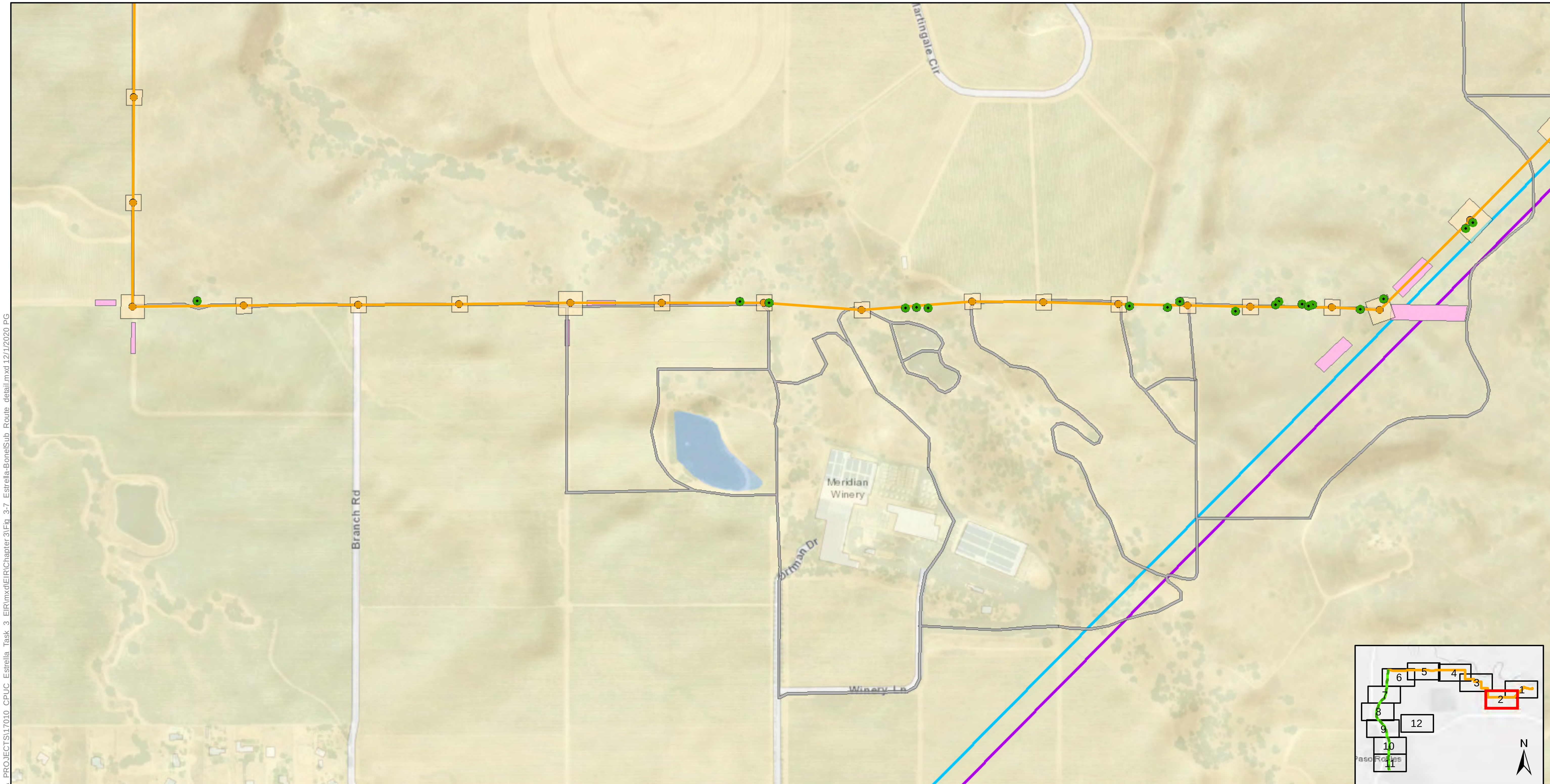

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Source: NEET West, PG&E 2017, NWI 2020.

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Horizon WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- Reconductoring Segment
- 70kV Poles
- Existing 70kV Pole to be Replaced
- Oak Tree Trimming/Removal

Substation Components (Bonel Ranch)

- Existing 230 kV Pole to be Removed
- New 230kV Structures
- 230kV Interconnection
- Telecommunications Line
- Substation Permanent Disturbance Area

Contruction Temporary Disturbance Areas

- Temporary Crossing Structure Work Area
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- Temporary Pull Sites
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Existing Infrastructure

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- 70 kV Power Line

National Wetland Inventory

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 2 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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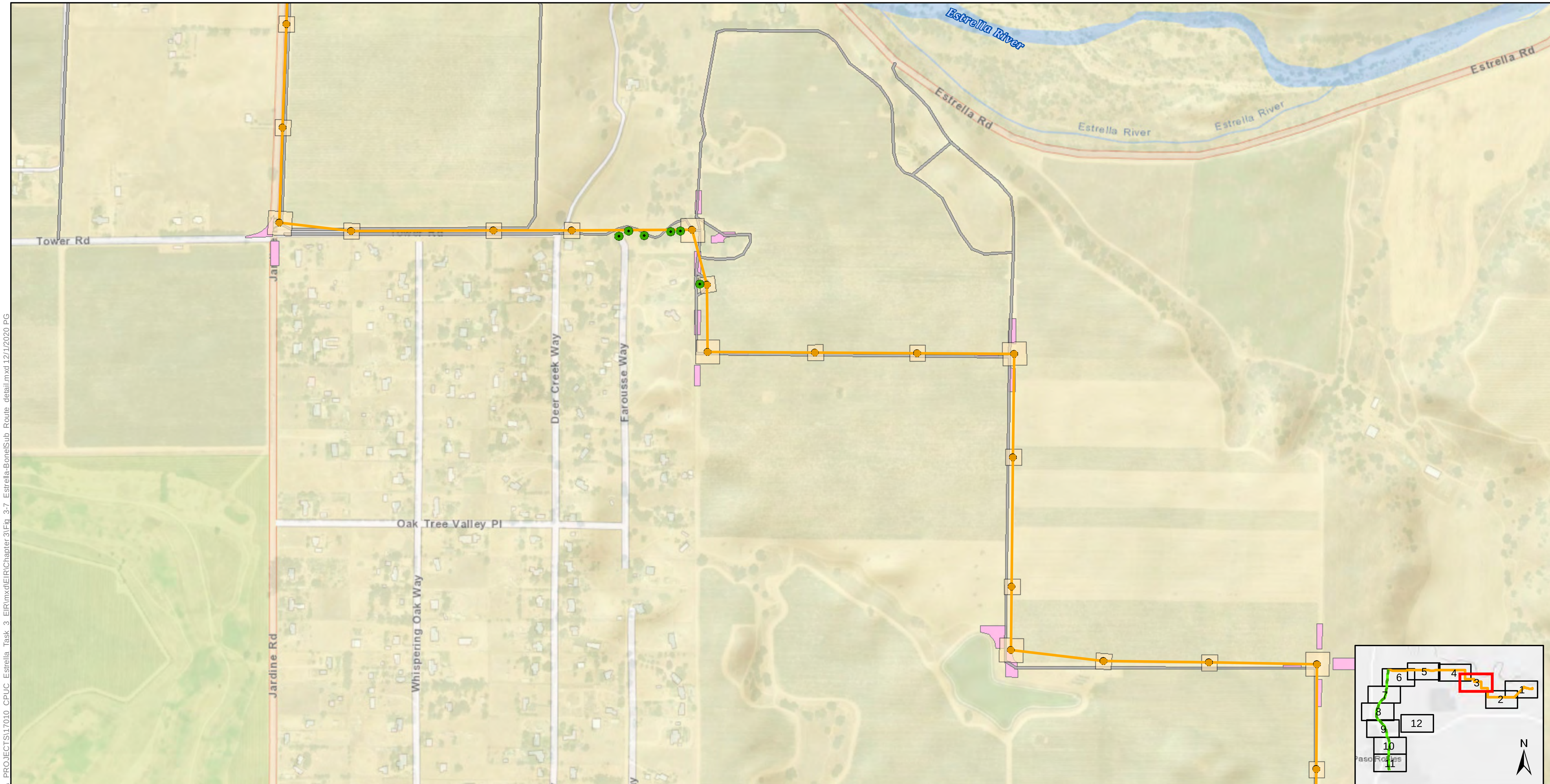

Source: NEET West, PG&E 2017, NWI 2020.

Alternative Components

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Existing Infrastructure

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- 70 kV Power Line

National Wetland Inventory

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Horizon WATER and ENVIRONMENT

Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 3 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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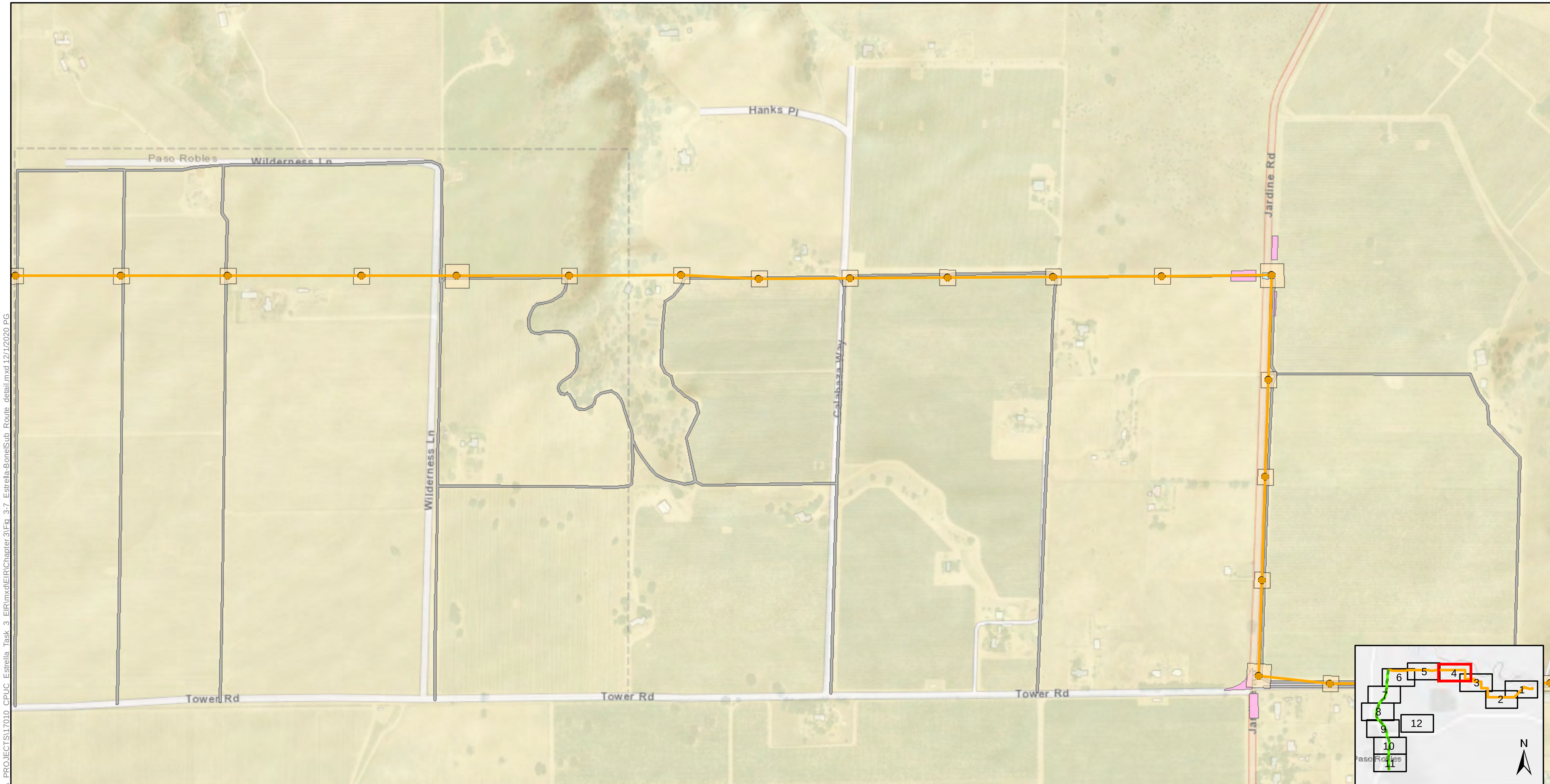

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Source: NEET West, PG&E 2017, NWI 2020.

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Horizon WATER and ENVIRONMENT

Alternative Components

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Existing Infrastructure

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- 70 kV Power Line

National Wetland Inventory

- Riverine

Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 4 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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Source: NEET West, PG&E 2017, NWI 2020.

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Horizon WATER and ENVIRONMENT

Alternative Components
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- Reconductoring Segment
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Existing Infrastructure
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- 500 kV Transmission Line
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- 70 kV Power Line

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 5 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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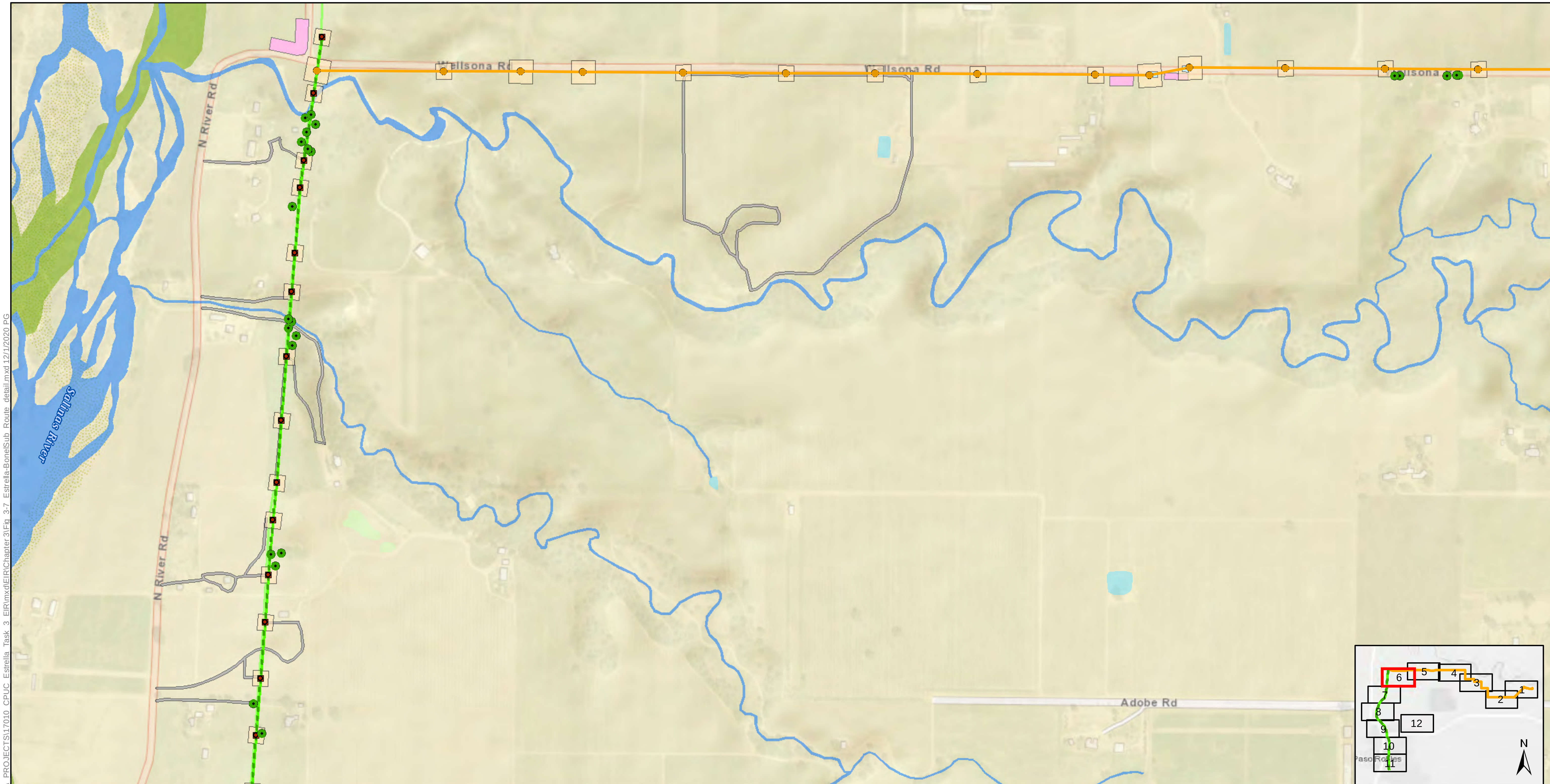

Source: NEET West, PG&E 2017, NWI 2020.

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Horizon WATER and ENVIRONMENT

Alternative Components

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Existing Infrastructure

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- 70 kV Power Line

National Wetland Inventory

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

Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 6 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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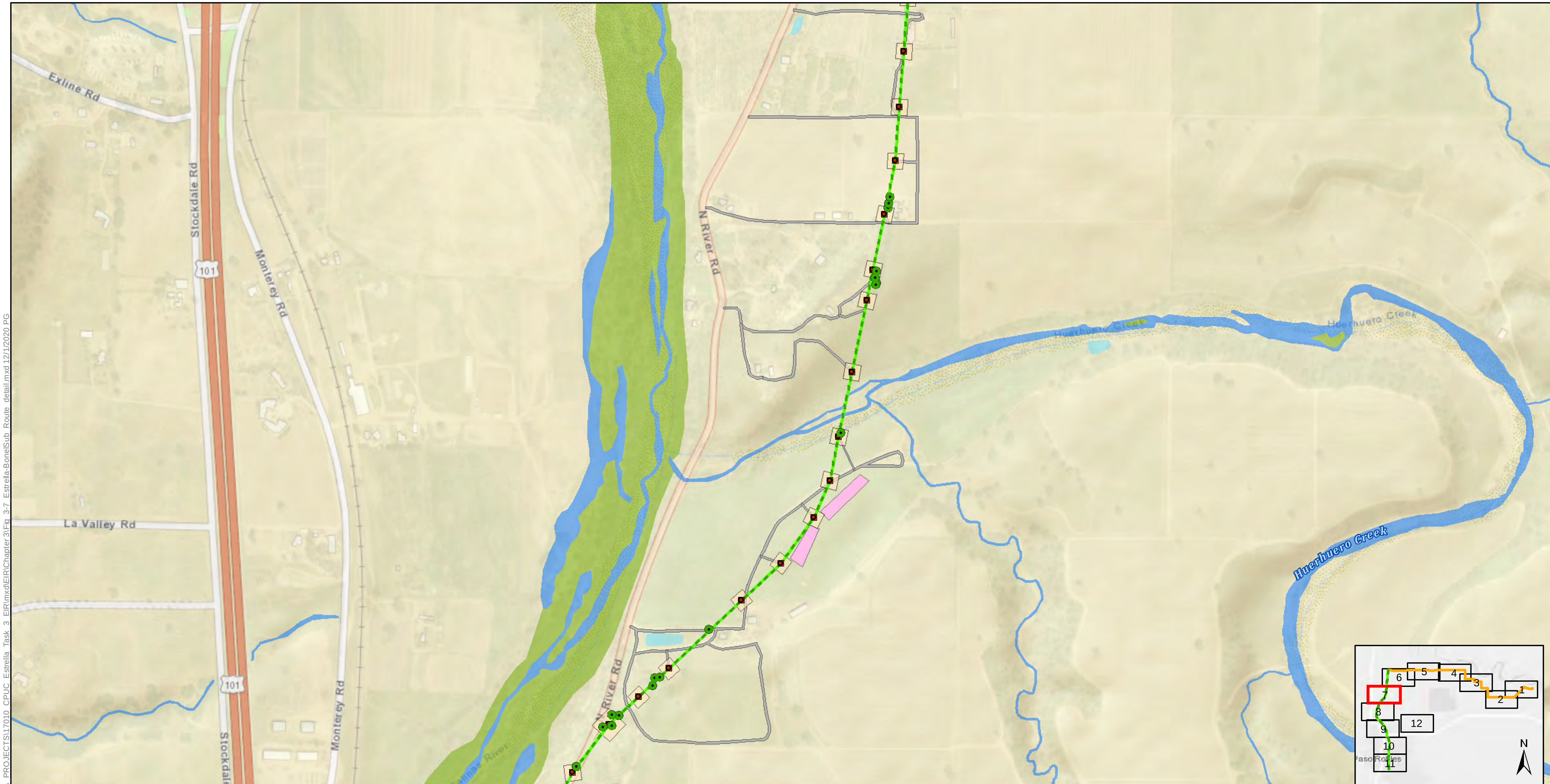

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National Wetland Inventory

- Freshwater Emergent Wetland
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Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 7 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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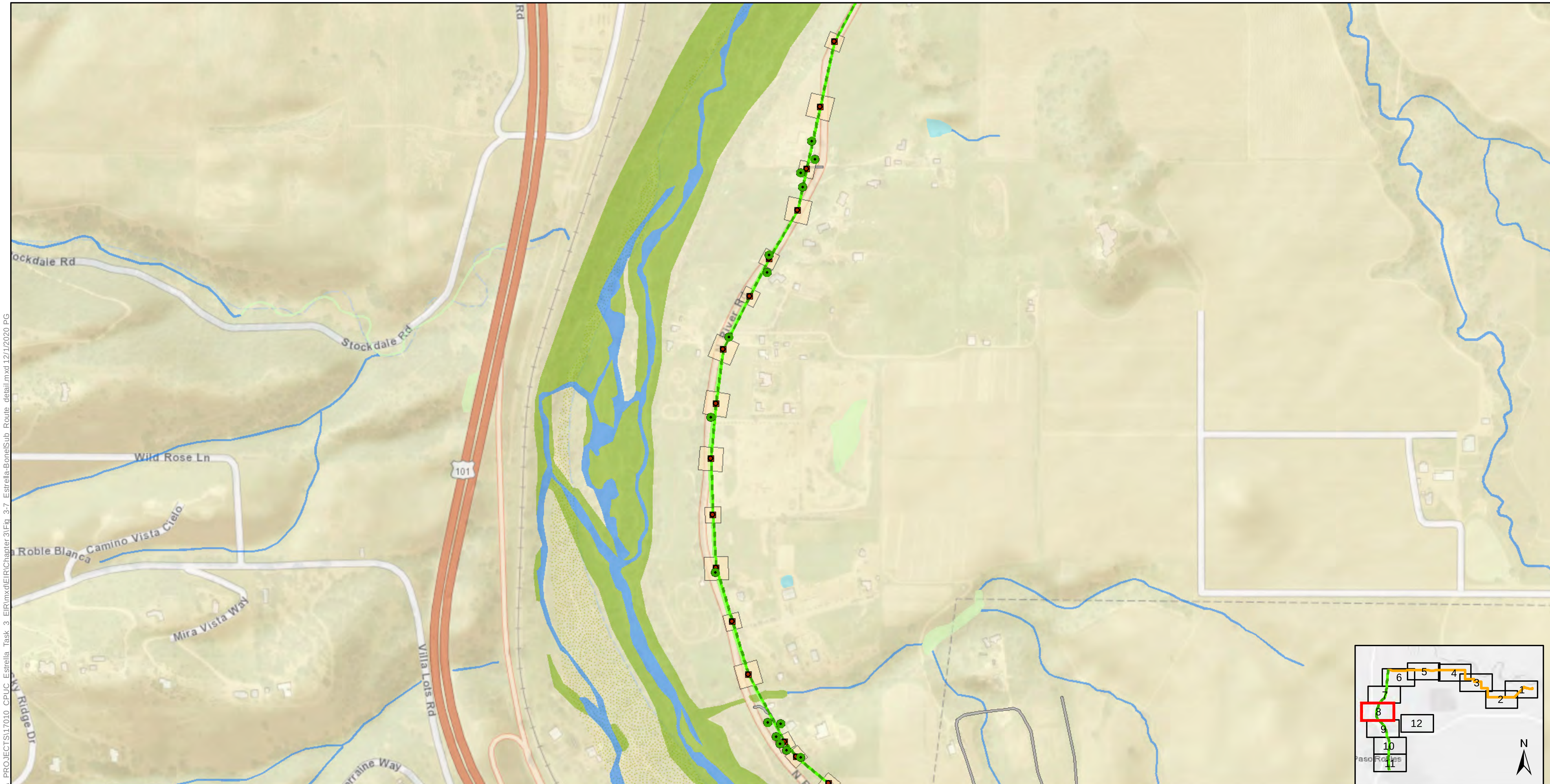

Source: NEET West, PG&E 2017, NWI 2020.

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Horizon WATER and ENVIRONMENT

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Existing Infrastructure

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National Wetland Inventory

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Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 8 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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Horizon WATER and ENVIRONMENT

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National Wetland Inventory

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- Riverine

Figure 3-7

Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 9 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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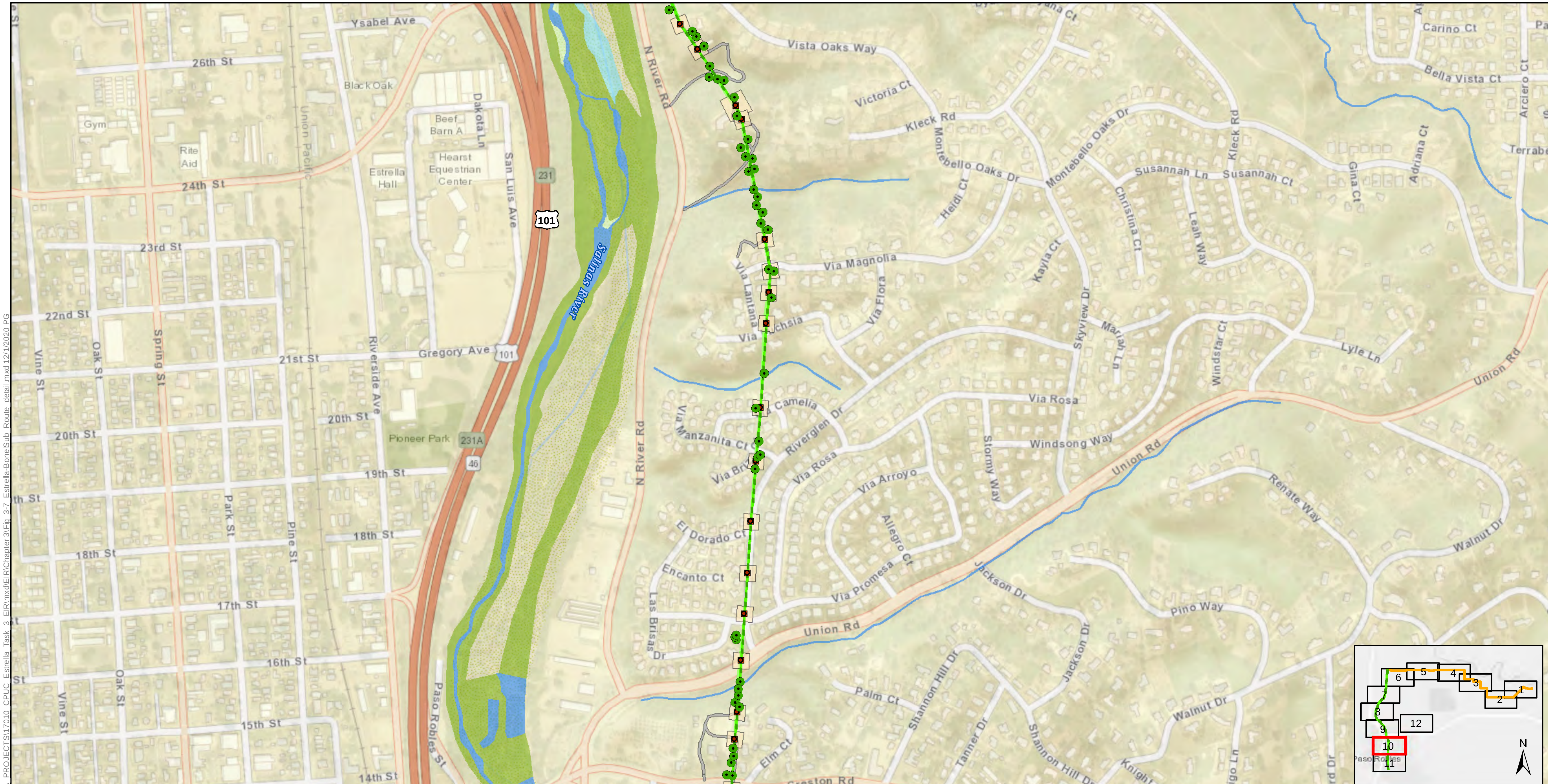

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Source: NEET West, PG&E 2017, NWI 2020.

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Feet

Horizon WATER and ENVIRONMENT

Alternative Components
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- 70 kV Power Line

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 10 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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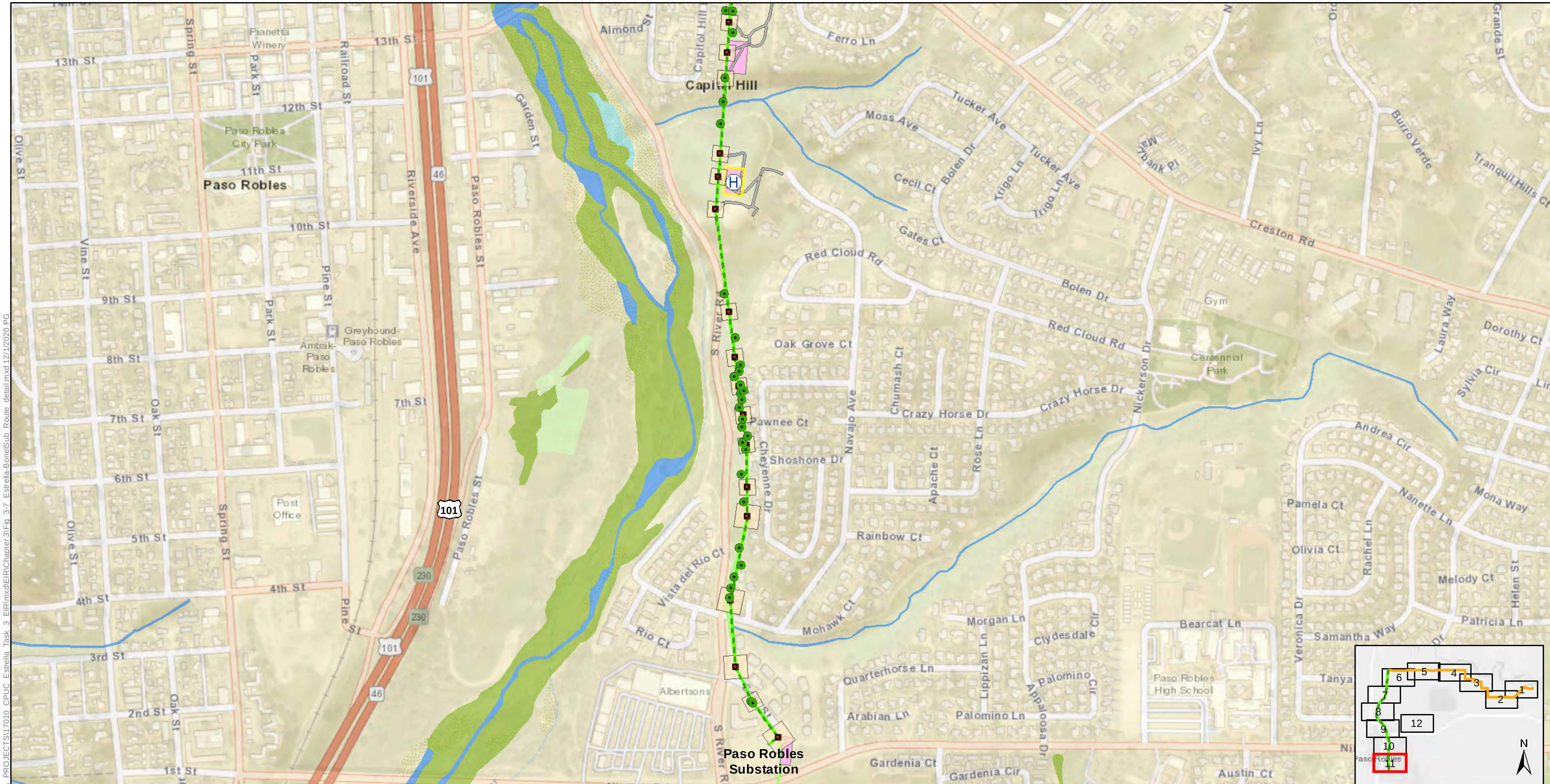

Source: NEET West, PG&E 2017, NWI 2020.

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Feet

Horizon
WATER and ENVIRONMENT

Alternative Components
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National Wetland Inventory
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- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 11 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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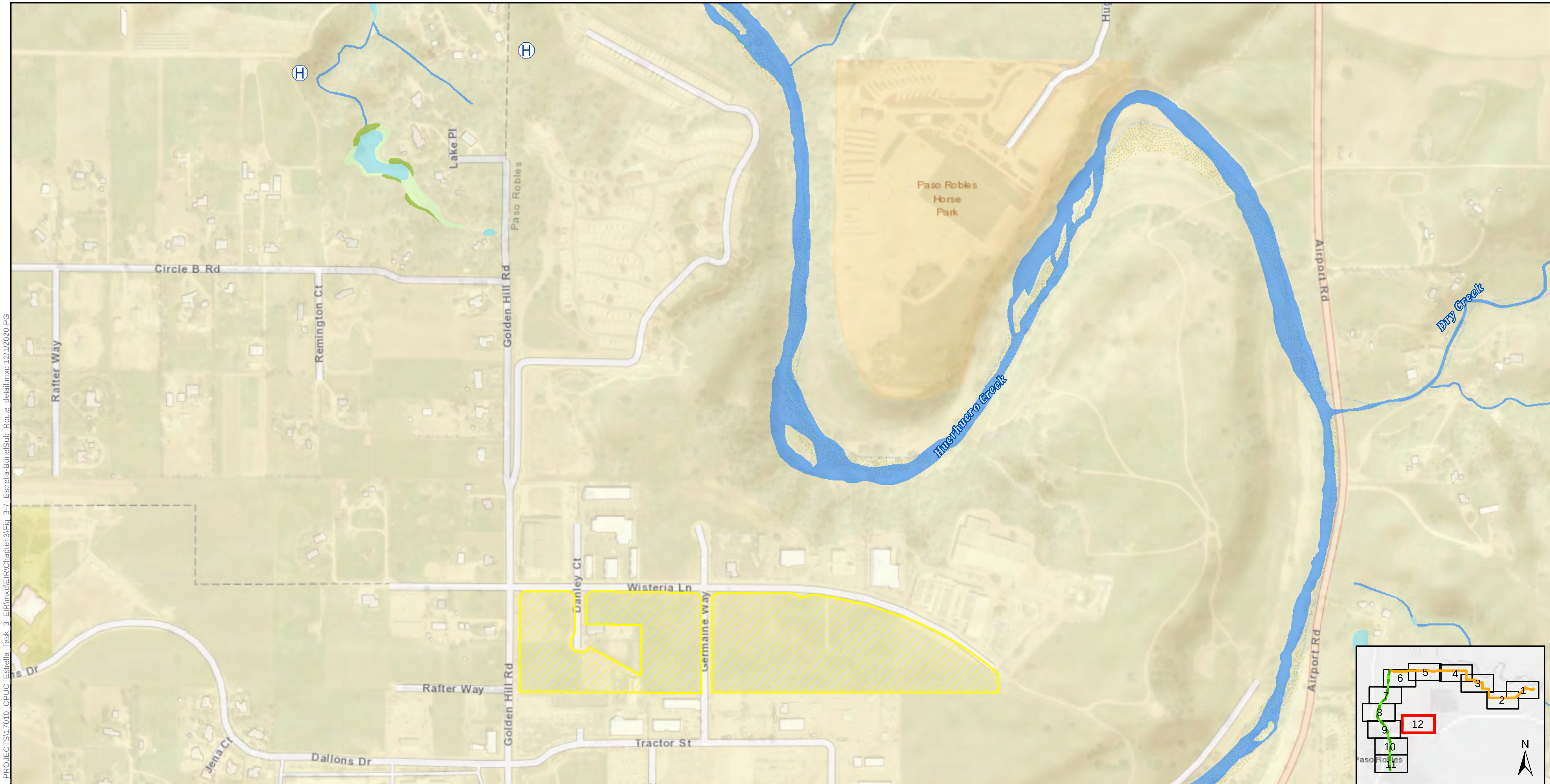

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Source: NEET West, PG&E 2017, NWI 2020.

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Feet

Horizon WATER and ENVIRONMENT

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National Wetland Inventory
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- Riverine

Figure 3-7
Alternative PLR-1C: Estrella to Bonel Ranch Substation Route – Detailed View

Sheet 12 of 12

Estrella Substation and Paso Robles Area Reinforcement Project

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Construction

Construction methods/activities for Alternative PLR-1C would generally be similar to the Proposed Project 70 kV route. Refer to Chapter 2, *Project Description,* for a detailed description of the steps and processes involved in constructing the new power line and reconductoring segment. Due to the longer length of Alternative PLR-1C compared to the Proposed Project 70 kV route, the construction schedule would be extended, as shown in Table 3-7.

Table 3-7. Alternative PLR-1C: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
Reconductoring Segment	Site Work Area Preparation Mobilization	Month 1	No
	Pole Installation / Transfer / Distribution / Removal	Month 2-13	Yes
	Conductor Installation	Month 3-14	Yes
	Cleanup and Restoration	Month 15	Yes
New 70 kV Power Line Segment	Site Work Area Preparation Mobilization	Month 15	Yes
	Pole Installation / Transfer / Distribution	Month 16-29	Yes
	Conductor Installation	Month 29-32	Yes
	Cleanup and Restoration	Month 33	Yes

Notes: kV = kilovolt

In total, construction of the reconductoring and new 70 kV power line segments for Alternative PLR-1C would take 15 months longer than the Proposed Project's 18-month schedule for construction of the proposed power line. The types of equipment to be used in each phase of construction for Alternative PLR-1C and hours per day that equipment would be used during construction would be the same as for the Proposed Project (refer to Table 2-10 in Chapter 2, *Project Description,* and Appendix J of the Applicants' PEA for information).

Staging areas and other temporary work/disturbance areas (e.g., pole work areas, crossing structure work areas, pull sites, access roads, and helicopter landing zones) required for construction of Alternative PLR-1C are shown in Figure 3-7 and summarized in Table 3-8. Alternative PLR-1C would utilize the same main staging area in Golden Hill Industrial Park as the Proposed Project.

Table 3-8. Alternative PLR-1C: Temporary Disturbance Areas

Temporary Work Area	Anticipated Site Preparation	Total Approximate Area (Acres)
Staging Areas	Vegetation removal may be required, temporary fencing and gates would be installed, gravel would be installed, and temporary power would be supplied by a distribution tap or generator.	35.24
Pole Work Areas[1]	Vegetation removal and minor grading may be required.	57.57
Crossing Structure Work Areas	Vegetation removal may be required.	0.38
Pull and Tension Sites	Vegetation removal may be required.	41.04
Landing Zones	Sites would be leveled free of obstacles and debris.	1.37
Access Roads	Existing unpaved roads may be improved within the existing road. Improvements include minor grading/blading and the placement of dirt and/or gravel.	45.64

Notes:

1. Includes TSPs, LDSPs, and existing and new distribution poles.

Parking areas for construction workers would be located at the staging areas and/or temporary work areas. The estimated number of construction vehicle trips and frequency of the trips associated with construction of Alternative PLR-1C are shown in Table 3-9.

Table 3-9. Alternative PLR-1C: Estimated Daily Worker and Truck Trips During Construction

Construction Phase / Task	Daily Worker Round-Trips	Daily Truck Round-Trips	Number of Days	Duration Longer than Proposed Project?	Maximum # of Daily Round-Trips
Reconductoring Segment					
Site Development	6	5	24	No	11
Pole Installation / Transfer / Distribution / Removal	9	7	172	Yes	16
Conductor Installation	9	5	152	Yes	14
Clean-up and Site Restoration	6	3	6	No	9

Construction Phase / Task	Daily Worker Round-Trips	Daily Truck Round-Trips	Number of Days	Duration Longer than Proposed Project?	Maximum # of Daily Round-Trips
New 70 kV Power Line Segment					
Site Preparation / Mobilization	6	5	6	No	11
Pole / Tower Installation	9	6-8	326	Yes	17
Conductor Installation	9	5	82	Yes	14
Clean-up and Site Restoration	6	4	24	No	10

Notes: kV = kilovolt

Approximately 99 vehicle trips would be necessary for vegetation trimming/removal during construction of Alternative PLR-1C. Construction of portions of Alternative PLR-1C that cross over County roadways (see locations of Crossing Structures on Figure 3-6) would require lane closures and/or road closures, which would be up to 5 to 10 minutes at a time, similar to the Proposed Project.

The amount of water that would be required to construct Alternative PLR-1C is expected to be approximately 2.7 million gallons. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas. Sources of water are anticipated to be the same as for the Proposed Project.

Operation and Maintenance

Operation and maintenance of Alternative PLR-1C would be similar to the Proposed Project 70 kV power line. Refer to Chapter 2, *Project Description,* for detailed description of anticipated operations and maintenance activities. Vehicles accessing the power line during operation and maintenance activities would use the following public roads:

- Wellsona Road
- Dry Creek Road
- Jardine Road
- Tower Road
- Calabaza Way
- Wilderness Lane
- Airport Road
- Estrella Road

The estimated number of vehicle trips and frequency of the trips necessary for operation and maintenance of Alternative PLR-1C would generally be the same as for the Proposed Project. It is anticipated that one vehicle trip per year would be needed for vegetation management activities for Alternative PLR-1C.

3.3.4 Alternative PLR-3: Strategic Undergrounding

Description

Alternative PLR-3: Strategic Undergrounding would involve undergrounding the portion of the Proposed Project's new 70 kV power line which has the greatest potential for aesthetic and other environmental impacts. During scoping for the Proposed Project, and based on CPUC staff and consultant's preliminary analysis of the Proposed Project's potential impacts, it was determined that the portion of the line that passes through the Golden Hill Road area north of SR 46 had the greatest potential for impacts because this area does not have existing above-ground transmission or distribution electrical infrastructure and is an up-and-coming area with new commercial development, recreational uses, and existing single-family residential development.

Figure 3-8 shows the portion of the new 70 kV power line that would be undergrounded for Alternative PLR-3. As shown in Figure 3-8, two undergrounding routes are considered in this EIR.

- **Alternative PLR-3A: Strategic Undergrounding, Option 1.** Beginning at roughly the point where the proposed power line alignment turns west to parallel Wisteria Lane, Option 1 would turn north along Germaine Way and then turn west to follow Wisteria Lane. Where Wisteria Lane meets Golden Hill Road, Option 1 turns north following Golden Hill Road and continues north past Lake Place until the point at which the proposed 70 kV alignment turns to the west (approximately 0.1-mile north of the junction with Lake Place).

- **Alternative PLR-3B: Strategic Undergrounding, Option 2.** This route would be similar to Option 1 except that instead of turning west and following Wisteria Lane, it would follow the proposed 70 kV power line alignment behind San Antonio Winery. After reaching Golden Hill Road, Option 2 would be identical to Option 1 and would continue north on Golden Hill Road past Lake Place until the point at which the proposed 70 kV alignment turns to the west (approximately 0.1 mile north of the junction with Lake Place).

Figure 3-9 and Figure 3-10 show a detailed view of Alternative PLR-3A and PLR-3B, respectively.

Riser Poles and Transition Stations

For both Option 1 and 2, two riser poles would be installed at each end of the underground alignment. A transition station may also be installed at each end of the underground alignment. Transition stations may be required because current on each conductor has to be continuously monitored in case there is an electrical fault in the underground section. By monitoring the current coming into and leaving the underground section, any differential in the current would trip the substation relays/circuit breakers feeding both ends of the transmission line. If the electrical current differential relays trip, it can be determined that the fault is in the underground section of the line and not the overhead portion of the circuit. <u>This would allow local repair crews to concentrate repair efforts on the overhead sections of the line and handle repairs more quickly. With differential relays detecting no faults, retesting of the underground line segment could occur as soon as the line cools – in about 30 minutes. However, if the fault is in an underground section of the lines, lengthy outages can be expected, as Pacific Gas &</u>

Electric Company's (PG&E's) transmission underground crews must travel from Daly City to the underground segment, locate the electrical fault cause, and make the repairs.

Without the transition stations and their electrical current differential sensing, the underground section of line would need to remain de-energized after any circuit fault and be patrolled and inspected by an underground specialist prior to re-energizing. This means that the entire circuit would remain de-energized until the underground section can be patrolled and inspected and cleared for re-energization. This could substantially lengthen the restoration time following a circuit fault, particularly given the fact that all PG&E underground specialists are located in the San Francisco Bay Area and would need to travel down to the central coast area. Photographs of example transition stations at PG&E facilities are provided in Figure 3-11.

The physical equipment housed inside the transition stations would include riser poles, a 115 kV bus to accommodate three current transformers, high voltage circuit breakers, a control shed with control panels, fiber optic communication equipment, current differential relays, direct current batteries, and alternating current power panels. The transition stations would each also require a small heating, ventilation, and air conditioning (HVAC) unit to keep the controls and relays cool. The transition station footprints would comprise a 150-foot by 150-foot area. The entire footprint would be considered impervious, as it would consist of a gravel/base rock surface. The transition stations would be owned by PG&E.

Construction

Construction methods for Alternative PLR-3: Strategic Undergrounding would include trenching (or, potentially, boring in certain areas) for installation of the underground line. In this EIR, we conservatively assume trenching would occur along the entire alignment because of greater impacts associated with trenching. Vegetation trimming/removal would be required for portions of the alignment along vegetated areas, and portions of the line within roads would require asphalt cutting to expose the underlying soil. Installation of vaults would require more substantial trenching/excavation, while construction of transition stations may include some excavation, grading, pouring of concrete foundations, and installation of electrical equipment and facilities.

The three main phases of construction (trenching/duct bank installation, vault installation, and cable pulling, splicing, and termination) for the underground line segment are further described as follows:

1. **Trenching/Duct Bank Installation.** After the two circuit routes are marked and determined to be free of underground obstructions, the pavement or cement within the first trench line will be removed. Jackhammers will be used to break up sections of concrete that the saw-cutting and pavement-breaking machines cannot handle. The typical trench dimensions for installation of a single circuit will measure approximately 2 feet wide by 6 feet deep, although typical trench depths may vary depending on soil stability and the presence of existing substructures. The trench will be widened and shored where needed to meet California Occupational Safety and Health Administration safety requirements. Dewatering will be conducted using a pump or well points to remove water from the trench.

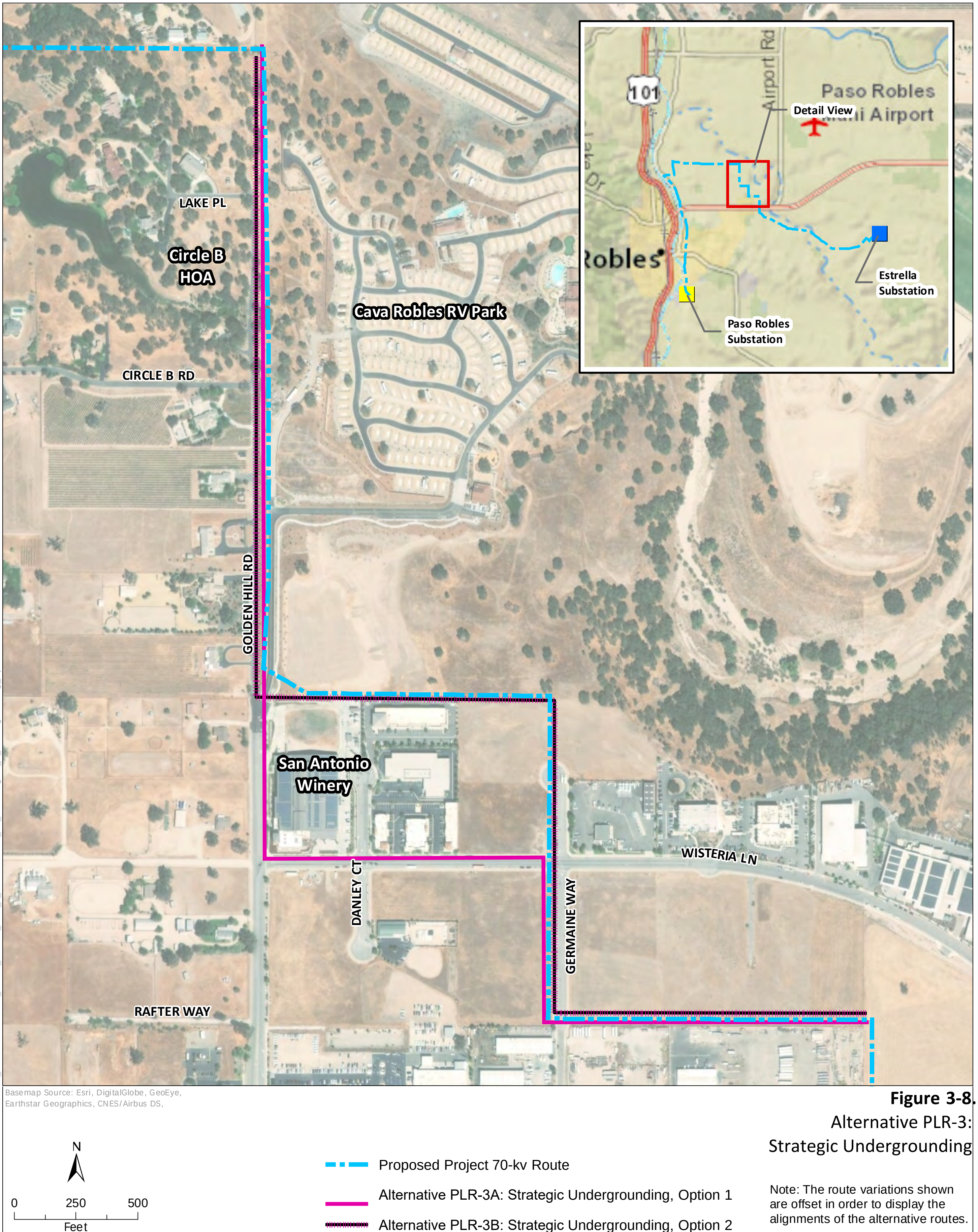
A maximum open trench length of 150 to 300 feet in or along the street will be typical at any one time, depending on local permitting requirements. Steel plating will be placed over the trench to maintain vehicular and pedestrian traffic across areas that are not under active construction. Traffic controls will also be implemented to direct local traffic safely around the work areas.

As the trench for the underground 70 kV cable is completed, PG&E will install the cable conduit, ground wire, and concrete conduit encasement duct bank. The duct bank typically will consist of four 6-inch-diameter polyvinyl chloride (PVC) conduits (PG&E may elect to install 1-2 spare conduits for future use). The dimensions of the duct bank will be approximately 24 inches wide by 34 inches in height. Once the PVC conduits are installed, thermal-select or controlled backfill will be transported, placed and compacted. A road base backfill or slurry concrete cap will be installed, and the road surface will be restored.

The installation of the first trench and duct bank, in or along streets, will be completed before starting the installation of the second trench due to traffic control and congestion concerns.

2. **Vault Installation.** Splice vaults will be installed at approximately 1,600- to 2,000-foot intervals during trenching (approximately 10-12 vaults total for this segment). The total excavation footprint for a vault will be approximately 22 feet long by 12 feet wide by 10 feet deep. Installation of each vault will occur over a one-week period with excavation and shoring of the vault pit followed by delivery and installation of the vault, filling and compacting the backfill, and repaving the excavation area. Each underground circuit will require its own set of splice vaults (5-6 vaults per circuit over the 1.2-mile route).

3. **Cable Pulling, Splicing, and Termination**. After installation of the conduit and splice vaults, PG&E will install cables in the duct banks. Each cable segment will be pulled into the duct bank, spliced at each of the vaults along the route, and terminated at the transition stations.



Basemap Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS,

Figure 3-8.
Alternative PLR-3:
Strategic Undergrounding

Note: The route variations shown are offset in order to display the alignments of the alternative routes.

T:_PROJECTS\17010_CPUC_Estrella_Task_3_EIR\mxd\Misc_for_Client\Figure_2_Undergrounding_Options.mxd 12/18/2019 PG

Horizon WATER and ENVIRONMENT

Source: NEET West and PG&E 2019

Estrella Substation and
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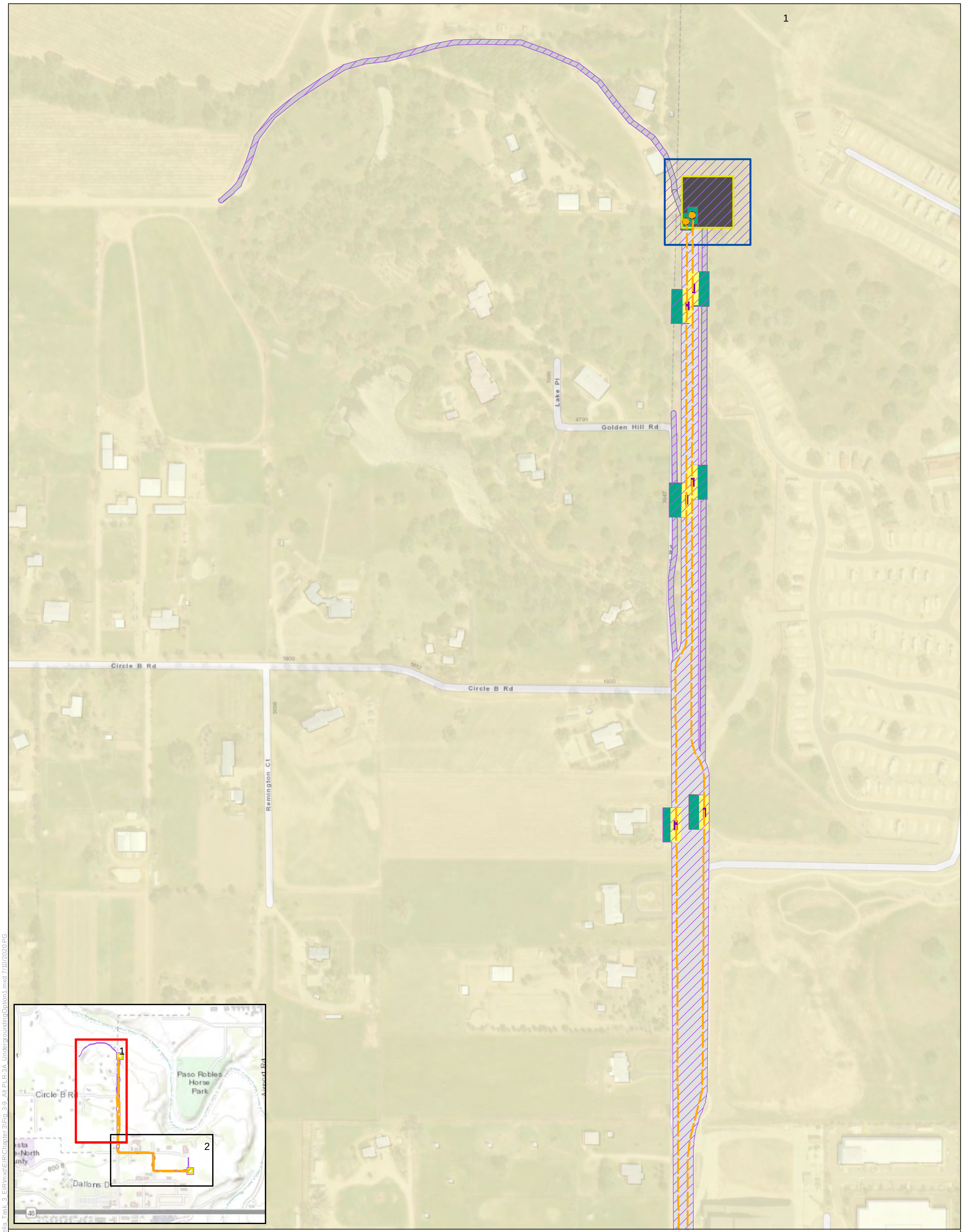

Alternative Components

- Alternative PLR-3A Strategic Undergrounding, Option 1
- New Option 1 Riser Poles
- Underground Vault Location
- Transition Station

Construction Disturbance Areas

- Access Route
- Permanent Disturbance
- Temporary Disturbance
- Vault Work Area
- Temporary Pull Sites
- Duct Bank Work Area
- Transition Station Work Area

Figure 3-9
Alternative PLR-3A:
Strategic Undergrounding,
Option 1 - Detailed View

Page 1 of 2

T:_PROJECTS\17010 CPUC_Estrella Task 3 EIR\mxd\EIR\Chapter 3\Fig 3-9 Alt PLR-3A UndergroundingOption1.mxd 7/30/2020 PG

Horizon WATER and ENVIRONMENT

Source: ESRI 2020; NEET West; PG&E 2019

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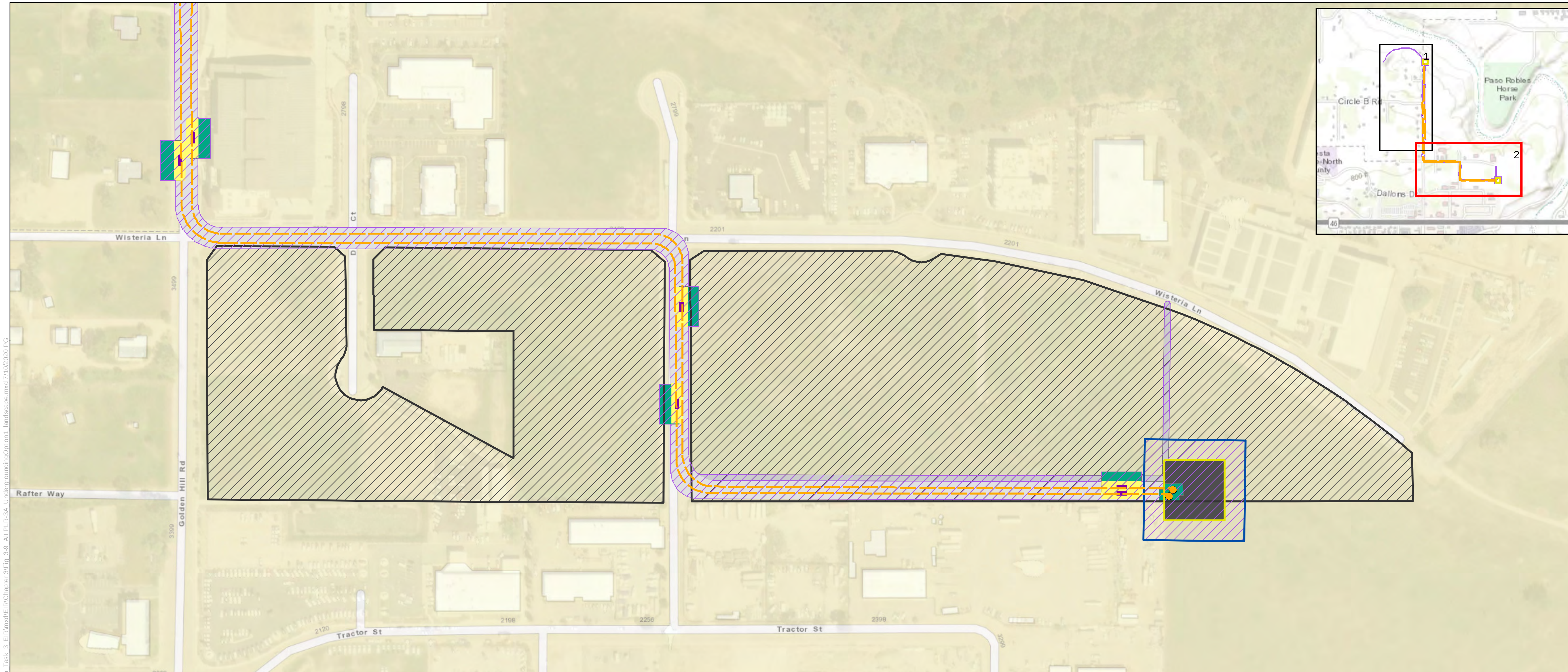

Figure 3-9
Alternative PLR-3A:
Strategic Undergrounding,
Option 1 - Detailed View

Page 2 of 2

Alternative Components

- Alternative PLR-3A Strategic Undergrounding, Option 1
- New Option 1 Riser Poles
- Underground Vault Location
- Transition Station

Construction Disturbance Areas

- Access Route
- Permanent Disturbance
- Temporary Disturbance
- Vault Work Area
- Temporary Pull Sites
- Duct Bank Work Area
- Transition Station Work Area
- Construction Staging Area

N

0 500
Feet

Source: ESRI 2020; NEET West; PG&E 2019

Estrella Substation and
Paso Robles Area Reinforcement Project

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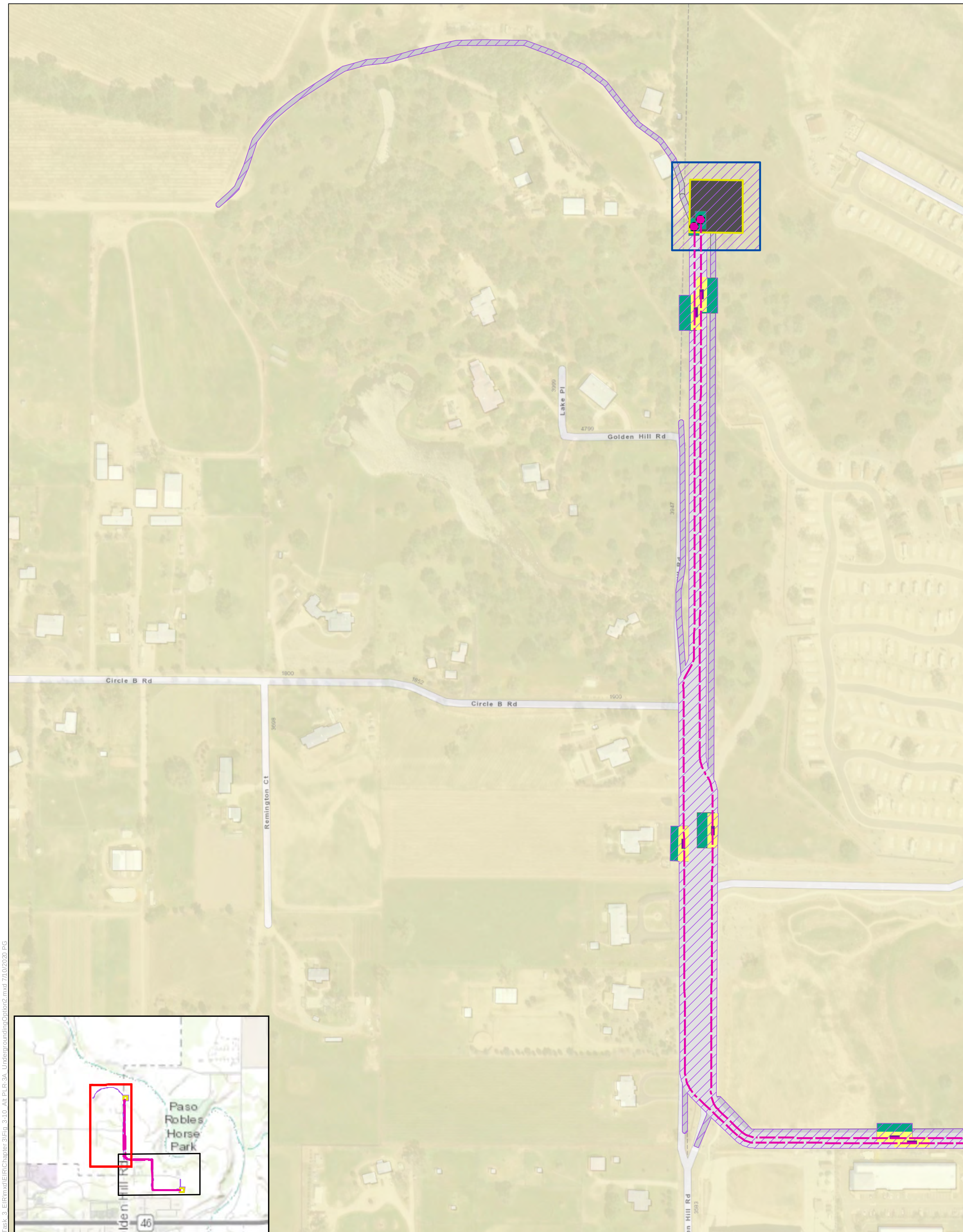

Alternative Components

- Alternative PLR-3A Strategic Undergrounding, Option 2
- New Option 2 Riser Poles
- Underground Vault Location
- Transition Station

Construction Disturbance Areas

- Access Routes
- Permanent Disturbance
- Temporary Disturbance
- Vault Work Area
- Temporary Pull Sites
- Duct Bank Work Area
- Transition Station Work Area

N

0 500
Feet

Figure 3-10
Alternative PLR-3B: Strategic Undergrounding, Option 2 - Detailed View

Page 1 of 2

Horizon WATER and ENVIRONMENT

Source: ESRI 2020; NEET West; PG&E 2019

Estrella Substation and Paso Robles Area Reinforcement Project

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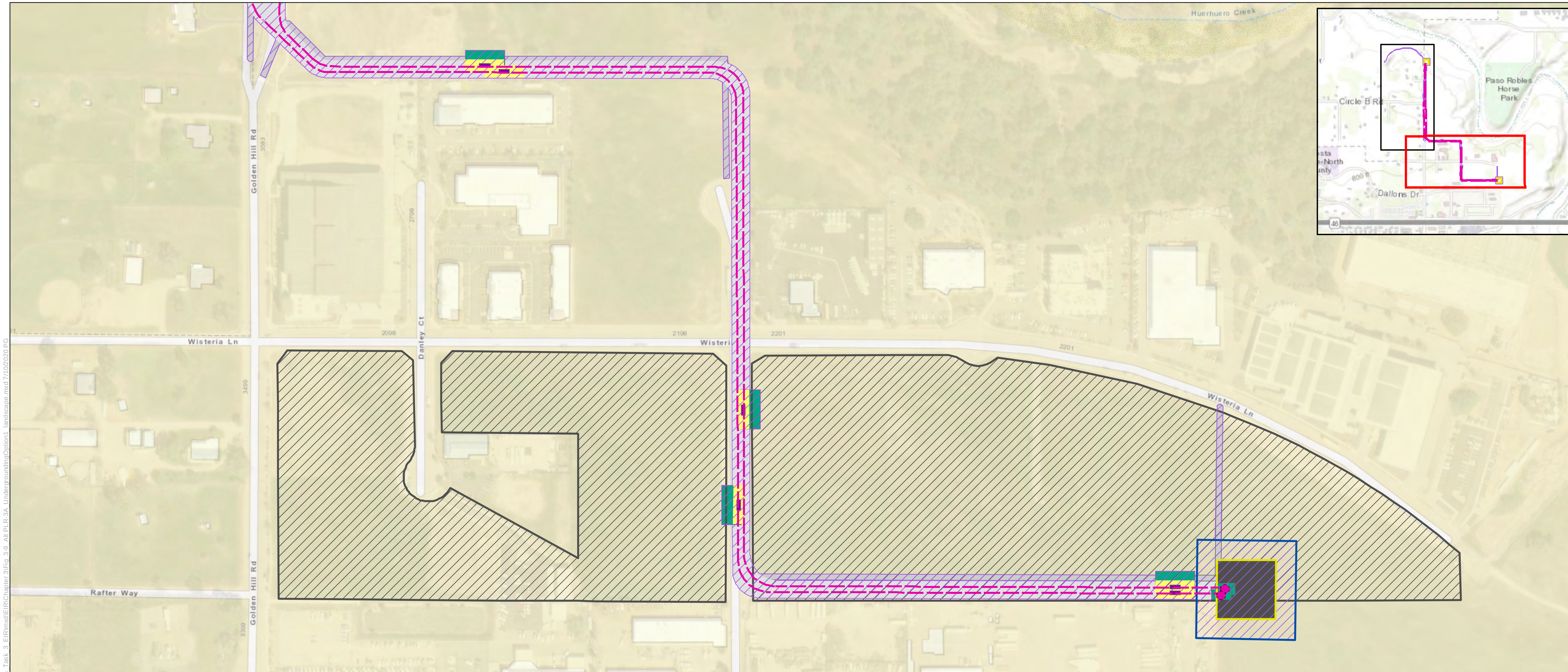

Alternative Components

- Alternative PLR-3A Strategic Undergrounding, Option 2
- New Option 2 Riser Poles
- Underground Vault Location
- Transition Station

Construction Disturbance Areas

- Access Routes
- Permanent Disturbance
- Temporary Disturbance
- Vault Work Area
- Temporary Pull Sites
- Duct Bank Work Area
- Transition Station Work Area
- Construction Staging Area

N

0 500
Feet

Horizon WATER and ENVIRONMENT

Source: ESRI 2020; NEET West; PG&E 2019

Figure 3-10
Alternative PLR-3B: Strategic Undergrounding, Option 2 - Detailed View

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Source: Horizon West/PG&E ND

Figure 3-11.
Example Transition Station Photographs

Estrella Substation and
Paso Robles Area Reinforcement Project

The construction phasing and schedule for Alternative PLR-3A: Strategic Undergrounding, Option 1 and Alternative PLR-3B: Strategic Undergrounding, Option 2 would be identical and is presented in Table 3-10.

Table 3-10. Alternative PLR-3: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates
Transition Station Installation	-	Month 2-9
New 70 kV Power Line Underground Segment	Site Work Area Preparation Mobilization	Month 1
	Vault Installation	Month 2-4
	Duct Bank Installation	Month 5-8
	Cable Installation	Month 8-11
	Termination / Testing / Commissioning	Month 11-12

Notes: kV = kilovolt

The types of equipment to be used in each phase of construction for Alternative PLR-3A and PLR-3B (equipment use would be identical for the two options) are shown in Table 3-11. This equipment would be used up to 10 hours per day.

Table 3-11. Alternative PLR-3: Preliminary Construction Workforce and Equipment Use

Project Phase / Task	Workers, Equipment	Quantity per Day	Equipment	Quantity per Day
Transition Stations				
Site Work Area Preparation Mobilization	**Workers**	6	Grader	1
	Backhoe / Dozer / Excavator	1	1-Ton Pickup Truck, 4X4	2
Foundation Construction	**Workers**	6	Trencher	1
	Hole Digger	1	1-Ton Pickup Truck, 4X4	1.75
	Backhoe / Dozer / Excavator	1	Cement Truck	3

Project Phase / Task	Workers, Equipment	Quantity per Day	Equipment	Quantity per Day
Ground Grid / Conduit Installation	**Workers**	4	1-Ton Pickup Truck, 4X4	2
	Backhoe / Dozer / Excavator	1	Trencher	1
Steel / Bus Erection	**Workers**	6	Aerial Man Lift	2
	Boom Truck	2	1-Ton Pickup Truck, 4X4	2
Equipment Delivery and Installation	**Workers**	6	Aerial Man Lift	2
	Boom Truck	1	1-Ton Pickup Truck, 4X4	2
Install Riser Poles with Switches	**Workers**	6	Aerial Man Lift	2
	Boom Truck	2	1-Ton Pickup Truck, 4X4	3
Install Fence and Security Gate	**Workers**	4	1-Ton Pickup Truck, 4X4	2
	Aerial Man Lift	2		
Cable Installation and Termination	**Workers**	4	1-Ton Pickup Truck, 4X4	2
Install Yard Rock	**Workers**	2	Dump Truck	1
	Bobcat	1	Backhoe / Dozer / Excavator	1
New 70 kV Power Line Underground Segment				
Site Work Area Preparation Mobilization	**Workers**	4	Dump Truck	1
	Bulldozer	1	Backhoe	1
	Skid Steer	1	Crew Truck	1
Vault Installation	**Workers**	5	Skid Steer	1
	Crew Truck	1	Line Truck	1
	Dump Truck	1	Crane	1
	Excavator / Backhoe	1	Concrete Truck	1
	Backhoe	1	Delivery Truck	1

Project Phase / Task	Workers, Equipment	Quantity per Day	Equipment	Quantity per Day
Duct Bank Installation	**Workers**	4	Backhoe	1
	Crew Truck	1	Dump Truck	1
	Concrete Truck	1	Skid Steer	1
Cable Installation	**Workers**	4	Cable Reel Trailer	1
	Crew Truck	1	Cable Pulling Winch	1
Termination / Testing / Commissioning	**Workers**	4	Bucket Truck	1
	Crew Truck	1	Crane	1

Notes: kV = kilovolt

Alternatives PLR-3A and PLR-3B would use the same staging areas as the Proposed Project. Each alternative would require establishment/use of four types of temporary work areas during construction:

- Two approximately 150-foot by 150-foot riser structure temporary work areas, one at each end of the alignment;
- Ten (Option 2) to eleven (Option 1) approximately 100-foot by 50-foot vault work areas intermittently located along the length of the alignment;
- One approximately 45-foot-wide to 110-foot-wide duct bank work area along the entire length of the alignment; and
- Ten (Option 2) to twelve (Option 1) approximately 100-foot by 30-foot cable pulling work areas established at the vault locations.

The staging areas and work areas associated with each undergrounding option are shown in Figure 3-9 and Figure 3-10. Construction of Alternative PLR-3A and PLR-3B would also require establishment of several new unpaved access roads, as well as use of existing paved and unpaved roads, all of which are shown on Figure 3-9 and Figure 3-10.

During construction, workers would park at the staging area and/or temporary work areas. Construction of Alternative PLR-3A and PLR-3B would involve single lane closures for multiple weeks while potholing is conducted, asphalt is cut, trenches are dug, soil removed, facilities are installed, trenches filled with slurry, and asphalt is re-installed. Lanes would be closed for approximately 4 to 6 weeks on Germaine Way (previously known as Engine Avenue and Engine Street); 11 to 13 weeks on Wisteria Lane; 7 to 9 weeks on Golden Hill Road; 3 to 5 weeks on the Cava Robles RV Resort driveway, and 4 to 6 weeks on the Circle B Homeowners Association road. The estimated numbers of daily worker and truck trips associated with construction of Alternative PLR-3 are shown in Table 3-12.

Table 3-12. Alternative PLR-3: Estimated Daily Worker and Truck Trips during Construction

Construction Activity	Daily Worker Round-Trips	Daily Truck Round-Trips	Number of Days	Max. Number of Daily Round-Trips
Transition Stations				
Mobilization	6	3-4	8	10
Foundation Construction	1-10	5-6	10	16
Ground Grid / Conduit Installation	5	1-4	16	9
Steel / Bus Erection	5	1-4	10	9
Riser Pole Installation	5	1-4	16	9
Yard Fence and Security Gate Installation	5	1-4	12	9
Install Rock Yard	6	8	5	14
Equipment Delivery and Installation	6	4-5	14	11
Control Enclosure Delivery and Installation	3-5	2	8	7
Cable Installation and Termination	3-5	1-2	10	7
Testing and Commissioning	5	1	12	6
New 70 kV Power Line Underground Segment				
Site Preparation / Mobilization	2	8	10	10
Vault Installation	2	8	50	10
Duct Bank Installation	2	6	64 (Option 1) 57 (Option 2)	8
Cable Installation	2	2	80	4
Termination / Testing / Commissioning	2	0	20	2

Notes: kV = kilovolt.

Table does not include estimates for the number of trips associated with soil/material export/import. This would require geotechnical studies, which have not been completed.

As shown in Table 3-12, the number of trips associated with Alternative PLR-3A (Option 1) and PLR-3B (Option 2) would be identical with the exception of the number of days associated with duct bank installation. Alternative PLR-3A (Option 1) would require approximately 7 more days to install the duct bank, which would result in a greater number of total trips associated with this task, as compared to Alternative PLR-3B (Option 2). Approximately 24 vehicle trips would be necessary for vegetation trimming/removal during construction of Alternative PLR-3. Helicopters would not be required for construction of Alternative PLR-3A or PLR-3B.

The amount of water necessary to construct Alternative PLR-3 (both options) is expected to be approximately 1,702,600 gallons. Water sources are anticipated to be the same as for the Proposed Project. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas for Alternative PLR-3.

Operation and Maintenance

Operation and maintenance activities for Alternative PLR-3 would include routine inspection of the underground line segment and associated facilities (e.g., transition stations, riser poles), and maintenance and repair of facilities on an as-needed basis. It is anticipated that six to eight vehicle trips per year for operation and maintenance activities and one vehicle trip per year for vegetation management activities would be necessary for Alternative PLR-3. Vehicles accessing the underground line segment and associated facilities under Alternative PLR-3 during operation would use Germaine Way, Wisteria Lane, Golden Hill Road, and Buena Vista Drive.

3.3.5 Alternative SE-1A: Templeton Substation Expansion – New 230/70 kV Substation

Alternative SE-1A: Templeton Substation Expansion would involve expansion of the existing Templeton Substation to include new facilities to support an additional 70 kV double-circuit power line from Templeton Substation to Paso Robles and San Miguel substations. This alternative would entail installing a new 230/70 kV substation immediately adjacent (to the east) to the existing Templeton Substation. The CPUC also considered a variation that would install a new 70 kV substation only (i.e., no 230 kV facilities), but this variation (Alternative SE-1B) was screened out from detailed consideration in the EIR. Refer to the ASR for detailed discussion of this variation.

Description

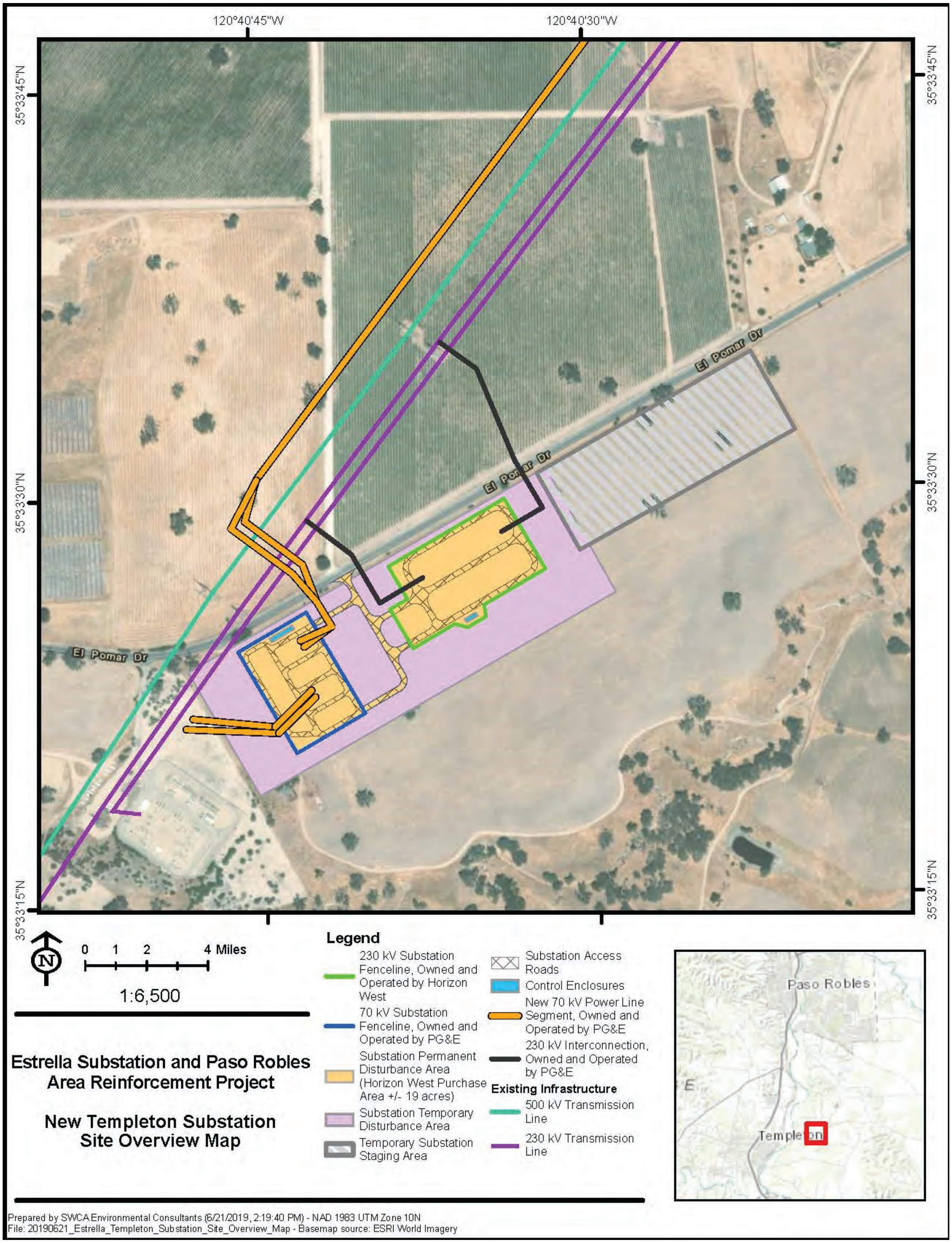
Under Alternative SE-1A, the new 230/70 kV substation would be constructed on an approximately 19-acre site adjacent to the existing Templeton Substation. This site currently is used for agricultural purposes and has several oak trees and several structures existing on the site. Access to the substation site would be off of El Pomar Drive, on a new main private access road.

The new substation would include essentially the same components/equipment as the proposed Estrella Substation. Refer to Chapter 2, *Project Description,* for a description of the substation components. The impervious surface area associated with the proposed facilities for Alternative SE-1A would be the same as the Proposed Project, at approximately 2 acres. The 230 kV interconnection for Alternative SE-1A would be approximately 500 feet longer than the Proposed Project's 230 kV interconnection.

Power required for the 230/70 kV substation would be supplied by tapping into the existing power lines adjacent to each substation site and/or from the 230/70 kV bank to be installed. Electric service would be requested from the local utility and applied for so that power can be served from the existing power lines adjacent to the station. The new 230/70 kV substation would connect to the telecommunications network at the existing Templeton Substation.

On-site stormwater infrastructure to be included as part of Alternative SE-1A would be the same as the proposed Estrella Substation, which includes a secondary containment basin in the 230 kV substation and a concrete skimmer and weir device within the 70 kV substation. The secondary containment basin would measure 42 feet long by 36 feet wide by 2.5 feet deep. The quantity of mineral oil to be used for transformers for Alternative SE-1A would be the same (approximately ~~15,290~~16,000-18,000 gallons) as the Proposed Project.

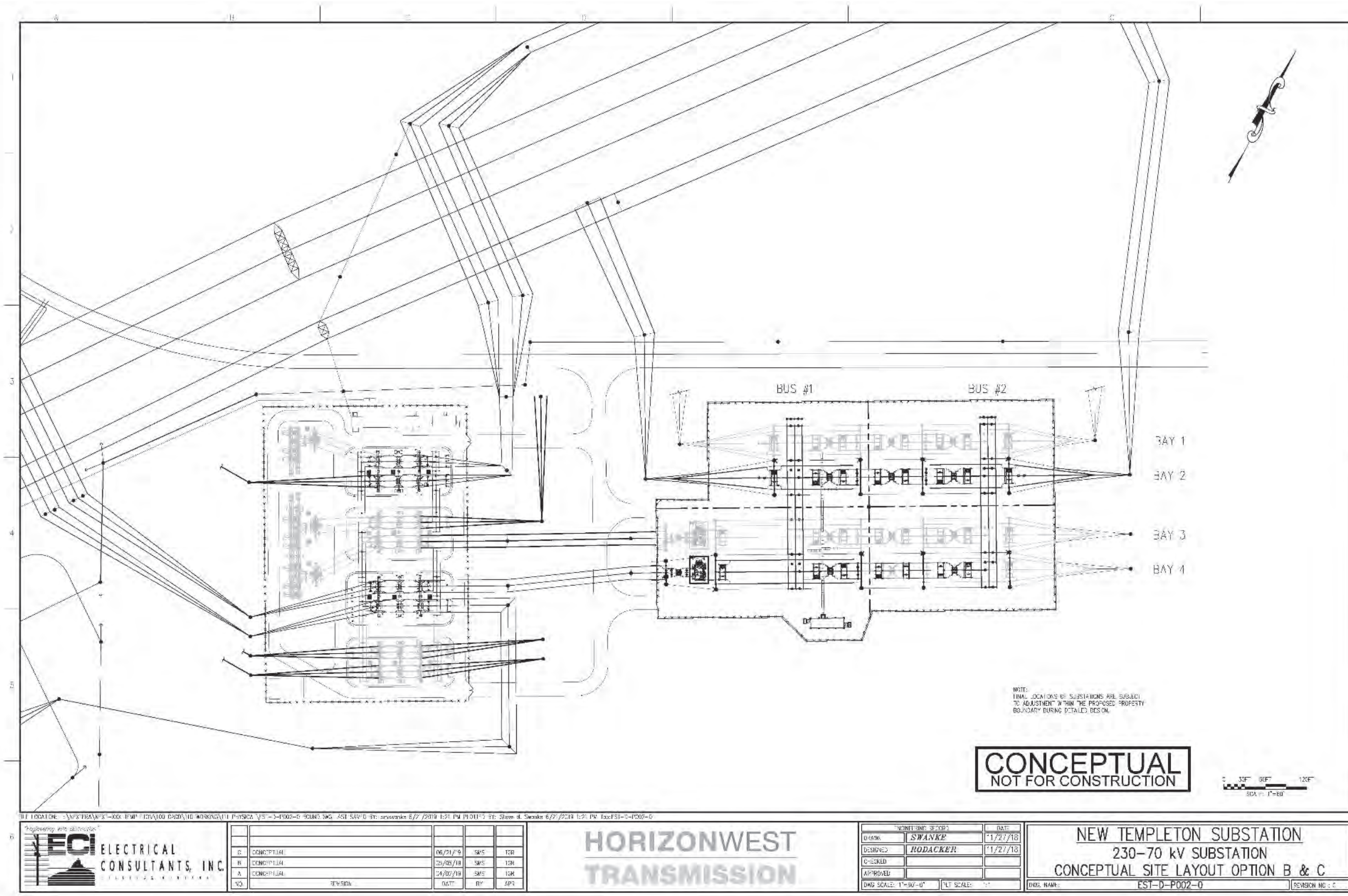
Figure 3-12 shows the new 230/70 kV substation under Alternative SE-1A, including temporary disturbance areas during construction**.** Figure 3-13 shows a detailed view of the substation conceptual design and proposed electrical components and facilities.



Source: HWT and PG&E 2019

Figure 3-12.
Alternative SE-1A: Templeton Substation Expansion, 230/70 kV Substation - Overview

Prepared by:
Horizon WATER and ENVIRONMENT



Source: HWT and PG&E 2019

Figure 3-13.
Alternative SE-1A: Templeton Substation Expansion, 230/70 kV Substation - Detailed Layout View

Prepared by: Horizon Water and Environment

Estrella Substation and Paso Robles Area Reinforcement Project

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Construction

Construction of the new 230/70 kV substation under Alternative SE-1A would follow a similar process to that described for the proposed Estrella Substation in Chapter 2, *Project Description.* Construction of Alternative SE-1A would take slightly longer than the proposed Estrella Substation due to the longer length of the 230 kV interconnection (see Table 3-13).

Table 3-13. Alternative SE-1A: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
Substation Site	Site Work Area Preparation Mobilization	Month 1-2	No
	Access Roads	Month 1	No
	Fence and Gate Installation	Month 2	No
230 kV Substation	Foundation Construction	Month 2-3	No
	Ground Grid / Conduit Installation	Month 3-4	No
	Steel / Bus Erection	Month 4	No
	Install Yard Rock	Month 4-5	No
	Transformer and Equipment Delivery and Installation	Month 4-5	No
	Control Enclosure Delivery and Install	Month 5	No
	Equipment Delivery and Install	Month 5-6	No
	Cable Installation and Termination	Month 5-6	No
	Testing and Commissioning	Month 6-7	No
	Cleanup and Restoration	Month 7	No
70 kV Substation	Foundation Construction	Month 2-3	No
	Ground Grid / Conduit Installation	Month 2-3	No
	Steel / Bus Erection	Month 3-4	No
	Control Enclosure Delivery and Install	Month 4	No
	Equipment Delivery and Installation	Month 4	No
	Cable Installation and Termination	Month 4-5	No
	Install Yard Rock	Month 5	No
	Cleanup and Restoration	Month 5	No

Project Phase	Task	Estimated Work Dates	Duration Longer than Proposed Project?
	Testing and Commissioning	Month 6	No
230 kV Transmission Connection	Foundation Tower Installation / Removal of One Tower	Month 2-4	Yes
	Conductor	Month 4-5	Yes
	Cleanup and Restoration	Month 6	Yes

Notes: kV = kilovolt

Note that the extension to the Proposed Project Estrella Substation construction schedule made as part of the Recirculated DEIR[2] changes would also apply to Alternatives SS-1 and SE-1A; however, that extension is not reflected in the work dates provided in this table.

The types of equipment to be used in each phase of construction for Alternative SE-1A and hours per day that equipment would be used during construction would be the same as for the Proposed Project (refer to Table 2-10 in Chapter 2, *Project Description,* and Appendix J of the Applicants' PEA for information). Because geotechnical studies have not been completed for the Templeton Substation Expansion site, the volume of soil/material to be imported/exported during construction and the associated number and length of haul trips during construction cannot be determined.

Construction of Alternative SE-1A would require an approximately 25.2-acre total work area (including a 6.8-acre substation staging area), as shown in Figure 3-12. During construction, workers would park at the staging area and/or temporary work areas. Construction of the substation and 230 kV interconnection would be unlikely to necessitate any temporary road or lane closures; however, any lane changes would be in accordance with traffic control plans filed with the encroachment permit application. The number of construction vehicle trips and the frequency of the trips for Alternative SE-1A is estimated to be the same as for the Proposed Project (refer to Table 4.17-3 in Section 4.17, "Transportation"); however, as noted above, the number and frequency of haul trips associated with soil import/export cannot be determined since geotechnical studies have not been completed. Approximately 5 vehicle trips would be necessary for vegetation trimming/removal during construction of Alternative SE-1A.

Helicopters would be used for construction of the facilities in Alternative SE-1A. Helicopter landing zones for this alternative include:

- Landing Zone 1: Paso Robles Municipal Airport

[2] All documents related to the Recirculated DEIR are available here: https://ia.cpuc.ca.gov/environment/info/horizonh2o/estrella/RDEIR.html

- Landing Zone 2: New 70 kV power line site northwest of Neal Springs Road and southwest of Hanging Tree Road. This landing zone would be approximately 1.3 acre, with a 30- by 30-foot touchdown pad area.

Helicopter flight paths would generally be between the two landing zones.

The amount of water necessary to construct Alternative SE-1A is expected to be similar to the proposed Estrella Substation; however, geotechnical studies would be needed to determine the amount of water needed for soil compaction. As described in Chapter 2, *Project Description,* construction of the substation is estimated to require 8.3 million gallons of water, with the majority (75 percent) used for dust control. Water sources are anticipated to be the same as for the Proposed Project. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas for Alternative SE-1A.

Alternative SE-1A would require removal of a number of oak trees present on the expansion site, some of which may be considered heritage oaks. Based on aerial imagery, there appear to be at least nine oak trees, as well as a cluster of trees of unknown species, within the disturbance area for Alternative SE-1A.

Operation and Maintenance

Operation and maintenance of Alternative SE-1A would be similar to the proposed Estrella Substation. Refer to Chapter 2, *Project Description,* for detailed description of anticipated operations and maintenance activities. Specifically, the amount and frequency of hazardous materials transport and disposal required during operation of Alternative SE-1A would be the same as the proposed Estrella Substation. The mineral oil stored in the transformer on the 230 kV substation would be filtered and replaced on site.

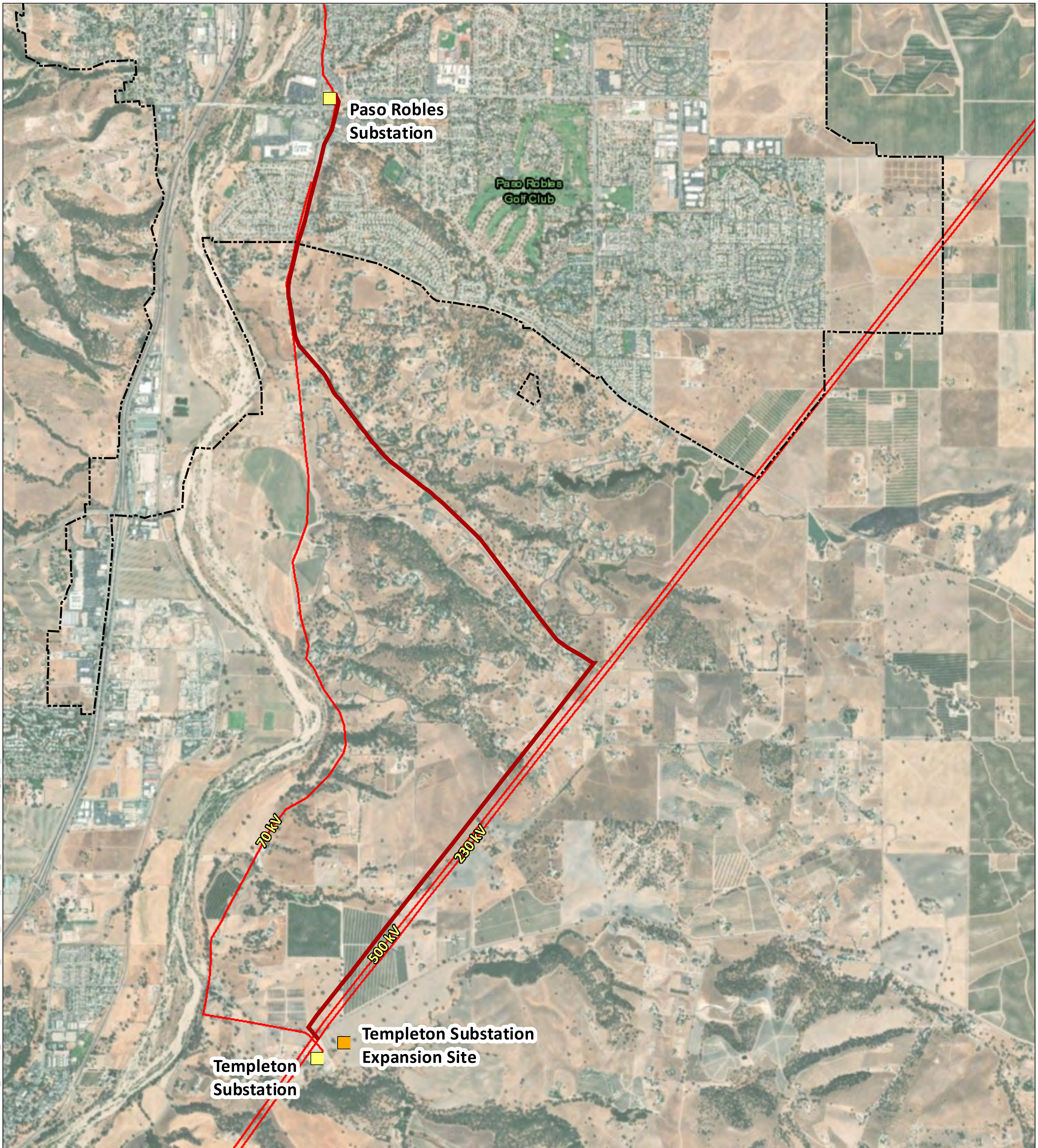
Vehicles accessing the 230/70 kV substation during operation would use El Pomar Drive and Redondo Lane. The estimated number of vehicle trips and frequency of the trips necessary for operation and maintenance of the facilities under Alternative SE-1A would be the same as for the Proposed Project. It is anticipated that one vehicle trip per year would be needed for vegetation management activities for Alternative SE-1A.

3.3.6 Alternative SE-PLR-2: Templeton-Paso South River Road Route

Description

Alternative SE-PLR-2: Templeton–Paso South River Road Route is the 70 kV power line route that would be used to connect the expanded Templeton Substation (Alternative SE-1A) to Paso Robles Substation. Alternative SE-PLR-2 would be constructed in tandem with Alternative SE-1A.

As shown in Figure 3-14, starting at Templeton Substation, the Templeton-Paso South River Road Route follows the existing 230/500 kV transmission line corridor northeasterly for approximately 2 miles to where it intersects with South River Road. At this point, the route would veer to the northwest and follow South River Road (on the southwest side), continuing northwesterly through three HOAs until it reaches the intersection of Santa Ysabel Avenue and South River Road. The route would then continue northerly along the easterly side of South River Road paralleling the existing Templeton–Paso single-circuit 70 kV power line (on the other side of the road) until it reaches the city limits of Paso Robles at the intersection of Charolais Road and South River Road. At this point, the route would continue northerly on the eastern side of South River Road for approximately 0.7 mile, terminating just north of Paso Robles Substation. Figure 3-15 provides a more detailed view of the 70 kV power line route under Alternative SE-PLR-2.



\\h2o-server\GIS_Server_PROJECTS\17010_CPUC_Estrella_Task_3_EIR\mxd\EIR\Fig_3-6_SE-PLR-2 SouthTempleton-Paso River Route .mxd 7/30/2019 PG

Basebap Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

Alternative

Alternative SE-PLR-2: Templeton-Paso South River Road Route

Alternative SE-1: Templeton Substation Expansion

Existing Infrastructure

Existing Substations

Transmission Lines

Paso Robles City Limits

N

0 0.5
Miles

Horizon WATER and ENVIRONMENT

Source: Source: NEET West and PG&E 2017

Note: The route variations shown are offset in order to display the alignments of the alternative routes that may overlap in places.

Figure 3-14
Alternative SE-PLR-2: Templeton-Paso South River Road Route - Overview

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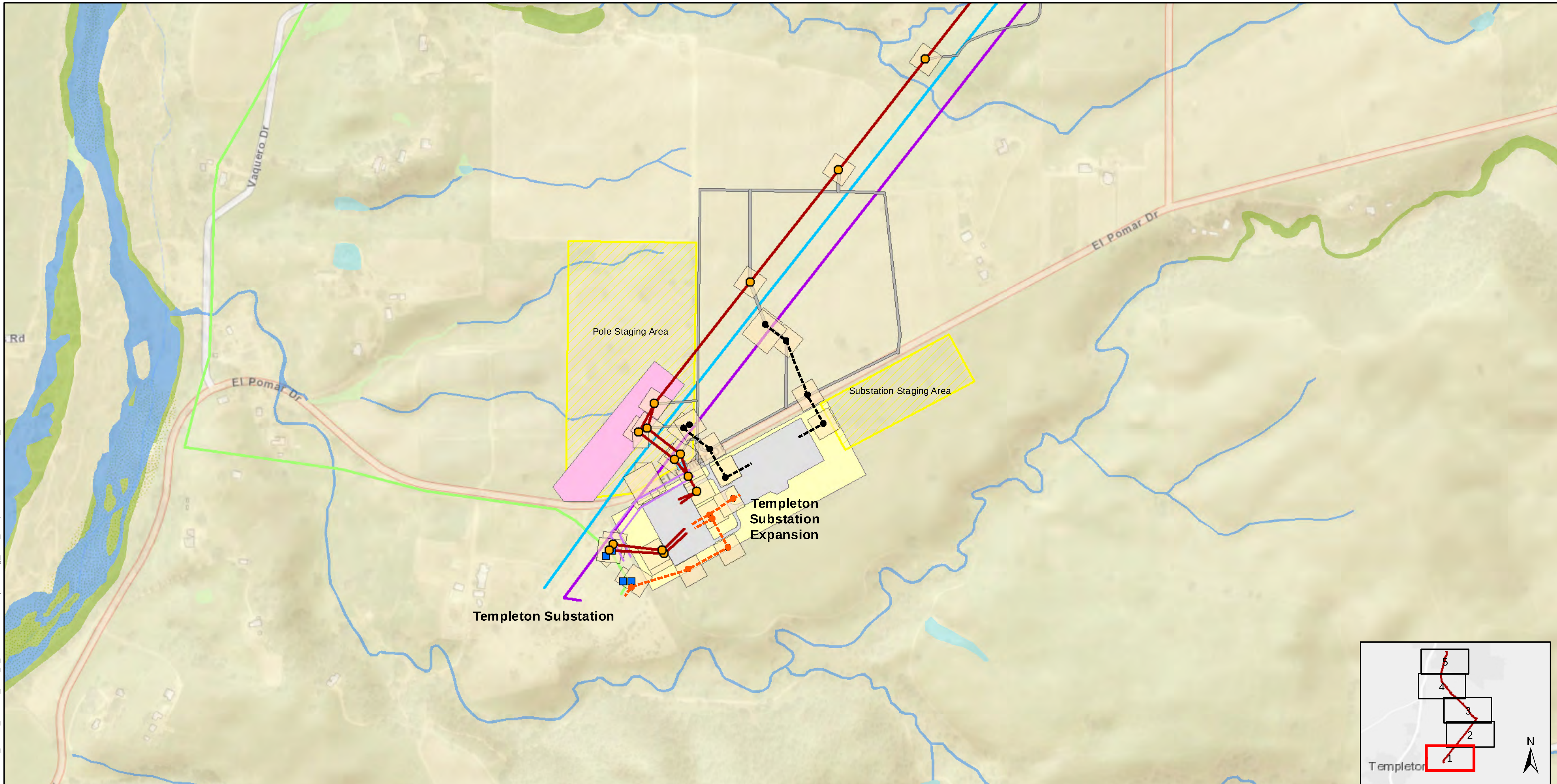

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Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

N

0 125 250 500
Feet

Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- New 70kV Poles
- Existing 70 kV Pole to be Removed
- Existing Distribution Underground Conversion

Construction Temporary Disturbance Areas
- Construction Staging Area
- Temporary Pull Sites
- Access Routes
- Pole Temporary Work Area
- Temporary Crossing Structure Work Area
- Substation Temporary Disturbance Area

Substation Alternative (Alternative SE-1)
- 70kV Tie Line Poles
- 70kV Tie Line
- 230kV Poles
- 230kV Interconnection
- Substation Permanent Disturbance Area

Existing Infrastructure
- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure 3-15
Alternative SE-PLR-2: Templeton-Paso South River Route – Detailed View
Sheet 1 of 5

Estrella Substation and Paso Robles Area Reinforcement Project

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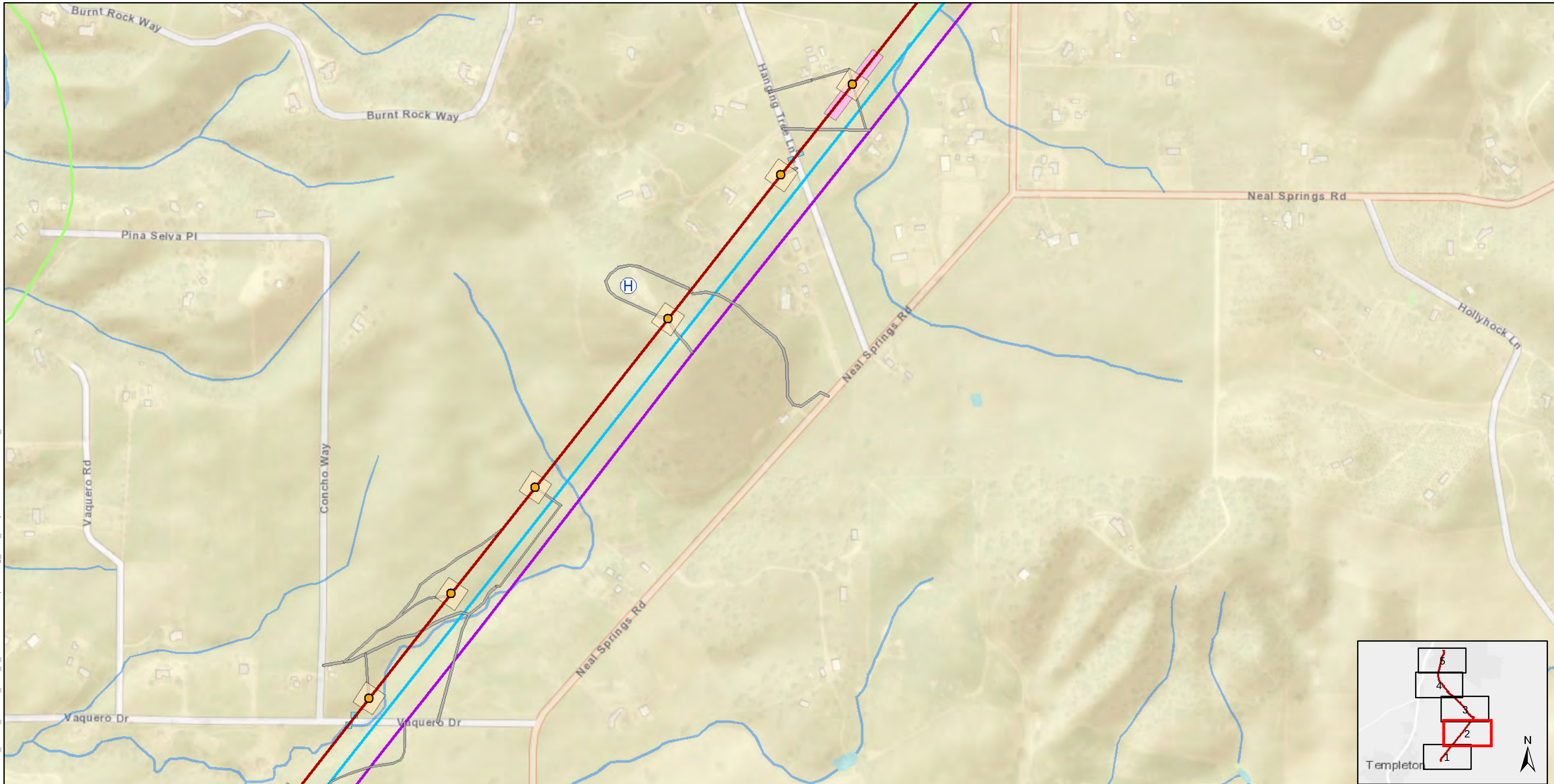

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Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

N

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Feet

Horizon
WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- New 70kV Poles

Construction Temporary Disturbance Areas
- Temporary Pull Sites
- Access Routes
- Pole Temporary Work Area
- Temporary Crossing Structure Work Area
- Helicopter Landing Zones

Substation Alternative (Alternative SE-1)

Existing Infrastructure
- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3-15
Alternative SE-PLR-2: Templeton-Paso South River Route – Detailed View
Sheet 2 of 5

Estrella Substation and Paso Robles Area Reinforcement Project

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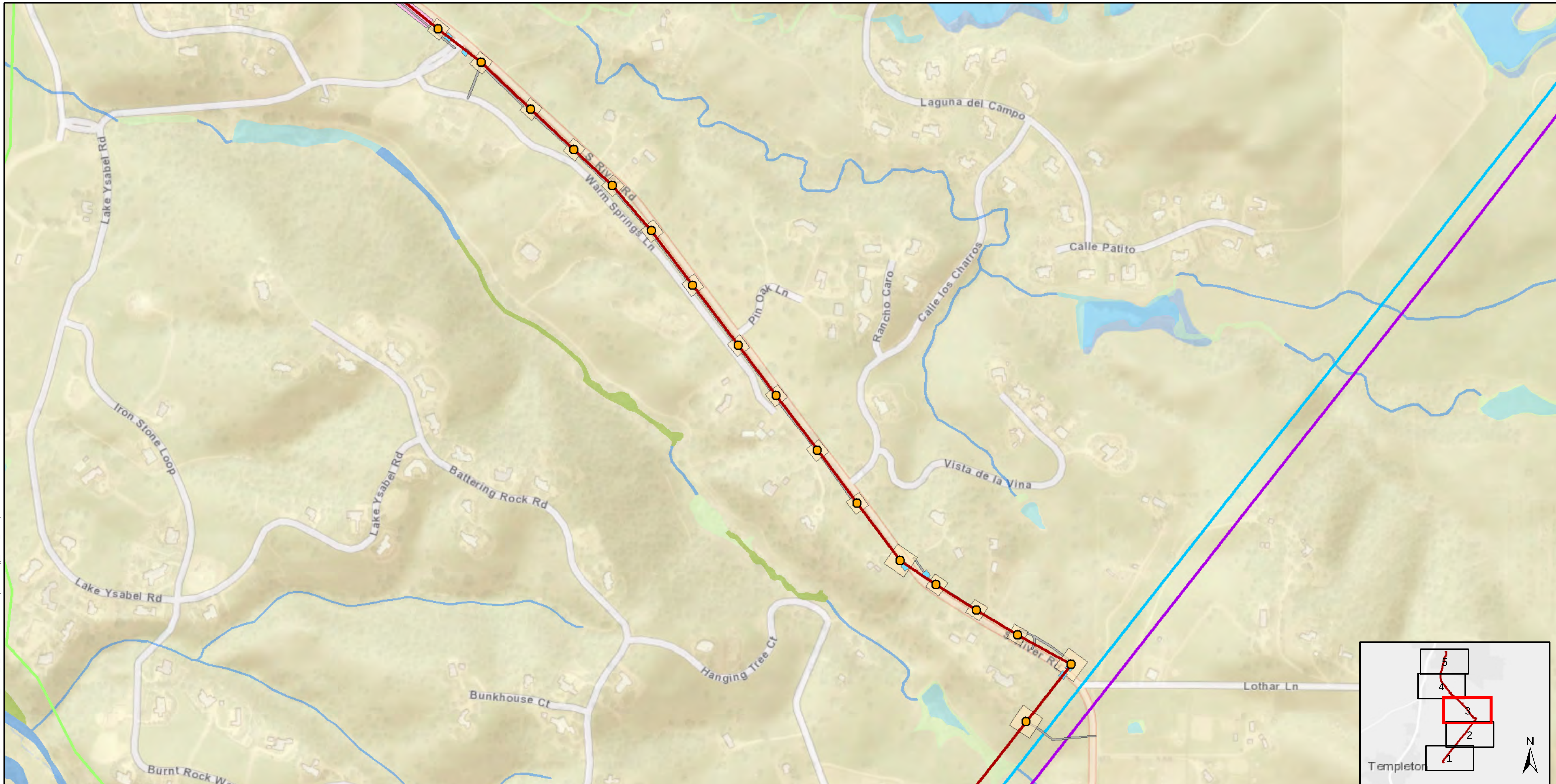

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Basebap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

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Feet

Horizon WATER and ENVIRONMENT

Alternative Components

- New 70kV Power Line Alignment
- New 70kV Poles

Construction Temporary Disturbance Areas

- Temporary Pull Sites
- Access Routes
- Pole Temporary Work Area
- Temporary Crossing Structure Work Area

Substation Alternative (Alternative SE-1)

Existing Infrastructure

- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

National Wetland Inventory

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

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

Figure 3-15

Alternative SE-PLR-2: Templeton-Paso South River Route – Detailed View

Sheet 3 of 5

Estrella Substation and Paso Robles Area Reinforcement Project

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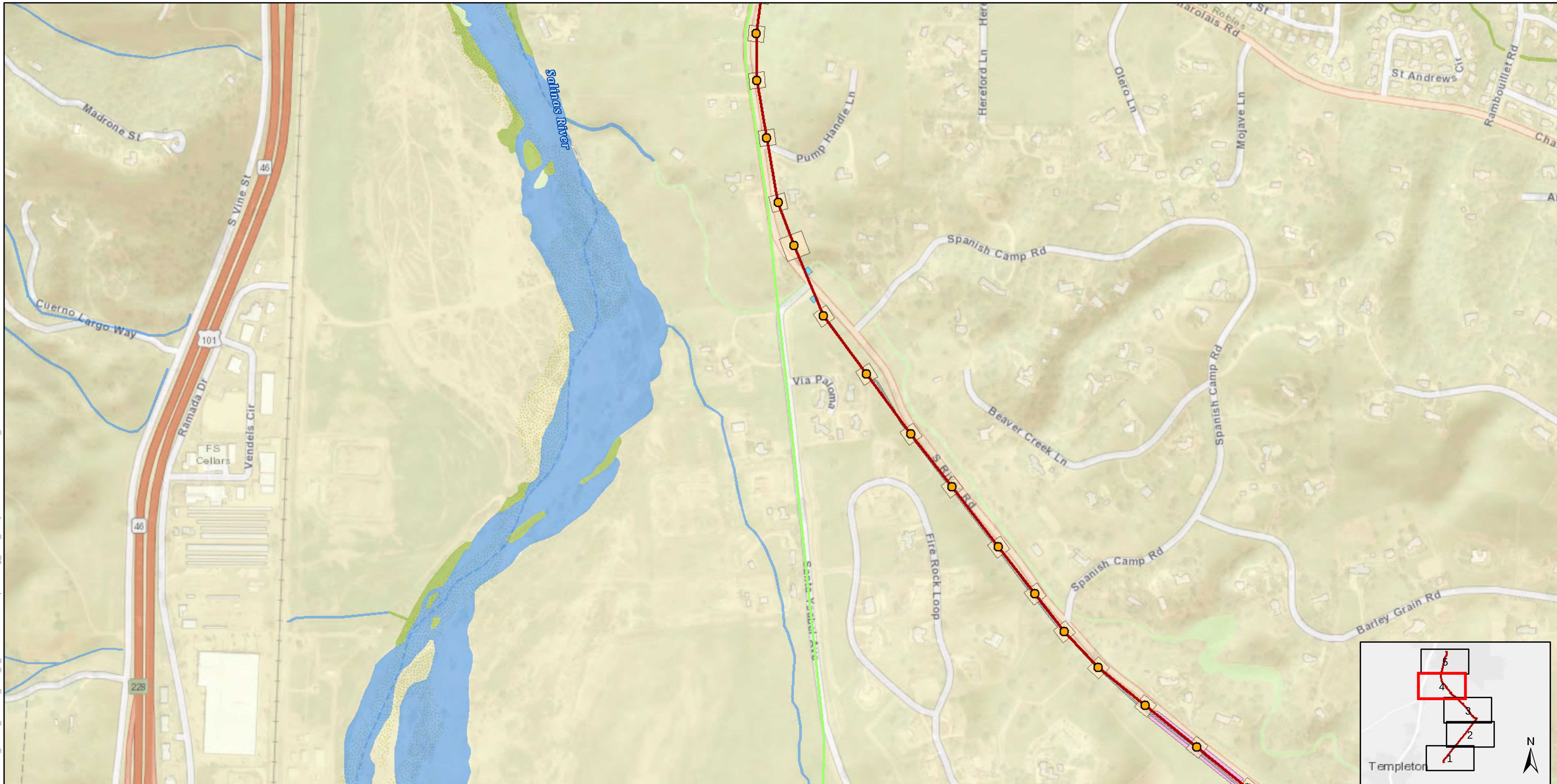

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Basebap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

N

0 125 250 500
Feet

Horizon WATER and ENVIRONMENT

Alternative Components
- New 70kV Power Line Alignment
- New 70kV Poles

Construction Temporary Disturbance Areas
- Temporary Pull Sites
- Access Routes
- Pole Temporary Work Area
- Temporary Crossing Structure Work Area

Substation Alternative (Alternative SE-1)

Existing Infrastructure
- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

National Wetland Inventory
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

Figure 3-15
Alternative SE-PLR-2: Templeton-Paso South River Route – Detailed View
Sheet 4 of 5

Estrella Substation and Paso Robles Area Reinforcement Project

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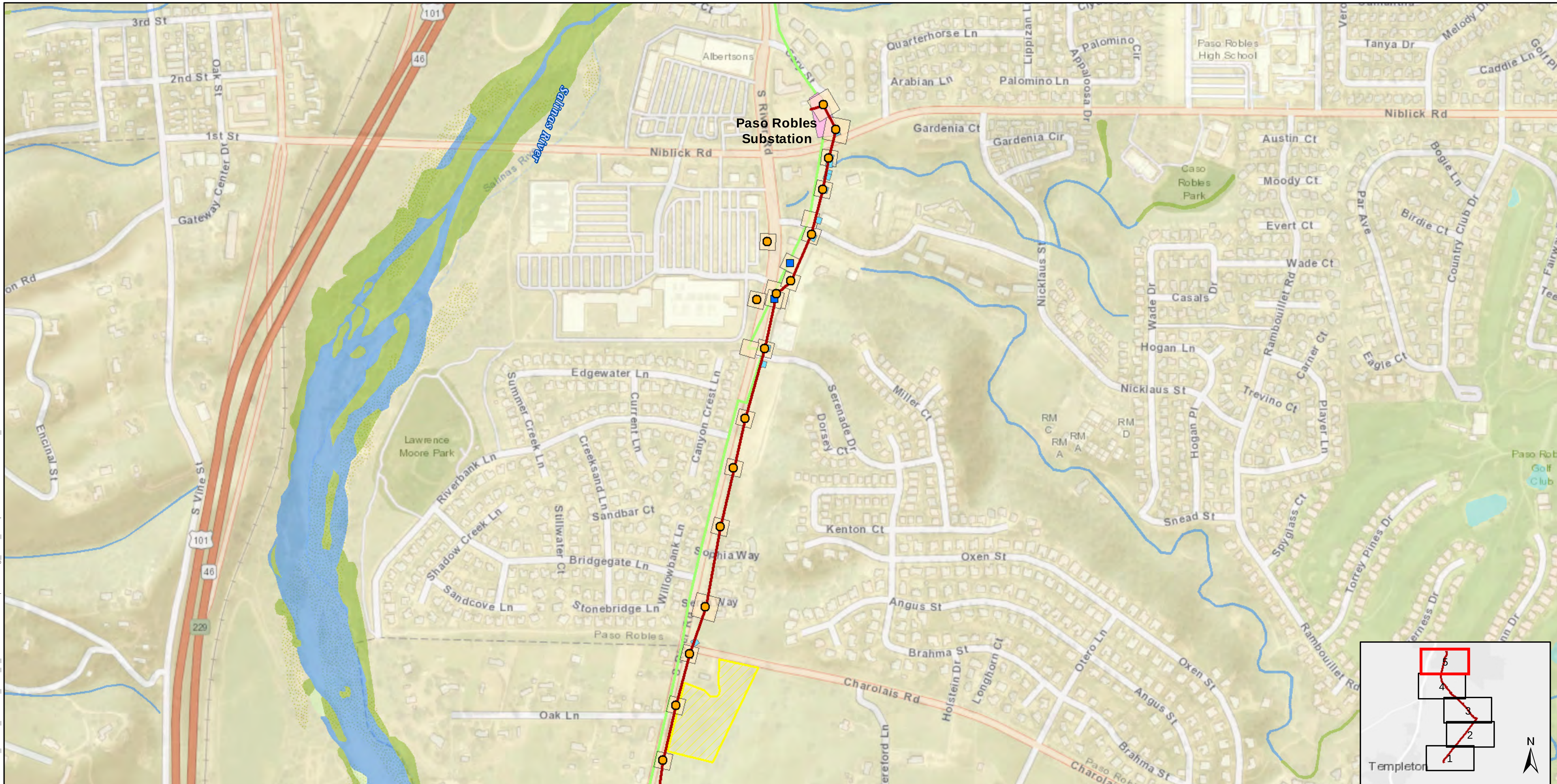

Basemap Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

Alternative Components

- New 70kV Power Line Alignment
- New 70kV Poles
- Existing 70 kV Pole to be Removed

Construction Temporary Disturbance Areas

- Construction Staging Area
- Temporary Pull Sites
- Pole Temporary Work Area
- Temporary Crossing Structure Work Area

Substation Alternative (Alternative SE-1)

Existing Infrastructure

- 500 kV Transmission Line
- 230 kV Transmission Line
- 70 kV Power Line

National Wetland Inventory

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

N

0 125 250 500

Feet

Horizon WATER and ENVIRONMENT

Note: The route variations shown are offset and simplified in order to display the alignments of the alternative routes that may overlap in places

Figure 3-15

Alternative SE-PLR-2: Templeton-Paso South River Route – Detailed View

Sheet 5 of 5

Estrella Substation and Paso Robles Area Reinforcement Project

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The total length of the Templeton-Paso South River Route from Templeton Substation to Paso Robles Substation is approximately 5.2 miles. The 3-mile-long reconductoring segment described for the Proposed Project would not be required under this alternative. The new 70 kV power line under Alternative SE-PLR-2 would be comprised of a combination of TSPs and LDSPs. Typical drawings of each structure type are shown in Chapter 2, *Project Description,* Figure 2-17.

Power line structures would vary in height depending on their location and purpose, but typically would range between 80 to 90 feet. Generally, portions of the new 70 kV power line within the existing 500/230 kV transmission line corridor would utilize TSPs with average span lengths of 900 feet. The remainder of the alignment would utilize TSPs and LDSPs with average span lengths of 380 feet.

Construction

Construction of the new 70 kV power line under Alternative SE-PLR-2 would follow a similar process to that described for the Proposed Project in Chapter 2, *Project Description.* Due to the shorter length of the new power line under Alternative SE-PLR-2 and avoided need for the reconductoring segment, the construction schedule would be shortened compared to the Proposed Project. Table 3-14 summarizes the construction schedule for Alternative SE-PLR-2.

Table 3-14. Alternative SE-PLR-2: Preliminary Construction Phasing, Tasks, and Schedule / Task Duration

Project Phase	Task	Estimated Work Dates
New 70 kV Power Line	Site Work Area Preparation Mobilization	Month 1
	Pole Installation / Transfer / Distribution	Month 2-7
	Conductor Installation	Month 8-9
	Cleanup and Restoration	Month 9

Notes: kV = kilovolt

In total, construction of the new 70 kV power line for Alternative SE-PLR-2 would take 9 months less than the Proposed Project’s 18-month construction schedule for the power line. The types of equipment to be used in each phase of construction for Alternative SE-PLR-2 and hours per day that equipment would be used during construction would be the same as for the Proposed Project (refer to Table 2-9 in Chapter 2, *Project Description,* and Appendix J of the Applicants’ PEA for information).

Staging areas and other temporary work/disturbance areas (e.g., pole work areas, crossing structure work areas, pull sites, access roads, and helicopter landing zones) required for construction of Alternative SE-PLR-2 are shown in Figure 3-15 and summarized in Table 3-15.

Table 3-15. Alternative SE-PLR-2 Temporary Disturbance Areas

Temporary Work Area	Anticipated Site Preparation	Total Approximate Area (Acres)[1]
Staging Areas[2]	Vegetation removal may be required, temporary fencing and gates would be installed, gravel would be installed, and temporary power would be supplied by a distribution tap or generator.	32.5
Pole Work Areas[3]	Vegetation removal and minor grading may be required.	34.9
Crossing Structure Work Areas	Vegetation removal may be required.	1.1
Pull and Tension Sites	Vegetation removal may be required.	8.5
Landing Zones	Sites would be leveled free of obstacles and debris.	1.3
Access Roads	Existing unpaved roads may be improved within the existing road. Improvements include minor grading/blading and the placement of dirt and/or gravel.	3.8

Notes:

1. Acreage totals do not account for overlapping work areas.
2. The primary staging area may be replaced with an approximately 10-acre staging area located on Paso Robles Municipal Airport property.
3. Includes TSPs, LDSPs, and existing and new distribution poles.

Parking areas for construction workers would be located at the staging areas and/or the temporary work areas. The estimated number of construction vehicle trips and frequency of the trips associated with construction of Alternative SE-PLR-2 are shown in Table 3-16.

Table 3-16. Alternative SE-PLR-2: Estimated Daily Worker and Truck Trips During Construction

Construction Phase / Task	Daily Worker Round-Trips	Daily Truck Round-Trips	Number of Days	Duration Longer than Proposed Project?	Maximum # of Daily Round-Trips
New 70 kV Power Line					
Site Preparation / Mobilization	6	5	24	Yes	11
Pole / Tower Installation	9	6-8	144	No	17
Conductor Installation	9	5	36	No	14
Clean-up and Site Restoration	6	4	12	No	10

Notes: kV = kilovolt

Approximately 81 vehicle trips would be necessary for vegetation trimming/removal during construction of Alternative SE-PLR-2. Construction of portions of Alternative SE-PLR-2 that cross over County roadways (see locations of Crossing Structures on Figure 3-15) would require lane closures and/or road closures, which would be up to 5 to 10 minutes at a time, similar to the Proposed Project.

The amount of water that would be required to construct Alternative SE-PLR-2 is expected to be approximately 715,000 gallons. Short-term irrigation water would not be needed for revegetation efforts at any temporary disturbance areas. Sources of water are anticipated to be the same as for the Proposed Project.

Operation and Maintenance

Operation and maintenance of Alternative SE-PLR-2 would be similar to the Proposed Project 70 kV power line. Refer to Chapter 2, *Project Description,* for detailed description of anticipated operations and maintenance activities. Vehicles accessing the power line during operation and maintenance activities would use the following public roads:

- El Pomar Drive
- Neal Spring Road
- Vaquero Drive
- Hanging Tree Road
- South River Road
- Oak Hill Road
- Niblick Road
- Cary Street

The estimated number of vehicle trips and frequency of the trips necessary for operation and maintenance of Alternative SE-PLR-2 would generally be the same as for the Proposed Project. It is anticipated that one vehicle trip per year would be needed for vegetation management activities for Alternative SE-PLR-2.

3.3.7 Alternative BS-2: Battery Storage to Address the Distribution Need

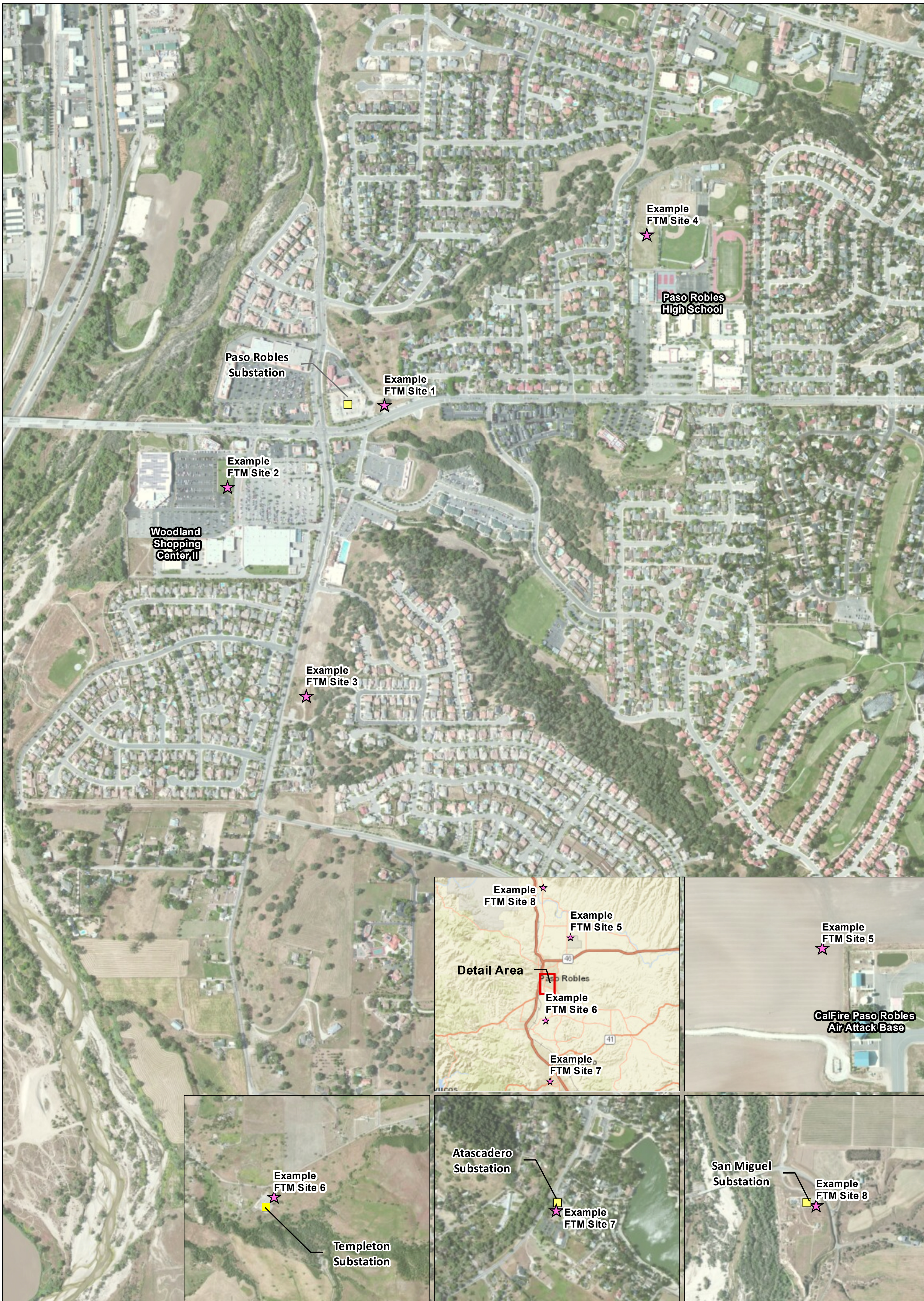
Description

Alternative BS-2 would involve installation of front-of-the-meter (FTM) battery energy storage systems (BESSs) connected to the distribution system to defer the need for additional distribution capacity in the Paso Robles DPA, in accordance with the Distribution Objective of the Proposed Project. As noted in Chapter 2, *Project Description,* the distribution need forecast (i.e., LoadSEER forecast) has changed markedly since submittal of the original PEA and Proposed Project application, with the most recent (2020) load forecast showing that additional distribution capacity may not be needed for another 5 to 15 years. Particularly in light of the COVID-19 pandemic occurring at the time of writing this FEIR, future distribution load demand conditions are highly uncertain. Nevertheless, future load growth could require additional distribution service capacity in the Paso Robles DPA, potentially on short notice (e.g., due to large load applications). The sizes of the FTM BESSs ultimately deployed under Alternative BS-2 would depend on these future load conditions and are unknown at this time.

BESS facilities under Alternative BS-2 would function to “shave” peak loads during periods when energy use along these feeders is high (i.e., reduce peak loads during the summer) to relieve pressure on the area substations and feeders. BESSs would likely operate on a daily cycle where they would discharge to the distribution grid during hours of peak demand and charge from the distribution grid during hours of lower demand (e.g., nighttime).

Sites

Potentially feasible sites for FTM BESSs in the vicinity of Paso Robles Substation and at other area substations are shown in Figure 3-16 and summarized in Table 3-17 . A more detailed view of each site is provided in Figure 3-17 through Figure 3-24. The sites were selected as illustrative examples for the purposes of this CEQA analysis. Need for the reasonably foreseeable distribution components may not occur for up to 15 years as discussed in Chapter 2, *Project Description*. It is not possible to identify with certainty FTM BESS sites that could be selected by PG&E in the future. In addition, energy storage and other distributed energy resources (DER) technologies (e.g., demand response and energy efficiency) are expected to advance within this timeframe. These technological changes are likely to alter siting requirements. Because site-specific analyses are speculative at this time, this FEIR uses the illustrative sites to demonstrate the feasibility of this alternative, and the relatively small footprint these facilities would occupy throughout the project area.



Source: NEET West and PG&E 2017.

Figure 3-16
Front-of-the-Meter
Battery Storage Sites
- Overview Map

N

0 250 500 1,000 Feet

Potential Front-of-the-Meter Battery Storage Locations (FTM)

Existing Infrastructure

Existing Substations

Horizon WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

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Table 3-17. Example Front-of-the-Meter Battery Storage Sites

Site ID	Location Description	Assessor's Parcel No. (APN)	Ownership	Land Use Designation	Parcel or Site Size (Acres)
#1	Immediately adjacent to Paso Robles Substation.	0[1]	Unknown[1]	None	0.56
#2	Within the shopping center located southwest of the intersection of Niblick Road and River Road. Approx. 0.2 mile southwest of Paso Robles Substation.	009-814-050	Woodland Plaza II	Regional Commercial	0.87
#3	Along South River Road south of Serenade Drive on the easterly side of the street. Approx. 0.4 mile south of Paso Robles Substation.	009-769-042	Land Shak Holdings, LLC	Residential	1.82
#4	Within Paso Robles High School adjacent to the baseball field. Approx. 0.5 mile northeast of Paso Robles Substation.	009-611-045	Paso Robles Joint Unified School District	Residential	0.85
#5	On the north side of Satellite Drive adjacent to the CAL FIRE Air Attack Base, which is next to the Paso Robles Municipal Airport runway. Approx. 5 miles northeast of Paso Robles Substation.	025-450-001	City of Paso Robles	Public Facilities	2.23
#6	Adjacent to the existing Templeton Substation, on the southerly side of El Pomar Drive.	034-012-006	Terra Linda Ranchos South	County Other	10.0
#7	Immediately adjacent to the existing Atascadero Substation.	054-151-029	Pacific Gas & Electric Company	Public Facilities	1.56[3]
#8	Within or immediately adjacent to the existing San Miguel Substation.	027-271-004	Pacific Gas & Electric Company	Residential Suburban	2.54[4]

Notes:

1. This piece of land, which is located immediately adjacent to Paso Robles Substation to the east, does not have an APN. Ownership of the land is unknown, although if the land is within the road right-of-way, it could be under the control of the City of Paso Robles.
2. The existing Atascadero Substation occupies a portion of the parcel (on the northern corner). The remainder of the parcel is vacant.
3. The total size of the parcel is 1.56 acres. However, approximately 0.74 acre is occupied by the existing Atascadero Substation, leaving approximately 0.82 acre available for storage facilities.
4. The total size of the parcel is 2.54 acres. However, approximately 1.06 acre is occupied by the existing San Miguel Substation. BESS facilities could potentially fit within the footprint of the existing substation or be installed on the remaining 1.48-acre undeveloped portion of the site.

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Source: NEET West and PG&E 2017.

N

0 100 200
Feet

Parcel or Site Boundary

Existing Substations

Figure 3-17
Front-of-the-Meter
Battery Storage Site #1

Horizon WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

Source: NEET West and PG&E 2017.

N

0 100 200
Feet

Parcel or Site Boundary

Figure 3-18
Front-of-the-Meter
Battery Storage Site #2

Horizon
WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

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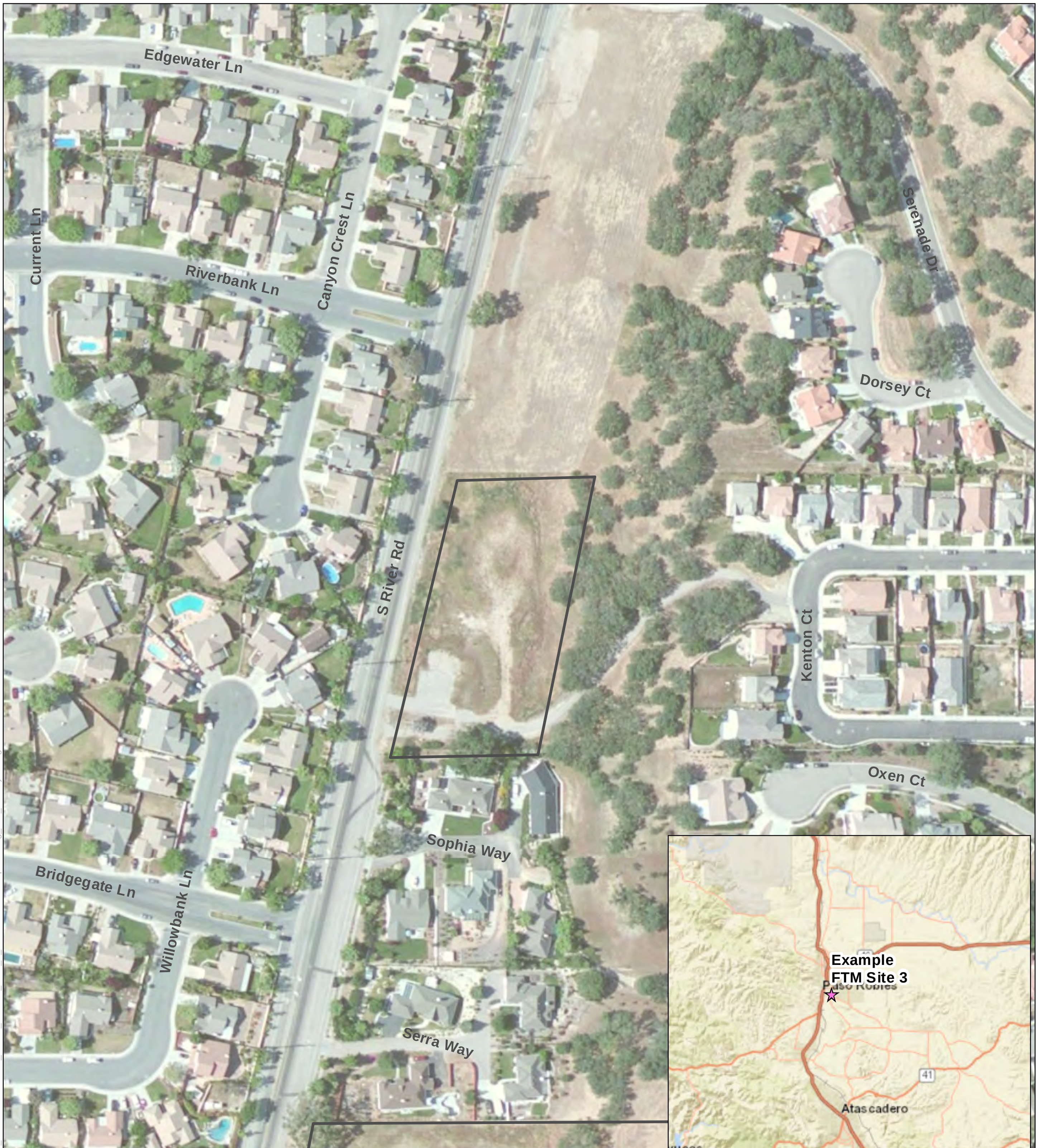

Source: NEET West and PG&E 2017.

Figure 3-19
Front-of-the-Meter
Battery Storage Site #3

Horizon WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

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Source: NEET West and PG&E 2017.

N

0 100 200

Feet

Parcel or Site Boundary

Figure 3-20
Front-of-the-Meter
Battery Storage Site #4

Horizon WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

Source: NEET West and PG&E 2017.

N

0 100 200
Feet

Parcel or Site Boundary

Figure 3-21
Front-of-the-Meter
Battery Storage Site #5

Horizon
WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

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Source: NEET West and PG&E 2017.

N

0 100 200
Feet

Parcel or Site Boundary

Existing Substations

Figure 3-22
Front-of-the-Meter
Battery Storage Site #6

Horizon WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

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Source: NEET West and PG&E 2017.

Figure 3-23
Front-of-the-Meter
Battery Storage Site #7

N
0 100 200
Feet

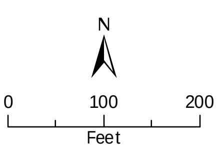
Parcel or Site Boundary
Existing Substations

Horizon
WATER and ENVIRONMENT

Estrella Substation and
Paso Robles Area Reinforcement Project

Source: NEET West and PG&E 2017.

Figure 3-24
Front-of-the-Meter
Battery Storage Site #8



Parcel or Site Boundary
Existing Substations

Estrella Substation and
Paso Robles Area Reinforcement Project

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Battery Energy Storage System Size and Energy Amount

BESS size (megawatt [MW]) and energy amount (megawatt-hour [MWh]) at any given site would be practically limited by the space requirements of the BESS facilities, which would depend on BESS technology (see discussion below) and the space available at the site. Another limiting factor could be the hosting capacity of the distribution feeder that the BESS would connect into, although feeder or distribution bank upgrades may be possible to accommodate BESS interconnections. As discussed above, the BESS size and energy amount ultimately selected for implementation at any given site or at multiple sites also would depend on the realized or projected load growth and the amount of additional distribution capacity that is reasonably needed to accommodate such growth.

For the purposes of this FEIR, the analysis considers that the entire undeveloped portions of identified FTM sites (see Figure 3-17 to Figure 3-24) would be impacted in developing BESSs under Alternative BS-2. Example BESS configurations that could fit on the identified sites are provided in Table 3-18 for informational purposes.

Table 3-18. Example Maximum Battery Energy Storage System Size, Storage Amount, and Footprint by Site

FTM Site ID	Likely System Interconnection[1]	BESS Technology[2]	BESS Characteristics		
			Size (MW)	Energy Amount (MWh)[3]	Footprint (acres)
#1	Direct – Paso Robles Substation	Lithium Ion	35	140	0.51
#2	Paso Robles Feeder 1103	Lithium Ion	55	220	0.78
#3	Paso Robles Feeder 1106	Lithium Ion	120	480	1.69
#4	Paso Robles Feeder 1108	Lithium Ion	55	220	0.78
#5	Paso Robles Feeder 1107	Lithium Ion	3.2[4]	12.8[4]	0.08[4]
#6	Direct – Templeton Substation	Lithium Ion	600	2400	8.43
		Flow Battery	50	400	9.1
#7	Direct – Atascadero Substation	Lithium Ion	55	220	0.78
#8	Direct – San Miguel Substation	Lithium Ion	100	400	1.41

<u>Notes:</u> MW = megawatt; MWh = megawatt-hour

1. A direct connection to a substation could connect to a distribution bank or any of the individual feeders served through the substation.
2. Lithium ion BESS size and footprint estimates based on 2019 Tesla Megapack specifications. These estimates assumed that augmentation would be required (i.e., buildout of additional BESS units as batteries degrade over time). Flow battery size and footprint estimates based on information provided by Sumitomo Electric Industries, Ltd.
3. Assumed 4-hour BESS duration (except for flow battery). Longer duration batteries could be utilized depending on future load growth/load curve characteristics.

4. The BESS at FTM Site #5 would be matched to the size/output of the planned solar facility (3.2 MW) adjacent to this site.

5. This table reflects maximum BESS sizing for the example FTM sites. Example site selection and BESS sizing were initially determined with respect to meeting both the transmission and distribution needs. A BESS solution for the larger transmission need was screened out from full analysis in the FEIR (see Section 3.4). BESS sizing for the distribution need alone would be substantially smaller.

As shown in Table 3-18, the example FTM sites could accommodate relatively large BESS installations in MW/MWh terms. The size of the BESS required would be dictated by the grid capacity needs PG&E identifies pursuant to their annual Grid Needs Assessment and Distribution Deferral Opportunity Report filing to the Distribution Resources Plan proceeding (R.14-08-013) or its successor proceeding. In PG&E's 2018 and 2019 filings, the distribution capacity requirements identified ranged from 3.4 MW to 5.9 MW (CPUC 2020). In their 2020 filing, however, PG&E indicated that the distribution capacity need that is eligible for consideration in the DIDF no longer exists within the 10-year planning horizon (PG&E 2020a). In a data response to Energy Division, PG&E clarified that it remains reasonably foreseeable that the distribution components could be needed at the proposed Estrella Substation within fifteen years (PG&E 2020b).[3] As of 2019, PG&E expected the distribution components to cost $18.5 million (CPUC 2020), which does not include the ultimate buildout of the distribution facilities as identified in Figure 2-18 of Chapter 2, *Project Description*.

Battery Energy Storage System Technology

Lithium-ion BESSs are the most space-efficient and cost-effective technology currently on the market. Therefore, it was generally assumed that BESSs installed under Alternative BS-2 would be lithium-ion models, particularly at sites with limited space available, such as those within the City of Paso Robles (e.g., FTM Sites #1-4). A lithium-ion BESS example within an enclosed building is shown in Figure 3-25. However, lithium-ion BESSs also have downsides, such as potentially elevated fire hazard risk in comparison to other technologies.

In addition to lithium-ion, the CPUC considered redox flow battery technology (see Table 3-18). Redox flow batteries are batteries in which energy storage in electrolyte tanks is separated from power generation in stacks. The stacks consist of positive and negative electrode compartments divided by a separator or an ion exchange membrane through which ions pass to complete the electrochemical reactions (Mongird et al. 2019). While redox flow batteries are in the relatively early stages of commercialization, they offer potential advantages, such as long lifecycles, low temperature ranges for operation, and easy scalability (Mongird et al. 2019). Redox flow batteries may have reduced fire risk compared to lithium-ion batteries, but they require the use of liquid electrolyte with high concentrations of acid. The acid is required to dissolve media in the liquid electrolyte. Containment is required around the base of the installations.

[3] PG&E also identified reliability benefits in addition to the capacity needs to be met by the proposed distribution facilities in their annual, 2019 filings to proceeding R.14-08-013. The Administrative Law Judge considered the capacity need to be the primary concern, in part, because even the proposed distribution components could not fully address the reliability issues identified. The reliability benefits were not identified in PG&E's 2018 filings to the proceeding (CPUC 2020).

Redox flow batteries are expected to be more expensive on a per kW/h basis than lithium-ion batteries and also require a significantly larger footprint. Thus, for the Proposed Project under Alternative BS-2, this technology would be best suited to the Templeton Substation location (i.e., FTM Site #6), where there is ample space available. Sumitomo Electric Industries, Ltd. (Sumitomo) provided details to the CPUC about potential redox flow battery designs under Alternative BS-2 (Okuda, pers. comm., 2019). Sumitomo provided a conceptual drawing for a 50 MW/400 MWh (i.e., 8-hour) a vanadium redox flow battery system, which is shown in Figure 3-26. Sumitomo estimated that such a facility would occupy about 7.3 acres. Assuming an additional 25 percent space requirement for ancillary equipment tie-ins and driveway, this would come out to 9.1 acres.

According to Peter Klauer, CAISO Senior Advisor on Smart Grid Technology, flow batteries have features that could make bulk system electricity storage more cost efficient. In a flow battery, electrolytes are stored in tanks separate from the battery cells, which allows the battery to be scaled easily by simply increasing the size of the electrolyte tanks. The electrolyte solutions in flow batteries can have long lifetimes without major degradation, and the cycle life of flow batteries can be higher than for other battery technologies, reducing the costs of installing and operating the flow battery (San Diego Gas & Electric Company 2019).[4]

Battery Energy Storage System Components and Ancillary Site Features

Lithium-ion BESSs would typically include battery power packs, a control building, step up transformer, switchgear, heating, ventilation, and air conditioning units, and site development features, such as a driveway, stormwater management features, and fencing. It is generally assumed that 25 percent of the space at any given BESS site would be used for site development features. Particularly in areas that are developed (e.g., residential or commercial uses), lithium-ion BESSs may be enclosed in a building structure, which would serve to limit the aesthetic impact. A conceptual rendering of a lithium-ion BESS facility enclosed in a building is shown in Figure 3-25.

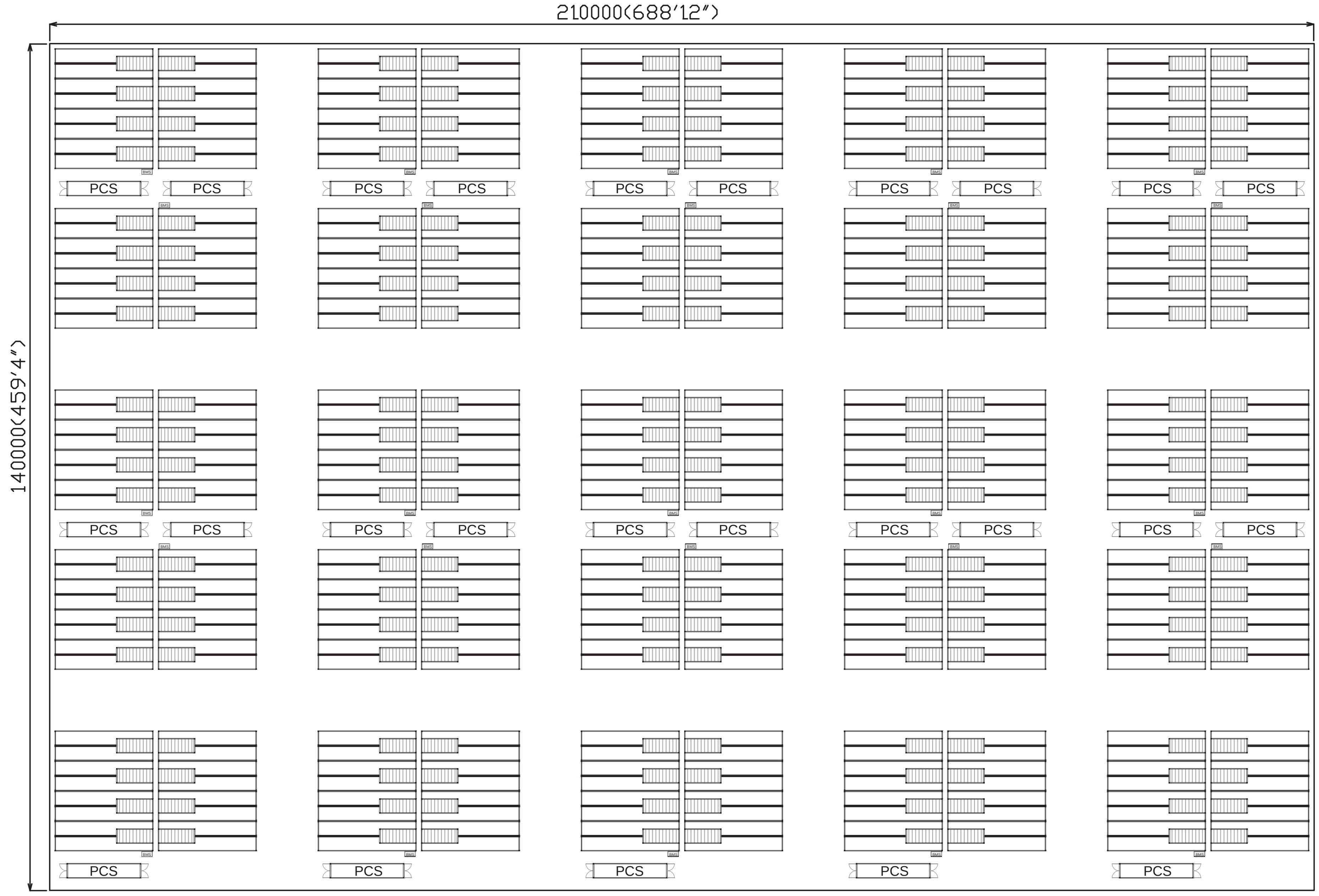
[4] For further information, refer to the details about a pilot installation by San Diego Gas and Electric Company that was integrated into the CAISO market in 2019 at https://sdgenews.com/article/innovative-battery-storage-technology-connected-california-grid.

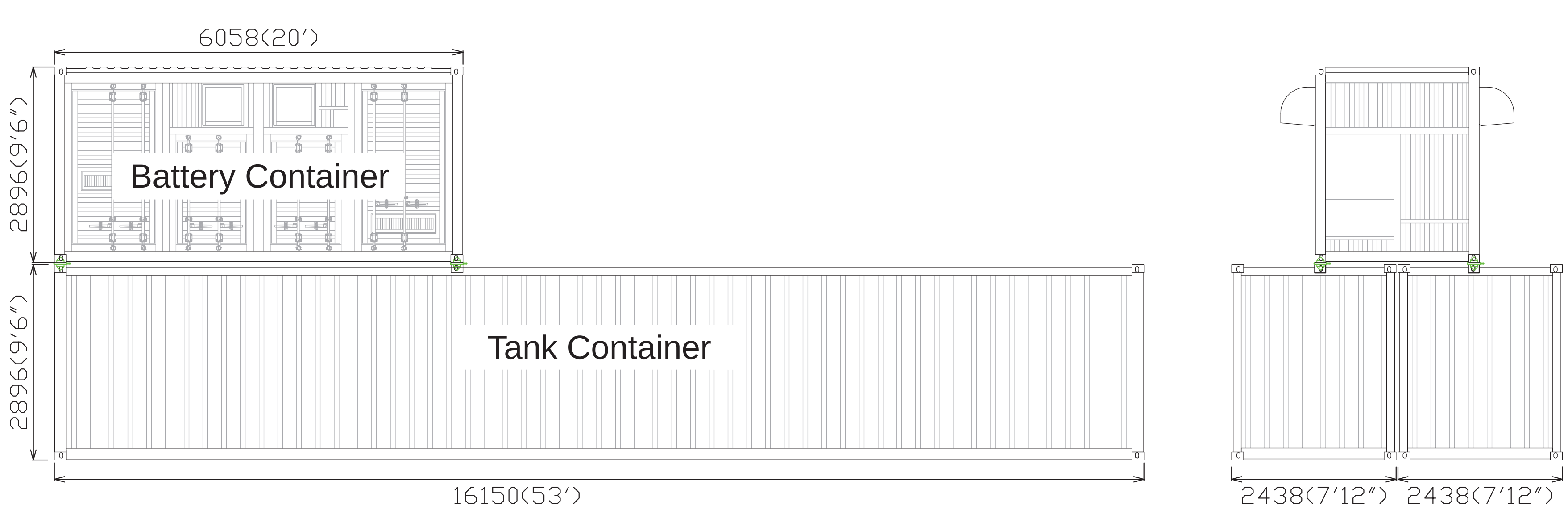
Figure 3-25.Example Energy Storage Facility Enclosed in Building

Notes: Example 10 MW/40 MWh 4-hour battery; 4,225 sq. ft. building on 0.37 acre lot; All distribution line connections are underground; Unspecified lot location in Any Town, USA

Source: Itani, pers. comm., 2018

Flow BESSs would generally be comprised of stacked containers (tank containers below and battery containers above) (see Figure 3-26), which would measure up to roughly 20 feet tall when stacked two containers high. The tank containers would measure 53 feet long by 12 feet wide. At the end of each container array would be a power conditioning system, as well as a battery management system. Depending on the size (MW) and storage amount (MWh) of the flow BESS, there may be more or less container arrays. Flow BESSs would be expected to include the same site development features (e.g., driveway, stormwater management facilities, fencing, etc.) as lithium-ion BESSs, and the same 25 percent space requirement assumption would apply. Due to the large footprint of flow BESSs, it would not be practicable to enclose them within a building.





PCS = Power Conditioning System
BMS = Battery Management System

Source: Sumitomo 2019

Figure 3-25. Redox Flow Battery Conceptual Drawing – 50 Megawatts X 8 Hours

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Construction, Operation, and Maintenance

Depending on the specific site, construction of FTM BESSs may involve vegetation removal, grading, construction of a concrete slab or foundation for the BESS facilities, delivery and installation of BESSs, and construction/installation of appurtenant facilities. BESSs also would need to be connected to the distribution system or substation, which may require wiring work and some reconductoring. Construction activities may require use of heavy construction equipment and would involve truck trips for delivery of materials and vehicle trips from workers traveling to and from the site(s).

Once installed, BESS facilities would likely require minimal operation and maintenance. Control systems would be set up at the time of installation which would control the BESSs behavior (e.g., charging/discharging) in relation to grid loading, etc., or the BESSs may be operated remotely. BESSs may require minor adjustments and servicing from time to time, which would typically involve one or two workers traveling to the site and conducting maintenance or repairs. At the end of their usable life, BESSs would need to be recycled (if possible) or disposed of. Because BESSs contain hazardous materials, this could require transport of the BESS materials to a hazardous waste landfill.

Potential for Third-Party Procurement

While it is possible for PG&E to implement Alternative BS-2, it is also possible that the distribution need could be met by PG&E competitors that design and install battery storage or other DERs (e.g., solar or energy efficiency) as part of the CPUC’s Distribution Infrastructure Deferral Framework (DIDF) pursuant to the Distribution Resources Plan proceeding (R.14-08-013) or its successor proceeding. The third-party providers would handle all design, siting, and local permitting requirements.

The DIDF procurement process for DER alternatives to traditional infrastructure investments, such as the proposed Estrella Substation, is the same for both FTM and BTM DER solutions. It is possible that, as an outcome to the Estrella proceeding (A.17-01-023), the CPUC could require PG&E to seek a DER solution via the DIDF. The DIDF procurement process is further described under Alternative BS-3, below.

For the purposes of this CEQA analysis, potential FTM BESS sites were evaluated with the assumption that PG&E would construct and operate the DER solution rather than relying on a contractual relationship with a third-party DER provider to address the reasonably foreseeable distribution need. These are representative sites for CEQA analysis purposes. It is not possible to predict with certainty where PG&E may site a DER solution within the next 15 years should the distribution need occur. Similarly, it is not possible to predict where a third-party DER provider may choose to install a DER solution or to predict the technology that the DER provider may offer. The cost-effectiveness of various DER solutions is likely to change within the next 15 years as the technologies advance. A full analysis of hypothetical DIDF outcomes and types of DER solutions would be speculative and outside the scope of this CEQA analysis. Ultimately, the precise method for implementing Alternative BS-2, if selected, will be determined by the Commission. Multiple approaches are possible, including, but not limited to, directly ordering development of the alternative, ordering filing via the DIDF as needs arise, or ordering a proceeding-specific programmatic decision-making approach via advice letter filings.

3.3.8 Alternative BS-3: Third-Party, Behind-the-Meter Solar and Battery Storage

Description

BTM solar and battery storage (i.e., "BTM resources") adoption also could reduce loading on circuits within the Paso Robles DPA, and thereby avoid potential future forecasted substation overloads. BTM resources would be metered at the building-level, and could be owned and/or operated by either the building owner or a third party provider.

Based on modeling performed by the EIR team, there is significant potential for BTM storage adoption in the Paso Robles DPA as a whole and on Paso Robles feeders specifically. Table 3-19 shows summary results from the BTM Solar plus Storage Adoption Propensity Analysis Report (BTM Report) (Kevala2020).

Table 3-19. Summary Results for the BTM Adoption Propensity Analysis – All Customer Types in the Paso Robles DPA

	BTM Adoption Propensity			
Scenario	Solar (MW)	Battery Storage (MW)	Battery Storage (MWh)	Total # of Customers
Low	88	125	240	~17,000
Medium	92	138	272	~19,000
High	100	175	343	~21,000

As shown in Table 3-19, under the low scenario, roughly 17,000 customers (residential and commercial and industrial [C&I]) meet the criteria for economically-efficient adoption. If all of these customers adopted BTM solar and/or storage technology at the parameters used in the study, this would equate to 88 MW of solar and 125 MW / 240 MWh of storage (CPUC 2020). Under the high scenario, approximately 21,000 economically-efficient potential adopters were identified, equating to 100 MW of solar and 175 MW / 343 MWh of storage.

For Paso Robles feeders specifically, Table 3-20 shows that there is relatively substantial BTM adoption potential for customers along feeders in target areas for future distribution service from the Estrella Substation.

Table 3-20. BTM Storage Adoption Propensity for Paso Robles Feeders – Low and High Scenarios

Feeder	Low Scenario			High Scenario		
	# of Customers	MW	MWh	# of Customers	MW	MWh
Paso Robles 1101	123	0.8	3.6	151	1.1	2.5
Paso Robles 1102	676	4.8	9.3	881	7.3	14.3
Paso Robles 1103	1,112	9.7	15.1	1,324	10.9	21.5
Paso Robles 1104	624	4.5	8.8	843	6.7	13.3
Paso Robles 1106	1,737	12.2	23.6	2,325	18.8	36.5
Paso Robles 1107	918	6.6	12.9	1,123	9.5	18.7
Paso Robles 1108	1,399	9.9	19.2	1,822	14.9	29.2
Total:	**6,589**	**48.5**	**90.6**	**8,468**	**69.2**	**136.0**

Although future load conditions would depend on where future development projects and other new load sources occur in the Paso Robles area, Table 3-20 shows that there is adoption potential along all of the feeders that connect to Paso Robles Substation. In particular, Paso Robles Feeder 1107, which passes through two of the anticipated growth areas in Golden Hill Industrial Park and near the Paso Robles Airport, has potential for BTM storage adoption of 9.5 MW / 18.7 MWh under the high scenario. Similarly, Paso Robles Feeder 1102 also passes through the Golden Hill Road area and has potential for adoption of 7.3 MW / 14.3 MWh of BTM storage under the high scenario.

The ASR and BTM Report describe in detail the potential for BTM resources adoption to meet the Distribution Objective of the Proposed Project. Essentially, only a portion of the total BTM resources adoption potential would need to be realized to meet the likely capacity needs in the Paso Robles DPA, although in some cases BTM resources alone could not solve all specific capacity needs (e.g., San Miguel Bank 1) identified in PG&E’s 2019 Distribution Deferral Opportunities Report. Thus, FTM storage may need to be implemented in tandem.

Customer Incentive Program, Outreach, and Marketing

It is anticipated that BTM resources installed as an alternative to the Proposed Project would be procured under the CPUC's DIDF pursuant to the Distribution Resources Plan proceeding (R.14-08-013) or its successor proceeding. Either a Request for Offers (RFO) process or use of a deferral tariff could be implemented for procurement. The DIDF RFO process is well established, having occurred in January 2019 and January 2020.[5] The deferral tariff process is new and may be available as an alternative to the RFO process as early as August 2021.[6]

To maximize potential BTM resources adoption, Alternative BS-3 assumes that a targeted outreach and marketing program would occur to provide education and incentives to encourage DER adoption in the Paso Robles DPA. This would occur as part of the RFO or deferral tariff DER procurement process. The program would be led by DER providers selected to provide aggregations of DERs, and marketing would be supported by the investor owned utilities as determined by contractual arrangements between PG&E and selected DER providers.

The DIDF is technology neutral but, for the purposes of this CEQA analysis, solar and battery storage DERs were assumed. Other types of DERs could also be procured, such as energy efficiency and demand response. To date, only FTM battery storage offers have been procured via the DIDF. The cost-effectiveness of various DER solutions is expected to change as technologies advance within the need timeframe for the reasonably foreseeable distribution components (5-15 years).

While this section highlights the DIDF process as a viable approach for implementation, ultimately, the precise method for implementing Alternative BS-3, if selected, will be determined by the Commission. Multiple approaches are possible, including, but not limited to, directly ordering development of the alternative, ordering filing via the DIDF as needs arise, or ordering a proceeding-specific programmatic decision-making approach via advice letter filings.

BTM Sites and Facilities

Because it is unknown which specific customers will opt into the BTM resources program and install BTM resources on their property, the specific locations of activities under Alternative BS-3 are unknown. In general, BESSs would be anticipated to be installed within existing commercial and industrial buildings, and within existing residential homes or apartment complexes.

[5] For 2019 DIDF RFO details, see https://www.pge.com/pge_global/common/pdfs/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/2019%20DIDF%20RFO/DIDF_Solicitation_Protocol_Final5.pdf. For 2020 DIDF RFO details, see https://www.pge.com/en_US/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/2020-didf-rfo.page?ctx=large-business.

[6] For further RFO and deferral tariff details, refer to the CPUC Energy Division Staff Proposal: Distributed Energy Resources Deferral Tariff and Request for Offer Streamlining, October 5, 2020, at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M348/K078/348078433.PDF.

Construction, Operation, and Maintenance

Construction activities under Alternative BS-3 would include deliveries of individual BTM solar and/or storage units to customers' properties, installation of the units on-site, and wiring work to connect the BTM resources to existing electrical systems. In general, it is assumed that minimal ground disturbance would be required since BTM solar and storage facilities would be installed primarily on and within existing buildings; however, it is possible that at some locations building owners may choose to install the BTM facilities on previously undeveloped portions of their property. In this case, some vegetation clearing, light grading, and minor excavation is possible; a concrete slab may be installed to support the BTM solar and/or storage facilities or a small enclosed building with a foundation may be constructed to house the storage facilities.

Once installed, BTM storage facilities would require minimal operation and maintenance. Control systems would be set up at the time of installation which would control the BTM storage systems' behavior (e.g., charging/discharging) in relation to building energy usage, photovoltaic energy production, grid pricing, etc. BTM storage systems may require minor adjustments and servicing from time to time, which would typically involve one or two workers traveling to the site and conducting maintenance/repairs. At the end of their usable life, BTM BESSs would need to be recycled (if possible) or disposed of; because BESSs contain hazardous materials, this may require transport of the BESS materials to a hazardous waste landfill.

3.4 Project Alternatives Screened Out from Full Analysis in the EIR

This section discusses briefly the alternatives that were considered but dismissed (screened out) from detailed analysis in the EIR. Refer to the ASR for detailed discussion of the alternatives screening process conducted for the Proposed Project.

3.4.1 Alternative SS-2: Mill Road West Substation Site

The Mill Road West Substation Site is an alternative site that was considered for the proposed substation. This site is situated on an approximately 42-acre parcel located approximately 0.5 mile east of the proposed Estrella Substation site and Union Road (see Figure 3-1). The site is bounded on the north by Mill Road, the west by an unpaved private road and retention pond, and the south by an unpaved private road and moderate rolling hills. The site is currently used to grow wine grapes. Adjacent land uses include primarily vineyards and associated wine processing facilities and wine tasting venues. Scattered residences are also present in the area.

The Mill Road West Substation Site was screened out from full analysis in the EIR due to its inability to avoid or substantially reduce one or more of the significant effects of the Proposed Project. Specifically, locating the substation on this site would not substantially reduce the agricultural resources or aesthetic effects of the Proposed Project. The site is on existing vineyard designated as Farmland of Statewide Importance and Unique Farmland, and a substation on this site would likely still be visible by sensitive receptors in the area.

3.4.2 Alternative PLR-1B: Estrella Route to Mill Road West

Alternative PLR-1B is a 70 kV power line route that was considered for connecting a substation at the Mill Road West Substation Site (Alternative SS-2) to the Paso Robles Substation. This route would be very similar to the other Estrella Route variations (e.g., Alternatives PLR-1A and -1C) but would have a different starting point at the Mill Road West site (refer to Figure 3-1). Starting at the Mill Road West site, the route would follow the existing 230/500 kV transmission corridor northeast, across a riparian/drainage area near the Treasury Wine Estates, before veering west, crossing back over the riparian/drainage area, and then joining the Alternative PLR-1A/-1C route that zig zags northwest through agricultural lands towards Wellsona Road. The remainder of the Alternative PLR-1B route would be identical to Alternatives PLR-1A and -1C.

Alternative PLR-1B: Estrella Route to Mill Road West was screened out from full analysis in the EIR because it would only be used with Alternative SS-2: Mill Road West Substation Site, which was itself screened out from full analysis (see discussion under Section 3.4.1).

3.4.3 Alternative PLR-1D: Estrella Route to Bonel Ranch, Option 2

Alternative PLR-1D is another 70 kV route (in addition to Alternative PLR-1C) that was considered for connecting a substation at the Bonel Ranch Substation Site (Alternative SS-1) to the Paso Robles Substation. As shown on Figure 3-1, starting at the Bonel Ranch site, the Alternative PLR-1D route would follow Estrella Road west/northwest before cutting down and joining an existing distribution line that traverses agricultural land in a northwest direction. Alternative PLR-1D ultimately crosses the Estrella River twice before joining Wellsona Road and the remainder of the Alternative PLR-1A, -1B, and -1C alignment down to Paso Robles Substation.

This alternative was screened out from full analysis in the EIR due to potential feasibility issues associated with lack of access for construction and maintenance activities. PG&E reported that the Alternative PLR-1D alignment had difficult access or no existing access roads along a majority of the route. PG&E indicated that, if a double-circuit 70 kV transmission line were constructed along this route, maintenance would be difficult during the wet season, with access potentially limited to by foot or helicopter. Overall, the access/feasibility issues described by PG&E led the CPUC to screen out this alternative.

3.4.4 Alternative PLR-2: Creston Route

The Creston Route is an alternative 70 kV power line route that was considered for connecting the proposed Estrella Substation (or a substation located at an alternative site) to the Paso Robles Substation. As shown on Figure 3-1, the route would generally follow the existing 230/500 kV transmission corridor southwest to roughly the intersection with Creston Road. At this point, the route would veer to the northwest and follow Creston, then Charolais Road, and then South River Road before meeting the Paso Robles Substation. Land use within the portion of the Creston Route following the 230/500 kV transmission corridor is primarily agricultural and rural residential, while the land use along the portion of the route that follows Creston Road, Charolais Road, and then South River Road varies from rural residential to urban development.

The Creston Route was screened out from full analysis in the EIR because it had potential engineering feasibility constraints with existing utilities and it would not avoid or substantially reduce any of the Proposed Project's significant effects. Specifically, it would not substantially reduce agricultural resources impacts and would have similar aesthetics impacts compared to the Proposed Project.

3.4.5 Alternative SE-1B: Templeton Substation Expansion – 70 kV Substation Only

Alternative SE-1B would be similar to Alternative SE-1A; however, only the 70 kV portion of the new substation described under Alternative SE-1A would be built. The 230 kV facilities shown in Figure 3-12 and Figure 3-13 would not be included and no interconnection to the existing 230 kV transmission line would be required. It was assumed that only half of the staging area required for construction of Alternative SE-1A would be needed to support construction of the 70 kV substation. Alternative SE-1B was conceived of by the CPUC in acknowledgement that correcting the P6 (N-1-1) contingency identified for the Proposed Project, which involves loss of both 230 kV transmission lines connecting to Templeton Substation, is not required per the CAISO standards (i.e., dropping of non-consequential load is permissible in this situation). As such, it was thought that this alternative could reduce the permanent and temporary disturbance associated with Alternative SE-1A, while still addressing the P1 (N-1) contingencies for the Proposed Project.

This alternative was screened out from full analysis in the EIR because it was determined that it could not feasibly meet the Transmission Objective of the Proposed Project. This was due to the fact that eliminating the 230 kV portion of the new substation would lead to vulnerabilities to the P1 (N-1) contingency involving loss of the existing 230/70 kV transformer at the Templeton Substation. Adding another 230/70 kV transformer and 230 kV loop-in could not be accomplished within the existing Templeton Substation footprint or within the new 70 kV substation.

3.4.6 Alternative SE-PLR-1: Templeton-Paso 70 kV Route (Existing)

Alternative SE-PLR-1 was one of the routes considered for the new circuit connecting the Templeton Substation to the Paso Robles Substation, to be used with Alternative SE-1A (or SE-1B, if it were feasible). This alternative would involve rebuilding the existing 70 kV single-circuit power line that runs from Templeton Substation to Paso Robles Substation and converting it into a double-circuit power line. As shown on Figure 3-1, starting at the Paso Robles Substation, the existing Templeton-Paso 70 kV route extends southerly along South River Road for approximately 0.7 mile to the intersection of South River Road and Charolais Road. The route then continues southerly along South River Road for approximately 0.5-mile. The route then leaves South River Road and continues south generally following Santa Ysabel Avenue for approximately 0.5-mile at which point the route continues south on private property for approximately 3 miles to the Templeton tap point.

This alternative was screened out from full analysis in the EIR because it was determined to be infeasible based on the requirement to expand the existing Paso Robles Substation into a ring bus configuration and difficulty accessing and working on existing power line poles in backyards of homes along the Salinas River.

3.4.7 Alternative SE-PLR-3: Templeton-Paso Creston Route

Alternative SE-PLR-3 was another one of the routes considered for the new 70 kV circuit/power line connecting the Templeton Substation to the Paso Robles Substation, to be used with Alternative SE-1A (or SE-1B, if it were feasible). This route would be essentially similar to Alternative PLR-2: Creston Route, but would come from the south starting at the Templeton Substation rather than the proposed Estrella Substation. As shown on Figure 3-1, the route would follow the existing 230/500 kV transmission line corridor northeasterly out of Templeton Substation for approximately 3 miles to where it intersects with Creston Road. At this point, the route veers to the northwest and follows Creston Road, then Charolais Road, and then turns north and continues along South River Road until it reaches Paso Robles Substation. Like Alternative SE-PLR-2, this alternative route would use a double-circuit power line so as to avoid the need to convert the Paso Robles Substation to a ring bus configuration.

This alternative was screened out from full analysis in the EIR because it had potential engineering feasibility constraints with existing utilities and it would not avoid or substantially reduce any of the Proposed Project's significant effects.

3.4.8 Alternative BS-1: Battery Storage to Address the Transmission Objective

Alternative BS-1 would include installation of FTM BESSs sized to address the Transmission Objective. As discussed in Chapter 2, *Project Description,* a P1 contingency involving the loss of either the Templeton-Paso 70 kV Transmission Line or Templeton Transformer Bank #2 could put 60 MW of load being served through Paso Robles Substation at risk. FTM BESSs that are charged and ready to discharge during such a contingency could be a way to meet this load while the transmission line or transformer bank is restored. Under Alternative BS-1, FTM BESSs could be sited at the same locations identified for Alternative BS-2 (see Figure 3-16).

While FTM BESSs could solve the voltage and loading issues during a P1 and/or P6 contingency identified by CAISO for a limited period of time, they could not provide the power support needed for a long duration outage. PG&E has indicated that a transmission-level outage on its system could last multiple days (outages lasting up to 178 days have occurred). CAISO has also commented that a BESS that discharges to address one outage would need to be in an adequate state of charge to potentially address a subsequent outage. The CPUC and its consultants confirmed that during high loading conditions (e.g., summer), there may not be a charging window for BESSs to recharge during a P1 or P6 outage. In other words, cumulative loading on the Paso Robles Substation may not drop below the 20 MW that can be supplied by the northern San Miguel-Paso 70 kV Transmission Line (the only remaining power source to the substation during such a contingency), leaving no available capacity to allow for BESS recharging.

Thus, it was determined that Alternative BS-1 could not fully meet the Transmission Objective of the Proposed Project. As such, it was screened out from full analysis in the EIR.

3.5 Characteristics and Pairing of Alternatives Carried Forward for Analysis in the EIR

This section provides a summary of the primary characteristics of the alternatives carried forward for full analysis in the EIR (described in Section 3.3), as well as a description of the possible pairings of alternatives that could occur. Table 3-21 provides a summary of the pertinent information, and is intended to provide a quick comparison/summary of the key differences between the alternatives under consideration.

As noted in Section 3.3, many of the alternatives carried forward for full analysis in the EIR would only address one aspect of the project (e.g., power line route or substation location alternative) or would only accomplish one of the two primary project objectives. As such, these alternatives would need to be paired with other alternatives, or with one aspect of the Proposed Project, in order to be "whole," and/or to address both project objectives. Table 3-22 provides a cross-walk of the ways in which alternatives could be paired in order to create complete, feasible alternatives to the Proposed Project.

Table 3-21. Characteristics of Alternatives Carried Forward for Full Analysis in the EIR

Alternative ID	Length of 70 kV Power Line (miles)		Construction Duration (months)
	New	Reconductoring	
PP (ES)	NA	NA	~~7~~12
PP (PL)	7	3	18
SS-1	NA	NA	7[1]
PLR-1A	10.5	6	34
PLR-1C	10	6	33
PLR-3	1.2	NA	12
SE-1A	NA	NA	7[1]
SE-PLR-2	5.2	NA	9
BS-2[2]	NA	NA	UNK
BS-3[3]	NA	NA	UNK

Notes: PP = Proposed Project; ES = Estrella Substation; PL = Power Line; SS = Substation Siting; PLR = Power Line Route; SE = Substation Expansion; BS = Battery Storage; NA = Not Applicable; UNK = Unknown

1. Total construction duration is ~~7 months (~~ assumed to be the same as the proposed Estrella Substation; however, the extension to the Estrella Substation construction schedule made as part of the Recirculated DEIR changes has not been carried over to this chapter with respect to Alternatives SS-1 and SE-1A. ~~), but c~~Construction of the 230 kV interconnection for both Alternatives SS-1 and SE-1A would take ~~6 months, which is~~approximately one month longer than the proposed substation.
2. Specific characteristics of Alternative BS-2 are unknown, as the size of front-of-the-meter (FTM) battery energy storage systems (BESSs) would depend on future load growth. Table 3-18 provides

example BESS sizes that could be accommodated on identified feasible sites; but this amount of storage would likely far exceed the future need.

3. Specific characteristics of Alternative BS-3 are unknown, as individual customers would choose whether to install behind-the-meter (BTM) solar or battery storage systems on their properties.

Table 3-22. Alternative Pairings Matrix

Alternative ID	PP (ES)	PP (PL)	SS-1	PLR-1A	PLR-1C	PLR-3	SE-1A	SE-PLR-2	BS-2	BS-3
PP (ES)		X		X		X			X	X
PP (PL)	X					X			X	X
SS-1					X				X	X
PLR-1A	X								X	X
PLR-1C			X						X	X
PLR-3	X	X							X	X
SE-1A								X	X	X
SE-PLR-2							X		X	X
BS-2	X	X	X	X	X	X	X	X		X
BS-3	X	X	X	X	X	X	X	X	X	

Notes: PP = Proposed Project; ES = Estrella Substation; PL = Power Line; SS = Substation Siting; PLR = Power Line Route; SE = Substation Expansion; BS = Battery Storage

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