Public Comments on the Draft EIR for the Moraga-Oakland X 115 Kilovolt Rebuild Project

Agencies

A01 California Department of Transportation, District 4
A02 East Bay Municipal Utility District
A03 City of Orinda
A04 East Bay Regional Park District
A05 California Department of Fish and Wildlife

Businesses and Organizations

B01 Friends of Sausal Creek

Native American Tribes

C01 Wilton Rancheria Tribe

Individuals

D01 Kenneth Gibson
D02 Denise Bostrom
D03 Sara Rankin
D04 Elizabeth Hansell
D05 Pete Retondo
D06 Jonathan Goodwin
D07 David Markman
D08 Phil Gorman
D09 Linda Walton
D10 Jennifer Arnest
D11 Matt Solomon
D12 Cynthia Harrison Barbera
D13 Susan Landon
D14 Patricia and Andrew Jeffries
D15 Paul Kubicek
D16 Brenda So

Applicant

E01 Pacific Gas and Electric Company

Comments at Draft EIR Public Meetings

F01 Jonathan Goodwin
F02 Andrew Jeffries
F03 Pete Retondo
F04 Ella Matsuda
F05 Lauren Wilson
F06 Erik Olafsson

California Department of Transportation

DISTRICT 4
OFFICE OF REGIONAL AND COMMUNITY PLANNING
P.O. BOX 23660, MS–10D | OAKLAND, CA 94623-0660
www.dot.ca.gov

September 16, 2025

SCH #: 2025020944
GTS #: 04-MULTIPLE-2025-00433
GTS ID: 35564
Co/Rt/Pm: VAR/VAR/VAR

Tharon Wright, Project Manager
California Public Utilities Commission (CPUC)
300 Capitol Mall, Suite 400
Sacramento, CA 95814

Re: Pacific Gas and Electric Company (PG&E) Moraga-Oakland X 115 Kilovolt Rebuild Project – Draft Environmental Impact Report (DEIR)

Dear Tharon Wright:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project. The Local Development Review (LDR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities. The following comments are based on our review of the August 2025 DEIR.

Please note this correspondence does not indicate an official position or approval by Caltrans on this project and is for informational purposes only.

Project Understanding

The PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project would involve upgrades to approximately five miles of four overhead PG&E power lines. The existing four overhead lines would be rebuilt into four hybrid lines with approximately four miles of overhead lines and one mile of underground lines between existing substations in Moraga and Oakland. The existing overhead lines that will be rebuilt in the same overhead configuration cross above State Route (SR) 13. Minor modifications would also occur within the existing substations. The existing Oakland X substation is located approximately 400 feet from Interstate 580.

Construction-Related Impacts
Project work that requires movement of oversized or excessive load vehicles on State roadways requires a transportation permit that is issued by Caltrans. To apply, please visit Caltrans Transportation Permits (*link*).

Prior to construction, coordination may be required with Caltrans to develop a Transportation Management Plan (TMP) to reduce construction traffic impacts to the State Transportation Network (STN).

Additionally, please note the following upcoming Caltrans projects that are within the vicinity of the proposed project and may pose a construction conflict and require coordination between Caltrans and the CPUC:

- Project 04-3W230: Bridge seismic retrofit at the Park Boulevard Over Crossing and the Broadway Terrace Under Crossing (SR 13 Post Mile 7.4 to 9.07). Construction is expected in 2028.
- Project 04-0P890: Bridge seismic restoration at the Bruns Drive Pedestrian Over Crossing Bridge (SR 13 Post Mile 7.9). Construction is expected in 2029.

Equitable Access
If any Caltrans facilities are impacted by the project, those facilities must meet Americans with Disabilities Act (ADA) Standards after project completion. As well, the project must maintain bicycle and pedestrian access during construction. These access considerations support Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

Encroachment Permit
Please be advised that any temporary or permanent work including traffic control that encroaches in, under, or over any portion of the State highway Rights-of-Way (ROW) requires a Caltrans-issued encroachment permit.

The Office of Encroachment Permits requires 100% complete design plans and supporting documents to review and circulate the permit application package. The review and approval of encroachment projects is managed through the Encroachment Permits Office Process (EPOP) or the Project Delivery Quality Management Assessment Process (QMAP), depending on project scope, complexity, and completeness of the application. Please use the following resources to determine the appropriate review process:

- TR-0416 Applicant's Checklist (*link*)
- Caltrans Encroachment Projects Processes – Informational Video (*link*)

- Flowchart, Figure 1.2 in Section 108, Overview of the Encroachment Review Process, of Chapter 100 – The Permit Function, Caltrans Encroachment Permit Manual (*link*)

The permit approval typically takes less than 60 days, but may take longer depending on the project scope, size, complexity, completeness, compliance with applicable laws, standards, policies, and quality of the permit package submitted. Projects requiring exceptions to design standards, exceptions to encroachment policies, or external agency approvals may need more time to process.

To obtain more information and download the permit application, please visit Caltrans Encroachment Permits (*link*).

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Mary McGee, Transportation Planner, via LDR-D4@dot.ca.gov. For future early coordination opportunities or project referrals, please visit Caltrans LDR website (*link*) or contact LDR-D4@dot.ca.gov.

Sincerely,

YUNSHENG LUO
Branch Chief, Local Development Review
Office of Regional and Community Planning

c: State Clearinghouse

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Navarro, Karina <karina.navarro@ebmud.com>
Sent: Tuesday, September 23, 2025 11:06 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Cc: Rehnstrom, David; Mulhauser, Sandra; Thai, Ronald; Navarro, Karina
Subject: Notice of Availability of a Draft Environmental Impact Report for the PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project (Moraga-Oakland X Project, A.24-11-005)
Attachments: wdpd25_152 PG&E Moraga-Oakland X115 Kilovolt Rebuilt Project.pdf

This message has been approved by the Manager of Water Distribution Planning - David J. Rehnstrom

Dear Mr. Wright:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Draft Environmental Impact Report for PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project located in cities of Oakland, Moraga, and Piedmont. EBMUD commented on the Notice of Preparation of a Draft EIR for the Project on March 21, 2025. EBMUD's original comments still apply regarding water distribution pipelines, EBMUD's design standards and specifications, pipeline valve cover adjustments, water meter relocations and adjustments, hydrant relocations or adjustments, and pre-construction meeting. Please see attached document for EBMUD's original and additional comments.

If you have any questions concerning this response, please contact Sandra Mulhauser, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-7032.

Sincerely,
David J. Rehnstrom
Manager of Water Distribution Planning

EAST BAY
MUNICIPAL UTILITY DISTRICT

September 23, 2025

Tharon Wright, Public Utilities Regulatory Analyst IV
California Public Utilities Commission c/o Aspen Environmental Group
235 Montgomery Street, Suite 967
San Francisco, CA 94104-2920

Re: Notice of Availability of a Draft Environmental Impact Report for the PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project

Dear Mr. Wright:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Draft Environmental Impact Report (EIR) for PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project (Project) located in cities of Oakland, Moraga, and Piedmont. EBMUD commented on the Notice of Preparation of a Draft EIR for the Project on March 21, 2025. EBMUD's original comments (see Attachment A) still apply regarding water distribution pipelines, EBMUD's design standards and specifications, pipeline valve cover adjustments, water meter relocations and adjustments, hydrant relocations or adjustments, and pre-construction meeting. EBMUD has the following additional comments.

WATER DISTRIBUTION PIPELINES

EBMUD owns and operates water distribution and transmission pipelines throughout the Project site which provide continuous service to EBMUD's customers in the area (see Attachment B). Any proposed construction activity within the Project site would need to be coordinated with EBMUD so that the integrity of these water mains is maintained at all times. Pipelines within the roadways where the Project proposes 4 new underground 115 KV lines were included in the previous comment letter. Additional identified pipelines are listed in **Table 1**.

Table 1 – Pipelines within Proposed 4 New Underground 115 KV Lines

Pipe Diameter	Road	EBMUD Distribution Map
6-inch	Hampel Street and Park Boulevard	**1500B480**
4-inch	Glenfield Avenue and Park Boulevard	**1500B480**
4-inch	Wellington Street and Park Boulevard	**1500B480 and 1503B480**

RIGHT-OF-WAY AND EASEMENTS

EBMUD owns and manages trails, roads, and watershed lands on EBMUD properties in the eastern section of the Project (APNs: 257-010-007 and 257-020-003). Any proposed

construction activity on EBMUD properties would be subject to the terms and conditions determined by EBMUD including relocation of the water mains and/or rights-of-way at the project sponsor's expense.

If you have any questions concerning this response, please contact Sandra Mulhauser, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-7032.

Sincerely,

David J. Rehnstrom
Manager of Water Distribution Planning

DJR:RT:kn
wdpd25_152_PG&E Moraga-Oakland X115 Kilovolt Rebuilt Project.doc

Attachments: A – Previous Comment Letter (March 21, 2025)
B – Maps of EBMUD Distribution Mains

Attachment A

EAST BAY
MUNICIPAL UTILITY DISTRICT

March 21, 2025

Tharon Wright, Public Utilities Regulatory Analyst IV
California Public Utilities Commission
300 Capitol Mall Suite 500
Sacramento, CA 95814

Re: Notice of Preparation of a Draft Environmental Impact Report for the PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project

Dear Mr. Wright:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the PG&E Moraga-Oakland X 115 Kilovolt Rebuild Project (Project) located in the Cities of Oakland, Moraga, and Piedmont. EBMUD has the following comments.

WATER DISTRIBUTION PIPELINES

EBMUD owns and operates water distribution and transmission pipelines throughout the Project site which provide continuous service to EBMUD's customers in the area. Any proposed construction activity within the Project site would need to be coordinated with EBMUD so that the integrity of these water mains are maintained at all times. Pipelines within the roadways where the Project proposes 4 new underground 115 KV lines are listed in Table 1.

Table 1 – Pipelines within Proposed 4 New Underground 115 KV Lines

Pipe Diameter	Road	EBMUD Distribution Map
6-inch	Excelsior Avenue	**1497B478**
6-inch	Alma Place and Excelsior Avenue	**1497B478**
6-inch	Grosvenor Place and Park Boulevard	**1497B478**
6-inch	Park Boulevard	**1500B478**
6-inch	Park Boulevard Way	**1500B478**
6-inch	Emerson Way and Park Boulevard	**1500B478**
6-inch	Emerson Street and Park Boulevard	**1500B478**
6-inch	Greenwood Avenue and Park Boulevard	**1500B478**
6-inch	13th Avenue and Park Boulevard	**1500B478**
6-inch	East 38th Street and Park Boulevard	**1500B478**
6-inch	Beaumont Avenue and Park Boulevard	**1500B478**
6-inch	Brighton Avenue and Park Boulevard	**1500B478**

6-inch	Glen Park Road and Park Boulevard	**1500B480**
8-inch	Hampel Street and Park Boulevard	**1500B480**
6-inch	Glenfield Avenue and Park Boulevard	**1500B480**
8-inch, 16-inch, and 48-inch	Wellington Street and Park Boulevard	**1500B480**
6-inch	Edgewood Avenue and Park Boulevard	**1500B480**
4-inch and 6-inch	Everett Avenue and Park Boulevard	**1503B480**
6-inch	El Centro Avenue and Park Boulevard	**1503B480**
6-inch	Dolores Avenue and Park Boulevard	**1503B480**
6-inch	San Luis Avenue and Park Boulevard	**1503B480**
8-inch	Hollywood Avenue and Park Boulevard	**1503B482**
6-inch	Trestle Glen Road and Park Boulevard	**1503B482**
6-inch and 16-inch	Leimert Boulevard and Park Boulevard	**1503B482**
8-inch and 20-inch	Saint James Drive and Park Boulevard	**1503B482**
6-inch	Estates Drive and Park Boulevard	**1503B482**

It is imperative to continue to coordinate with EBMUD during the development of the proposed Project, so reasonable time can be provided for planning, design, and construction if conflicts exist to avoid schedule impacts. PG&E and EBMUD will need to continue to work together as the scope of work is finalized for EBMUD infrastructure adjustments and relocations. EBMUD requires reasonable time to allocate resources and modify internal construction schedules. EBMUD recommends at least 18 months advance notification for upcoming street improvement projects to allow for a reasonable amount of time to perform water pipeline relocations. Table 2 provides a typical project schedule for EBMUD to design and relocate approximately 1,500 feet of 8-inch water pipeline. The required time may increase or decrease depending on the size, length and complexity of the water pipeline project; and if constructed by EBMUD crews or by Contractor.

Table 2 – Typical Project Schedule

Required Time	Schedule Task
1 month	Receive Street Improvement and Understand Impacts
1 month	Review Project and Planning Assessment
2 months	Collect Survey Data or Use Existing Survey from Requesting Agency
2 months	Draft Base Drawing for Water Main Relocation
3 months	Design Water Main Relocation
2 months	Develop Construction Bid Documents

3 months	Advertise and Award Water Main Relocation Project
4 months	Install New Water Main and Provide Temporary Paving
18 months	*Reasonable Notification Time* *(Typical Project: 1,500 feet of 8-inch pipe)*

EBMUD will not design piping or services until soil and groundwater quality data and remediation plans have been received and reviewed and will not start underground work until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists, or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil and groundwater that may be encountered during excavation, or EBMUD may perform such sampling and analysis at the project sponsor's expense. If evidence of contamination is discovered during EBMUD work on the project site, work may be suspended until such contamination is adequately characterized and remediated to EBMUD standards.

EBMUD's water distribution pipelines and valves must always be accessible to EBMUD staff in order to maintain high-quality domestic water and fire flow services and mitigate for planned and unplanned pipeline outages. PG&E is responsible for protecting in-place pipeline valves and ensuring that pipeline valves are accessible (i.e., not paved over) during and after Project construction. EBMUD recommends that PG&E review EBMUD as-built drawings and identify potential utility conflicts between Project improvements and existing EBMUD pipelines. Attached are EBMUD guidelines for requesting pipeline as-builts that include pipeline vertical data (see Attachment- EBMUD Map & Utility Information Request Form and Guidelines). EBMUD's process for requesting as-built drawings is a two steps process: 1) request EBMUD water distribution maps, and 2) submit to EBMUD marked-up EBMUD water distribution maps identifying which water pipeline as-builts are needed to evaluate water pipelines within street improvements. In some cases, EBMUD as-builts are not available and in those situations EBMUD recommends for local agencies to pothole and field locate utilities.

EBMUD'S DESIGN STANDARDS AND SPECIFICATIONS

When evaluating the need and method for relocating and adjusting EBMUD infrastructure (e.g., pipelines, meters, valves, and fire hydrants), please review EBMUD's Design Standards and Specifications for Mains 20-inches and Smaller, which are located on the following webpage under "Apply for Standard Water Service": https://www.ebmud.com/customers/new-meter-installation

PIPELINE VALVE COVER ADJUSTMENTS

For utility conflicts between the Project and existing EBMUD pipeline valve covers, PG&E must share with EBMUD conflict locations, and existing and final pavement grade elevations. EBMUD will support paving street improvement projects as follows:

- Grade change less than 0.5-inches - For street improvement projects with a grade change elevation less than 0.5-inches, EBMUD is not obligated to adjust pipeline valve covers to facilitate the construction of street improvements, pursuant to Streets & Highways Code Section 680, which states that EBMUD may not be required to relocate its facilities for a temporary purpose. However, EBMUD will provide valve cover rings, at no cost, to be used to make valve cover adjustments as needed. PG&E is responsible for protecting in-place EBMUD pipeline valve covers which will be inspected by EBMUD staff post project completion. Pipeline valves must remain accessible during and after project construction for water distribution operations (i.e., not paved over).

- Grade change greater than 0.5-inches - For street improvement projects with a grade change elevation greater than 0.5-inches, EBMUD will support the Project by adjusting pipelines valve covers (one time) to the final street grade. However, EBMUD is not obligated to adjust valves during construction to facilitate means and methods for completing street improvements, pursuant to Streets & Highways Code Section 680, which states that EBMUD may not be required to relocate its facilities for a temporary purpose. PG&E is responsible for protecting in-place EBMUD pipeline valve covers which will be inspected by EBMUD staff post project completion. Pipelines valves must remain accessible during and after project construction for water distribution operations (i.e., not paved over).

- Pipeline Valve Cover Upgrades - If PG&E determines a need to upgrade old pipeline valve covers to the new Christy G-05 Valve Box and Rise Installation, EBMUD will provide the valve boxes and covers, and will reimburse PG&E for the valve box upgrade at a reasonable cost. To upgrade pipeline valve covers and boxes, PG&E must enter into a Valve Box Agreement with EBMUD prior to start of pipeline valve cover upgrades. An EBMUD Union notification will be required to complete the work by the County's contractor.

WATER METER RELOCATIONS AND ADJUSTMENTS

When an agency like PG&E completes street improvements (e.g., replace sidewalks, street pavement, and storm drain pipelines) to improve both street safety and street aesthetics, EBMUD supports the agency by relocating water meters to meet Project objectives, current design standards (e.g., meters need to be placed at 1-foot off the face of curb), and mitigate utility conflicts. EBMUD relocates water meters to their new location once the area is staked and is ready for final meter placement (e.g., forms for new sidewalk and other features are in place). PG&E is then responsible for relocating the customer's private water service line to the new meter location. EBMUD is not financially liable for work beyond the water meter (i.e., private water line).

HYDRANT RELOCATIONS OR ADJUSTMENTS (SET-BACKS/SET- FORWARDS)

When PG&E completes street improvements (e.g., replace sidewalks and curbs) to improve both street safety and street aesthetics, PG&E must ensure that there are no conflicts between existing EBMUD fire hydrants and new curb ramps and sidewalks. Fire hydrants must be located 5-feet from the edge of curb ramps and 20 to 24- inches from the face of street curbs. Hydrant relocations are horizontal offsets that require the installation of new hydrant service laterals; hydrant relocations require the County to submit Hydrant Relocation Application with EBMUD's New Business Office (510-287- 1010) or via EBMUD's online water service application at https://wsa.ebmud.com.

PRE-CONSTRUCTION MEETING

PG&E shall invite EBMUD's Central Area Service Center Superintendent, Mario Soares (510-287-1104 or mario.soares@ebmud.com); Central Area Assistant Superintendent, Juan Serrano (510-453-7458); East Area Assistant Superintendent, Isaiah Hinton (510-287-7183 or isaiah.hinton@ebmud.com); and East Area Assistant Superintendent, Nicholas Farrell (510-287-7182 or nicholas.farrell@ebmud.com) to all pre-construction meetings.

If you have any questions concerning this response, please contact Sandra Mulhauser, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-7032.

Sincerely,

David J. Rehnstrom
Manager of Water Distribution Planning

DJR:AIT:djr
wdpd25_038 PG&E Moraga-Oakland X115 Kilovolt Rebuild Project

Attachments: A – Maps of EBMUD Distribution Mains
B – EBMUD Map & Utility Information Request Form and Guidelines

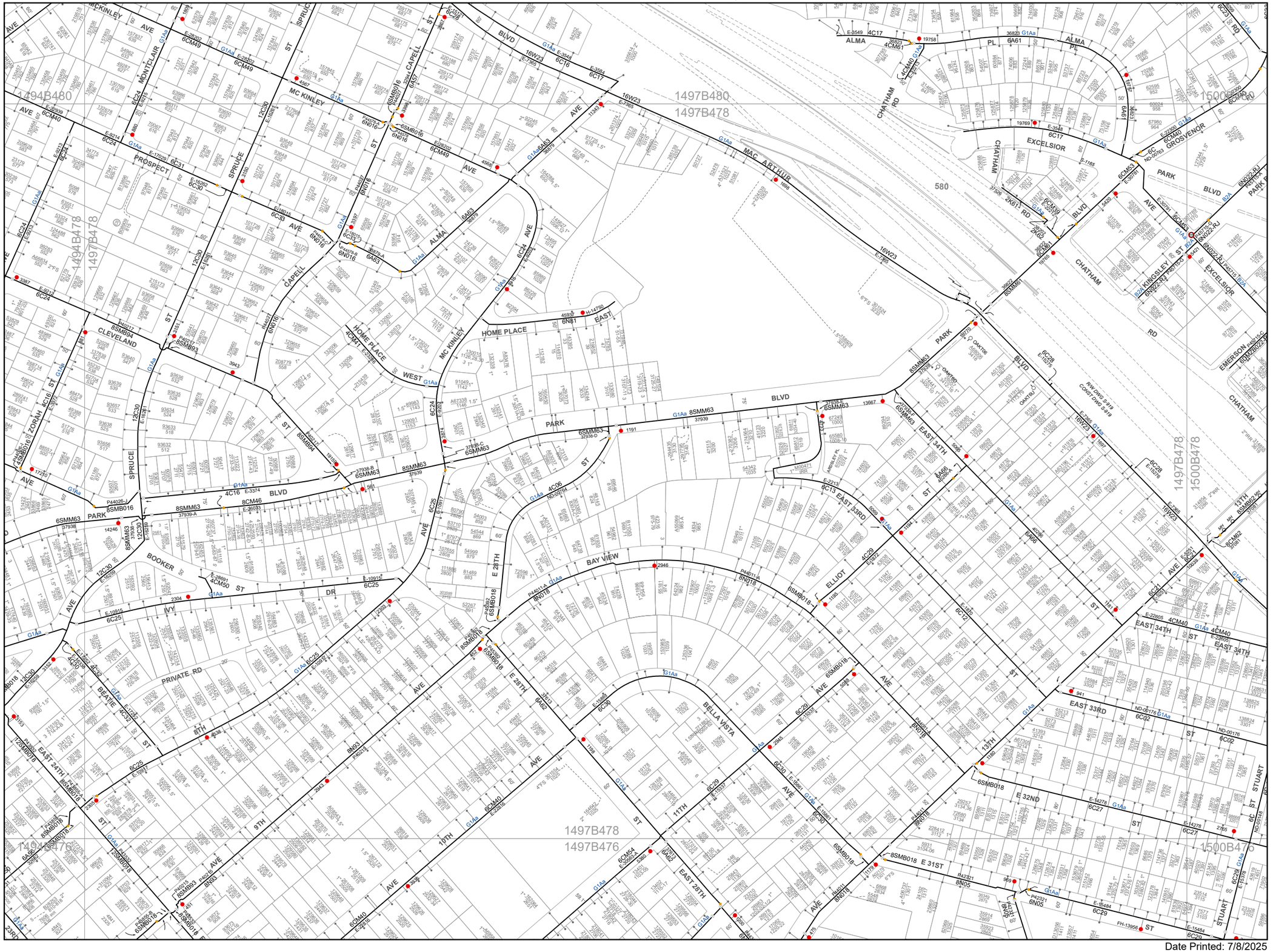
EAST BAY MUNICIPAL UTILITY DISTRICT

Potable Distribution System

- Potable Pipeline
- Service Lateral
- System Valve (*OL* = *Opens Left*)
- Check Valve
- Zone Valve
- Change of Pipe ID
- Rate Control Station
- Regulator
- Pressure Reducing Station
- Flow Meter
- Manhole
- Service Connection
- Hydrant
- Facility
- Pumping Plant

Attachment B

LOCATIONS ARE APPROXIMATE – NOT INTENDED FOR DESIGN PURPOSES – REQUEST AS-BUILT DRAWINGS IF NEEDED FOR DESIGN WORK



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By receiving the requested information, you agree that you, and any of your representatives authorized by the District to possess the information, will use the information only for the authorized purpose for which you requested it. If you obtained the information to prepare construction documents, you may make the information publicly available only to the extent necessary for safe construction. In all other circumstances, you may not provide any of the information, or any copy of it, to any other person or entity without the District's prior written approval. When you no longer require the information for your use, you must return or destroy all copies of the information. If you do not accept these terms, you must refrain from using the information and immediately return it.

1497B478

Date Printed: 7/8/2025

EAST BAY MUNICIPAL UTILITY DISTRICT

LOCATIONS ARE APPROXIMATE – NOT INTENDED FOR DESIGN PURPOSES – REQUEST AS-BUILT DRAWINGS IF NEEDED FOR DESIGN WORK

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Landbase

- EBMUD Right of Way
- EBMUD Property

N

0 125 250 500

Feet

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1500B478

Date Printed: 12/16/2024

EAST BAY MUNICIPAL UTILITY DISTRICT

LOCATIONS ARE APPROXIMATE – NOT INTENDED FOR DESIGN PURPOSES – REQUEST AS-BUILT DRAWINGS IF NEEDED FOR DESIGN WORK

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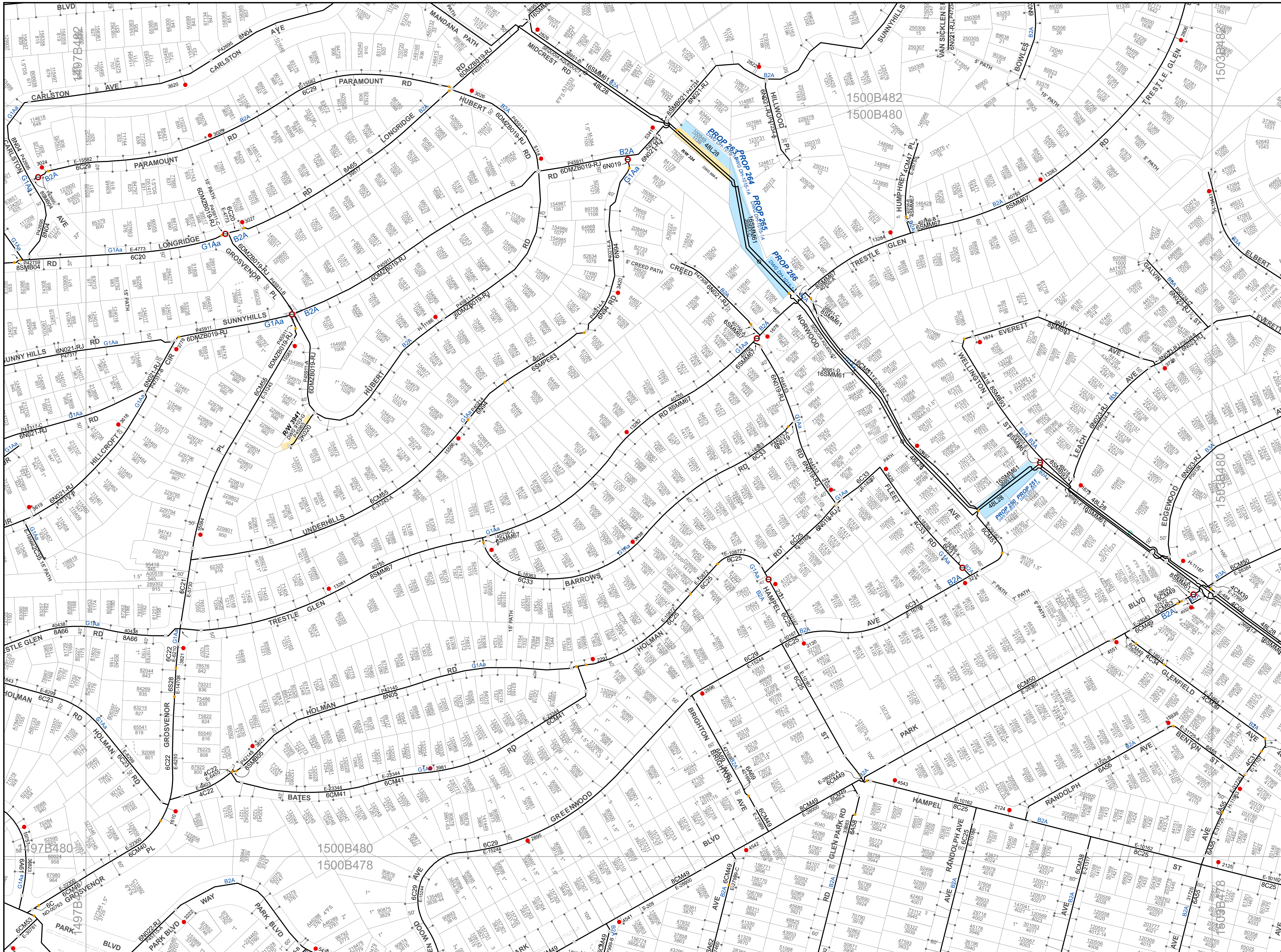

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Feet

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1500B480

Date Printed: 12/16/2024

EAST BAY MUNICIPAL UTILITY DISTRICT

LOCATIONS ARE APPROXIMATE – NOT INTENDED FOR DESIGN PURPOSES – REQUEST AS-BUILT DRAWINGS IF NEEDED FOR DESIGN WORK

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- Pumping Plant

Landbase

- EBMUD Right of Way

N

0 125 250 500

Feet

1503B480

Date Printed: 12/16/2024

EAST BAY MUNICIPAL UTILITY DISTRICT

LOCATIONS ARE APPROXIMATE – NOT INTENDED FOR DESIGN PURPOSES – REQUEST AS-BUILT DRAWINGS IF NEEDED FOR DESIGN WORK

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Landbase

- EBMUD Right of Way

N

0 125 250 500

Feet

1503B482

Date Printed: 12/16/2024

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Richa Nanavati <rnanavati@cityoforinda.org>
Sent: Wednesday, September 24, 2025 11:58 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project; Aspen Main Email Account; public.advisor@cpuc.ca.gov
Cc: Lashun Cross
Subject: Comments on the DEIR for the Moraga-Oakland X Project, A.24-11-005
Attachments: Oakland x Moraga DEIR comments _final 9.24.25.pdf

Dear Tharon Wright,

Please see the attached letter for the City of Orinda's comments to the Draft EIR for the Moraga-Oakland X Project, A.24-11-005. Thank you for the opportunity to provide input on this project.

Further correspondence or notifications regarding this project may be sent to:

Lashun C. Cross
Director of Planning
22 Orinda Way, Orinda, CA 94563
925.253.4240
lcross@cityoforinda.org
www.cityoforinda.org

Please let us know if there is any issue with the attached file. Thank you for your coordination.

Respectfully,

Richa Nanavati
Planning Intern
(Richa's hours: Monday – Wednesday 9 AM-5 PM)
Tel: 925.253.4283
rnanavati@cityoforinda.org

City of Orinda
Planning Department
22 Orinda Way, Orinda, CA 94563
https://www.cityoforinda.org/153/Planning-Department

City of Orinda • 22 Orinda Way • Orinda • California • 94563

September 24, 2025

Tharon Wright, Project Manager
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 967
San Francisco, CA 94104-2920

Topic: Comments to the Moraga-Oakland X Project, A.24-11-005 Draft EIR (DEIR)

Dear Tharon Wright,

The City of Orinda appreciates the opportunity to provide input on DEIR for the Moraga-Oakland X Project, A.24-11-005 (DEIR). The City submitted comments on March 27, 2025, during the scoping period for the proposed project. After reviewing the DEIR for response to the concerns and questions submitted during the scoping period, the City has additional follow-up questions. Thank you for your detailed attention to the concerns of the Orinda community regarding this project.

Noise

1. Orinda and areas around the Moraga Substation were not included in noise monitoring according to **Figure 3.11-2** in the appendices. Please clarify why noise monitoring was not conducted in this area despite proposed construction and helicopter staging activity per **Figure 2.1-2 (Maps 1-9)**. How are noise impacts appropriately considered if baseline conditions were not identified near the sensitive receptors within 1000-2000 feet of the aforementioned extent of the proposed improvements?

2. Within 2000 feet of the Moraga Substation and associated project activities, there are residences, an elementary school, and San Pablo Creek. Nearby unincorporated open spaces could also be affected by noise impacts. On pages 3.11-24 and 3.11-25, noise impacts related to helicopters to City of Orinda residents are mentioned but only discussed for one residence within just 225 from the proposed landing area. How many residences will be affected by landing in this area, and how and when will they be noticed?

Figures and Document Accessibility

3. Please display City of Orinda boundaries on map to clearly reflect which project activities, locations, and staging may occur within or adjacent to City of Orinda jurisdiction. Right-of-way and activities in and around the City of Orinda are mentioned in project description but are not clearly depicted in **Figure 2.1-2 (Maps 1-9),** or others that may be applicable**.** While city boundaries do not describe a physical environmental impact, labeling the jurisdiction would help the City, neighbors and nearby sensitive receptors, and other affected persons quickly and easily identify the proximity of their projects to the proposed activities. Currently, it is unclear where/if staging and other

activities will occur within or adjacent to City boundaries and sensitive receptors near those boundaries.

Fire Risk Impacts from Construction

4. Fire risk is a major and active concern for the City of Orinda. The City would prefer that fire suppression tools and water or fire retardant be kept in all construction sites near Orinda and the surrounding open spaces as part of fire mitigation **"APM WFR-1 Construction Fire Prevention Plan**" or other mitigation measures as deemed appropriate.

Emergency Access, Transportation, and Public Notification

5. How far in advance will information about road closures affecting regular traffic and emergency operations (for example, from unavoidable impacts from crane obstructions) be available to emergency responders and residents (Page 3.18-30 through 3.18-31)?

6. Has traffic modeling been conducted to determine if all residents would be able to evacuate in case an emergency occurs? A traffic study, given the significant and unavoidable impacts to emergency access identified, would help the Orinda community fully understand how the project may impact nearby residents in the event evacuation is required.

7. Wilder Road between Dairy Creek Lane and Edgewood Court is shown as existing access road to the Moraga Substation, **Figure 2.1-2 (Maps 5 & 6).** This portion of Wilder Road is an Emergency Vehicle Access (EVA) only, Was the EVA taken into account when staging and access through this road was considered? A determination regarding the extent of projected use for this road and the ability to handle significant construction traffic must be analyzed.

8. Access to the Moraga Substation via paved public road is through Moraga Way and Valley View Drive. The City of Orinda is concerned that these two roads are not identified in Figure 2.1-2 as existing. Will there be construction traffic through these corridors? If there is no planned use of these streets, please identify as such in the report. See below if there is potential for construction access through Moraga Way.

9. Moraga Way is a principle arterial and a multimodal facility with transit, bike lanes and access to various schools. It is also a primary evacuation route for Orinda. Transportation Impact T-1. T-2, T-6, and T-7 have identified significant and unavoidable impacts during project construction. Please address the impacts to traffic circulation and safety on Moraga Way corridor as part of a traffic study.

Undergrounding and Operational Fire Hazards

10. The City of Orinda is concerned with operational fire risk posed with above ground utility lines. While constraints associated with "All Underground Alternatives" undergrounding are discussed in Sections 4.2.2 through 4.3.1, it is not clear how or if undergrounding of powerlines between the Moraga Substation and Skyline Boulevard was specifically considered, and how and why it might have been eliminated from further consideration. Please address if future undergrounding projects in the Orinda/Moraga hills are being considered for cumulative wildfire impact reduction.

Thank you for your detailed attention to the concerns of the Orinda community regarding this project. The City supports efforts to increase undergrounding of utility lines in our community as much as possible given the safety and land use constraints posed by utility easements throughout the City. We sincerely appreciate CPUC's collaboration on this impactful project, and the efforts taken so far to improve the safety and reliability of transmission lines.

Lashun C. Cross
Director of Planning
22 Orinda Way, Orinda, CA 94563
925.253.4240
lcross@cityoforinda.org
www.cityoforinda.org

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Kim Thai <kthai@ebparks.org>
Sent: Friday, September 26, 2025 10:13 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: East Bay Regional Park District Comments on PG&E's Moraga-Oakland X Project Draft EIR
Attachments: 2025 EBRPD Comments - PGE Moraga-Oakland X Project EIR.pdf

Hello,

Please see the attached comment letter on the Draft EIR for PG&E's Moraga-Oakland X Project. Please let me know if you have any questions.

Sincerely,
Kim

East Bay Regional Park District

Kim Thai
cting Principal Planner | Planning, Trails, Cultural Resources, and GIS
East Bay Regional Park District
2950 Peralta Oaks Court, Oakland, CA 94605
T: 510-544-2320
kthai@ebparks.org | www.ebparks.org
Participate in the District Plan – learn more here.

East Bay Regional Park District

2950 PERALTA OAKS COURT • OAKLAND • CALIFORNIA • 94605-0381 • T: 1-888-EBPARKS • F: 510-569-4319 • TRS RELAY: 711 • EBPARKS.ORG

September 26, 2025

Tharon Wright, CPUC Project Manager
Moraga-Oakland X Project
Sent via: MOX@aspeneg.com

RE: East Bay Regional Park District Comments on PG&E's Moraga-Oakland X Project, A.24-11-005

Dear Ms. Tharon Wright,

The East Bay Regional Park District (Park District) appreciates the opportunity to provide comments on the Draft EIR for Pacific Gas & Electric Company's (PG&E's) proposed Moraga-Oakland X Rebuild Project (Project). The Project would upgrade existing overhead power lines and replace existing towers between the Moraga and Oakland X Substations. A portion of the project would go through the Park District's Robert Sibley Volcanic Regional Preserve (Sibley).

Since construction of this Project would affect park operations, the Park District would like to reiterate our comments made during the public scoping period for PG&E to notify the Park District on the project construction timeline and to notify and coordinate with the Park District prior to any access, staging, or needed road improvements to ensure the project minimizes impacts to the environment and to park operations.

Park District staff notes that the Draft EIR includes Mitigation Measures REC-3a for the coordination with Park and Open Space management regarding signage and temporary closures, and REC-5c for the coordination with recreation facility owners or managers to determine alternatives and address damage to recreation assets. The Park District supports these mitigation measures and would like to emphasize that coordination with and approval from the Park District is needed prior to any PG&E repairs of identified damages, even in the absence of agreements or permit conditions.

The Park District appreciates the opportunity to review and comment on the proposed project's Draft EIR. We request to receive notices of future referrals, environmental review, and public hearings for this project. If you have any questions or concerns, please contact me at (510) 544-2320, or by e-mail at kthai@ebparks.org.

Sincerely,

Kim Thai
Acting Principal Planner
East Bay Regional Park District

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

September 29, 2025

Tharon Wright, Public Utilities Regulatory Analyst IV
California Public Utilities Commission
300 Capitol Mall, Suite 500
Sacramento, CA 95814
Tharon.Wright@cpus.ca.gov

Subject: PG&E's Moraga-Oakland X 115 Kilovolt Rebuild Project, Draft Environmental Impact Report , SCH No. 2025020944, Alameda and Contra Costa Counties

Dear Tharon Wright:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a Draft Environmental Impact Report (EIR) from the California Public Utilities Commission for the PG&E's Moraga-Oakland X 115 Kilovolt Rebuild Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] CDFW previously submitted comments in a letter dated March 24, 2025 in response to the Notice of Preparation of the Draft EIR.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: Pacific Gas and Electric Company (PG&E)

Objective: The objective of the Project is to rebuild the four-circuit power line path with new equipment, including replacing the existing conductor with one of a larger size to accommodate future energy demands and to ensure the lines are rebuilt with adequate line clearances between the ground or land use. Primary Project activities include rebuilding four overhead 115 kilovolt (kV) power lines circuits that span approximately five miles between PG&E's Moraga and Oakland X substations. The two existing parallel double-circuit lines would be rebuilt as hybrid power lines, meaning the two double-circuit lines between the two substations would have both overhead and underground portions. Existing towers, poles and conductors would be replaced either with overhead rebuild or underground components, and minor modifications would occur within the existing substations. Some recently replaced power line structures would be reused or reused with some modification. Single-circuit transition structures would support the connection between the overhead and underground portion of each circuit. Double-circuit transition structures would be used to connect the underground portion to existing overhead circuit terminals at Oakland X substation. Additionally, the Project would include the installation of a static ground wire and an optical ground wire connecting to each above ground structure with grounding and a telecommunication cable continuing with the underground portion. Vegetation trimming and removal would be done to accommodate Project activities.

Location: The Project is located within unincorporated Contra Costa and Alameda counties, and the cities of Orinda, Oakland, and Piedmont. The existing land uses within the Project area include utility in the City of Orinda, open space and parks in unincorporated Contra Costa County, and residential, commercial, parks, places of worship and schools within the cities of Oakland and Piedmont.

Timeframe: August 2028 – July 2031

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the California Public Utilities Commission in adequately identifying and/or mitigating the Project's significant,

or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below, CDFW concludes that an Environmental Impact Report is appropriate for the Project.

I. Mitigation Measure or Alternative and Related Impact Shortcoming

COMMENT 1:

Section: Section 2.3.4.2 (Vegetation Clearing) beginning on page 2-21 and Appendix B Table 2.3-5 (Estimated Vegetation Management including Tree Trimming or Removal) beginning on page B-8.

Issue: Section 2.3.4.2 in the draft EIR describes the species, size, and number of trees expected to be removed or trimmed by each city or county and how 'PG&E will work with the city to replace landscape-affected properties with vegetation that is compatible with the rebuilt PG&E facilities.' However, the DEIR does not provide specific mitigation measures for removed trees and deferred mitigation may not adequately reduce the Project's impacts on trees to less-than-significant.

Specific impact: Mitigation Measure BIO-5a (Tree Trimming and Removal Requirements) describes how tree trimming and removal will be conducted but does not describe specific mitigation. Appendix B Table 2.3-5 (Estimated Vegetation Management including Tree Trimming or Removal) shows that the Project will result in the removal of over 200 native and non-native trees. The removal of over 200 trees from the Project area with diameter at breast heights (DBH) ranging from 2 to 82 inches would be a permanent loss of woodland habitats, particularly oak (*Quercus* spp.) woodlands.

Why impact would occur: The Oak Woodland Conservation Act recognizes the economic, social, and ecological importance of oak woodlands in California and provides mechanisms that encourage the protection and conservation of these unique habitats (Fish and Game Code §§ 1360-1372). A permanent loss of oak and mixed woodlands, especially mature trees, resulting from Project activities could result in significant loss of nesting, foraging, denning, refuge and/or perching habitat for native fauna and loss or fragmentation of wildlife movement corridors.

Evidence impact would be significant: The Project is located within an area with oak and mixed woodlands. Oak woodlands are considered to be a CDFW-designated rare natural community (CDFW 2025). Rare natural communities have limited distribution and are often vulnerable to project impacts (CDFW 2018). Project-related impacts, as well as cumulative impacts resulting from other nearby

past, present, and future projects should be addressed in the draft EIR. If the California Public Utilities Commission determines that the Project will result in a significant impact to oak and mixed woodlands, the draft EIR should include mitigation as required by CEQA Section 21083.4 as part of the final CEQA document.

Where avoidance and minimization measures are infeasible, the design of mitigation measures should consider the local, regional, and larger-scale environmental context in which the habitat loss or alteration is occurring. Mitigation required must be roughly proportional to level of impacts (including cumulative impacts) in accordance with the provisions of CEQA (Guidelines Sections 15126.4(a)(4)(B), 15064, 15065, and 15355).

Recommended Mitigation Measures: To reduce impacts to less-than-significant, CDFW recommends including the following mitigation measures in the EIR:

- Mitigation and Monitoring Plan. Adequate mitigation for the loss of oak and mixed woodlands should first include avoidance and minimization of Project impacts. Trees should be retained on-site to the maximum extent feasible. Access roads, utilities and building sites should be located or routed where they will require the minimum amount of disturbance to oak and mixed woodland habitats, including both to the tree and the root zone. If impacts to oak and mixed woodland habitats are unavoidable, the Project should first consider on-site restoration or enhancement of woodland habitat. If on-site mitigation is inadequate to minimize impacts or on-site planting of trees underneath or adjacent to powerlines is not feasible, the Project should develop off-site mitigation with a sufficient monitoring period to ensure success of the mitigation plantings.

  Any proposal for on- or off-site oak and mixed woodland enhancement should include the development of a Mitigation and Monitoring Plan (MMP). The development of a MMP should include an assessment of woodland habitat functions and values including: existing and proposed species composition; basal density and canopy cover; habitat connectivity; success criteria; maintenance activities; protection from human impacts; appropriate fire management; conservation easements or transfer in fee to an appropriate land management entity; long-term funding for management; and an appropriate monitoring program. Finally, CDFW recommends that the MMP describe corrective actions to be taken when success criteria are not met.

- Tree and Shrub Mitigation Ratios. At a minimum, CDFW recommends that individual trees be mitigated at the following ratios (number of trees replanted:

tree removed). All diameters should be measured at DBH which is 4.5 feet from the ground level.

CDFW recommends that all removed oak trees that are equal to or greater than two inches DBH be replaced. Oak trees should be replanted at a minimum of the following ratios:

- Oaks 2 to 6 inches DBH – 3:1
- Oaks greater than 6 inches and up to 24 inches DBH – 6:1
- Oaks greater than 24 inches DBH – 10:1

CDFW suggests that all other slow-growing native trees also be replaced at ratios equal to or similar to those described above for oaks. Other native tree or shrub species like elderberry (*Sambucus* spp.), toyon (*Heteromeles arbutifolia*), coyote brush (*Baccharis pilularis*), or willows (*Salix* spp.) could be replaced at a 3:1 ratio. Finally, CDFW suggests that all non-native trees greater than three inches in DBH be replaced at a 1:1 ratio with a native tree species.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNDDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the draft EIR to assist California Public Utilities Commission in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Jennifer Hoey, Environmental Scientist, at (707) 815-9978 or Jennifer.Hoey@wildlife.ca.gov; or Brenda Blinn, Senior Environmental Scientist (Supervisory), at (707) 339-0334 or Brenda.Blinn@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

ec: Office of Land Use and Climate Innovation (SCH No. 2025020944)
Melissa Farinha, CDFW Bay Delta Region - Melissa.Farinha@wildlife.ca.gov
Brenda Blinn, CDFW Bay Delta Region - Brenda.Blinn@wildlife.gov

REFERENCES

California Department of Fish and Game (CDFG). 2025. List of Vegetation Alliances, Associations, and Special Standards. Vegetation Classification and Mapping Program, Sacramento, CA. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline

California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline

California Fish and Game Code §§ 1360–1372. (2009). Oak Woodlands Conservation Act. Retrieved from https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FGC&division=2.&title=&part=&chapter=4.&article=3.5

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Noé Romo Loera <noe@sausalcreek.org>
Sent: Friday, September 12, 2025 2:13 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Comment for Moraga-Oakland X Project, A.24-11-005

Good Afternoon,

My name is Noé Romo Loera, I am the Restoration Ecologist/ Manager for Friends of Sausal Creek (FOSC) out of Oakland, California. I am writing to submit my comment regarding the EIR for the Moraga-Oakland X Project.

After reading the scope of work it is clear that the species avoidance procedures and minimization measures are well thought out and informed. However, with regards to biological and natural resources within the area of the project, I just wanted to highlight the importance of working with an abundance of caution in areas with protected/ special status species. Specifically the Pallid Manzanita which is the primary species of concern within the bounds of FOSC's project areas. The introduction of any phytophthora species can be equally as detrimental as trampling over species itself.

The project overall proposes a net positive while minimizing harm to wildlife and natural resources in the urban and suburban areas.

Thank you.

Noé Romo Loera (he/ they)
Restoration Manager
Friends of Sausal Creek (FOSC)
Noe@sausalcreek.org
(510) 250-2577

Friends of Sausal Creek

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Cultural Preservation Department Inbox <cpd@wiltonrancheria-nsn.gov>
Sent: Wednesday, August 20, 2025 4:11 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Moraga-Oakland X 115 Kilovolt Rebuild Project

Categories: Cultural

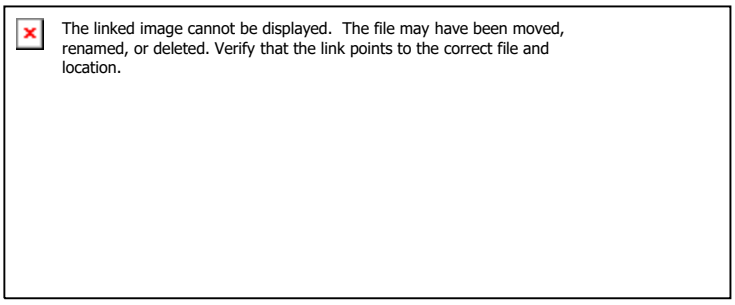
Greetings,

Thank you for your letter dated August 12, 2025, regarding the proposed project. Wilton Rancheria ("Tribe") is a federally recognized Tribe as listed in the Federal Register, Vol. 74, No. 132, p. 33468-33469, as "Wilton Rancheria of Wilton, California". The Tribe's Service Delivery Area ("SDA") as listed in the Federal Register, Vol. 78, No. 176, p. 55731, is Sacramento County. The Tribe's Trust Lands are in Sacramento County however, the Tribe's ancestral territory spans from Sacramento County to portions of the surrounding Counties.

Although your project is within the ancestral territory of the Wilton Rancheria, we do not have any comments and do not wish to open consultation at this time. We appreciate your continued outreach and/ or consultation for future projects and respectfully request that you contact us if there are any project updates or changes.

Thank you,

Koshoua



Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Kenneth Gibson <kennethtgibson@gmail.com>
Sent: Wednesday, August 13, 2025 10:59 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project;
Subject: Moraga-Oakland X Project

The entire high voltage line from Oakland through forested and public spaces to Moraga should be replaced as a high voltage direct current system. HVDC offers tremendous benefits in transmission efficiency and direction of flow flexibility. This will require more substantial investment in the line and at the existing substations.

This kind of "experimental" investment by PG&E could lead to a direction of substantial long term investments by the company and long-term returns for its share-holders while actually accomplishing something beneficial to the community and the planet. A nationwide super grid of HVDC transmission lines offers the long term potential to shut down coal mines in Virginia, uranium mines in New Mexico and Wyoming and oil and gas wells in California and Texas. Let California join in leading the way to a safer energy future. PG&E should be honored to pursue such an opportunity while also providing better support for roof-top solar on both sides of the hills surrounding foggy San Francisco Bay.

Kenneth Gibson, RG (Regular Voter)
Oakland CA 94602

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Kenneth Gibson <kennethtgibson@gmail.com>
Sent: Saturday, September 20, 2025 11:28 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project;
Subject: Moraga-Oakland X Project

TThe entire high voltage line from Oakland through forested and public spaces to Moraga should be replaced as a high voltage direct current system. HVDC offers tremendous benefits in transmission efficiency and direction of flow flexibility. This will require more substantial investment in the line and at the existing substations.

This kind of "experimental" investment by PG&E could lead to a direction of substantial long term investments by the company and long-term returns for its share-holders while actually accomplishing something beneficial to the community and the planet. A nationwide super grid of HVDC transmission lines offers the long term potential to shut down coal mines in Virginia, uranium mines in New Mexico and Wyoming and oil and gas wells in California and Texas. Let California join in leading the way to a safer energy future. PG&E should be honored to pursue such an opportunity while also providing better support for roof-top solar on both sides of the hills surrounding foggy San Francisco Bay.

Kenneth Gibson, RG (Regular Voter)
Oakland CA 94602

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Denise Bostrom <denise.bostrom@gmail.com>
Sent: Monday, August 18, 2025 10:03 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Moraga-Oakland X Project

Dear Tharon Wright, CPUC

With regard to the Rebuilding the existing Moraga-Oakland X 115kV Line Overhead -- that's above Highway 13: Why can't this line be undergrounded as well as the other Rebuild of an Existing Moraga-Oakland X 115 kVLine -- that's below Highway 13?

Thanks,

Denise Bostrom
510-508-8149

--
Family Stories & Memoir Writing - Sat. AM Class (9/13 - 10/4) Piedmont Adult School: 760 Magnolia Ave. 94611

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Sara Rankin <sara@almaacupuncture.com>
Sent: Wednesday, August 20, 2025 6:39 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Moraga-Oakland Power line rebuild

Hello,

I am concerned about the health consequences of increasing to a larger size conductor for residents who live along this corridor. Can you please provide information regarding this concern?

Best,

Sara Rankin

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Elizabeth Hansell <joey.hansell@gmail.com>
Sent: Wednesday, August 27, 2025 8:58 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: We live on Scout Rd

Hi
We live on Scout Rd and would be willing to put up with the “ inconvenience of undergrounding.
The towers are an eyesore in our neighborhood.
Elizabeth Hansell
2420 Scout Rd , Oakland, CA 94611

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Pete Retondo <peteretondo@gmail.com>
Sent: Monday, September 1, 2025 6:37 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Cc: Gryler, Stella; officeofthemayor@oaklandca.gov; district4@oaklandca.gov; Phil Gorman
Subject: Comments on draft EIR for PG&E transmission line rebuild Moraga - Oakland (Park Blvd.) Oakland X Substation

Dear Tharon Wright,

I am writing to express my disagreement and profound disappointment in the basic scientific integrity of the Draft EIR ("Paci□c Gas and Electric Company Moraga-Oakland X 115 Kilovolt Rebuild Project (A.24-11-005)," to be presented for consideration by the California Public Utilities Commission.

The process and inadequately-supported conclusions of this report are in direct conflict with CPUC determinations regarding wildfire mitigation through the undergrounding of transmission lines. Specifically, in CPUC's Decision 23-11-069 (November 16, 2023) PG&E was authorized to construct 1230 miles of undergrounded lines in the next four years (through 2027). Why, then, are the 4 most critical miles of this 5-mile project to remain overhead transmission lines over wooded and dry terrain extremely vulnerable to the sparking of a catastrophe firestorm in Oakland? Where else in the State of California can you find a more vulnerable and critical wildfire hazard?

Not only does this draft EIR fail to consider that a large wildfire is by far THE most significant environmental impact of this project, it accepts a preliminary assessment eliminating the most sensitive portion of the project from consideration for undergrounding, and fails to properly evaluate that decision.

I find that the assessment of retired Moraga-Orinda Fire Chief Dave Winnacker, expressed in a letter to our neighbor, provides a concise and authoritative roadmap to this issue:

> "Undergrounding of distribution lines reduces the risk of a fire start in the community. In foothill and rural areas, there is a very real risk such a fire start could rapidly grow to become a destructive fire. In dense urban and suburban areas, a distribution line start is extraordinarily unlikely to cause a significant fire for three reasons:
>
> 1. Ignitions within the community are observed and the fire department puts them out.
>
> 2. The firefighter density in an urban or suburban area is high. In Moraga fire fighting response times are under 4 minutes as opposed to the 30+ minute response time common in rural areas.
>
> 3. In an urban or suburban setting, there is not enough vegetative continuity to rapidly carry fire from a spot ignition."

The proposed project gets this exactly backwards. The project is divided into three segments:

1. East portion: Moraga substation to crest of Oakland hills (described in the EIR as "primarily hilly open space and park land owned by East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District (EBMUD)")
2. Middle portion: from crest of Oakland hills down to intersection of Park and Estates, hilly low-density residential
3. West portion: from Park at Estates down to Substation X at Park and I-580, urban, higher density residential and commercial

It is only portion 3, the LEAST likely to risk wildfire ignition, that is to be undergrounded. Portion 2 is considered in the EIR for alternate undergrounding (though not through the most obvious route following Park Blvd. in the lower portion) - but the report recommends against that alternate primarily because it DOWNPLAYS THE IMPORTANCE of environmental impacts resulting from the devastation of a large wildfire. Portion 1 is not seriously evaluated for undergrounding, through disqualification by way of a summary preliminary evaluation.

It is in these roughly two miles of portion 1 that a catastrophic wildfire is most likely to be sparked. The land is not accessible by developed roads to fire equipment. Fires there must be fought by the same methods used in remote areas. Surveillance, allowing a rapid response, does not exist or is very limited. There are no fire hydrants or readily-available water supplies. During an easterly high wind in the dry fall, this is exactly the setting for a scenario like that already faced by Santa Rosa, Paradise, and Altadena / Pacific Palisades.

What are we thinking? The hazard is so obvious it boggles the mind to contemplate what is going through the minds of officials and the authors of this report.

These power lines were originally constructed in 1908 and 1930. If we are something like 100 years between major reconstructions, failing to take the opportunity to underground these lines now will mean the hazard will not be addressed in anyone's lifetime. Failing to do the right thing now surely, through the law of averages, risks a disaster and major recrimination and regret within those very lifetimes. The regret suffered by my family, and my neighbors on Trafalgar Place in Oakland, who would be in the direct path of the potential wildfire, will be possibly more profound.

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Section 4 of the EIR evaluates alternatives to underground lines through portion 2. Unaccountably, the study concludes that it is impossible to accommodate two 4' wide conduit routes through a single roadway, thereby doubling the impacts and costs of the evaluated alternative. I doubt that a 30' or more city right of way cannot be found to make room for all 4 circuits under one route.

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Overall, the EIR does not adequately evaluate the undergrounding alternate options. It appears to me to go out of its way to emphasize incompletely documented objections, or objections which do not withstand the test of logical analysis.

Does the proposed project reduce the risk of fire? That is what PG&E claims, and apparently some risk reduction is the main consideration of this report and perhaps of the CPUC. The larger question: is it worth $300 million or more to execute a project that does not diminish fire threat from the transmission lines to near zero, when spending more on this once-in-a-hundred-years upgrade could accomplish that goal? I believe the citizens of California, and certainly those who live under threat of PG&E electrically-sparked fires, expect a higher standard of our elected and appointed officials than "better than nothing."

Sincerely,

Pete Retondo, AIA

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Pete Retondo
510-589-0789
www.retondoarchitecture.com

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Pete Retondo <peteretondo@gmail.com>
Sent: Friday, September 5, 2025 2:18 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Cc: officeofthemayor@oaklandca.gov; district4@oaklandca.gov
Subject: Moraga-Oakland X Project

Dear Tharon Wright,

The Chronicle just reported that a major homeowners' insurance company is dropping coverage for another 37,000 California homeowners, undoubtedly in response to the estimates of over $50 billion in destruction due to the recent wildfires in L.A.

If anyone thinks we are not in a new era when it comes to power line responsibilities and standards, they need only review headlines from the last 10 or so years. A video of the Southern California Edison power line spark that started the Eaton fire in Altadena is also worth viewing. Everyone, and especially the CPUC and the utilities it regulates, is playing catch up. The old rules, the old standards, the old way of doing things are out of touch with today's realities.

It is commonly accepted today that in wooded or brushy areas with difficult firefighting access, under-grounding transmission conductors reduces the risk of fire induced by electrical sparks to zero or nearly zero. In 1908 and 1930, when these overhead transmission lines on towers were originally built, no such understanding of the risk was prevalent. What was once perhaps unimagined is now the new reality.

The new understanding of reality demands that we treat this replacement, with expanded ampacity, be treated in many respects as new project rather than just a repair. In that light, we should be concerned not merely with the activities of construction, we must consider the long term environmental impact. The erroneously cavalier assumptions of 100 years ago need some mechanism of correction as we move into the next century. We must incorporate our clearer understanding of the risks associated with overhead transmission lines into our review of project proposals, and this the Draft EIR fails to do, despite the fact that in a strictly technical sense the expanded ampacity of the proposed new lines constitutes a new project.

Does the CEQA process allow for such a more enlightened view of a project such as this? CEQA language certainly suggests it should:

> CCR 14 section 15358 Effects: “Effects” and “impacts” as used in these guidelines are synonymous.
>
> (a) Effects include:
>
> (1) Direct or primary effects which are caused by the project and occur at the same time and place.
>
> (2) Indirect or secondary effects which are *caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable*. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. [emphasis added]

The indirect impacts of overhead transmission lines are omitted from consideration in the Draft EIR's conclusions at several points, and this constitutes the major inadequacy of the report. Although the risk of a catastrophic wildfire (an indirect effect) is discussed, it is not actually incorporated at key points into the technical determinations made. Instead, the primary effects of the actual construction components and of the construction process, are the sole factors upon which its key recommendations are based. It is on this basis that the undergrounding of the easterly third of the project is deemed unworthy of consideration, and that the negative impacts of increased construction time and activity outweighs the benefits of undergrounding the middle portion of the project.

To be a complete and good-faith assessment, the report must weigh the long-term indirect impacts of a plan that presents the strong possibility of a massive wildfire against alternates that would prevent such a catastrophe. It seems to me inconceivable that we would then be able to conclude that undergrounding is an environmentally inferior solution. We could then move on to the economic factors, which it seems to me have all along been driving this process. In my view it is ethically unacceptable for the EIR to subvert the decision-making process and to offer a false environmental rationale for making a judgement that is really economic.

To be adequate, the report must evaluate alternate plans fairly and professionally. From a technical point of view, the alternates with which the authors spend so much time finding fault, are sketchy and full of potentially crucial errors. If I were in a position of authority, I would demand to see schematic level plans for undergrounding both the easterly and middle portions of the project, prepared by qualified independent engineers. Relying on sketchy assertions from PG&E and basically speculative assumptions is not sufficient.

The Shephard Canyon Road / Shephard Canyon path city-owned right of ways are clearly generous enough to accommodate all 4 circuits underground, and adjacent city-owned properties and street intersections afford ample opportunity to site required splice vaults. No one who takes a look at the readily-available maps showing the extent of these rights-of-way could possibly assert, as the report does, that it does not provide a single route for all the undergrounding needed. This is an error so glaring that it suggests, at the least, a lack of competence that a legitimate engineering plan would correct. The report further states, without citing evidence, that the nearly mile-long tunnel used until the 1950s by the Sacramento Northern Railway has been "filled in." Local knowledge, and, frankly, engineering savvy, make that a highly suspect claim. Please have them supply documentation supporting the statement.

With those two substantial chunks of available routing, we would then be left with the relatively less complicated traversal of the final mile and a half or so from the tunnel portal near Canyon to the Moraga substation. I would submit that this alternate has been inadequately considered and discarded with flawed reasoning.

There is one other important point to bring into the discussion, and that is the report's claim that the improved replacement transmission lines represent a "90% reduction" in fire risk. That claim is not backed up by any evidence, and as a quantitative assertion it is meaningless. We know that overhead lines of this character have sparked numerous destructive fires, and to claim that any engineering improvement, which has not had a similar test of time, would produce any desired result is purely speculative. I would therefore take with a large grain of salt any argument that undergrounding would improve our chances by only 10%, and better trust both common sense and the overwhelming consensus of experts.

I hope that these comments have been worth your time in reading them, and that the CPUC commissioners will find them useful.

Best regards,

Pete Retondo, AIA

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Pete Retondo
510-589-0789
retondoarchitecture.com

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: jonathan@sojourningsoul.net
Sent: Tuesday, September 2, 2025 9:55 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: MORAGA-OAKLAND X 115 KV REBUILD PROJECT

Re: MORAGA-OAKLAND X 115 KV REBUILD PROJECT and the Sacramento Northern Railway Tunnel Connecting Pinehurst Road at Fire Road 41-16 with Shepherd Canyon Road at Paso Robles Drive https://localwiki.org/oakland/Redwood_Peak_Tunnel

To: Tharon Wright, CPUC Project Manager

Mr. Wright, I perused your well written DEIR for this project but was struck by the absence of any consideration of usage of the Sacramento Northern Railway's old Redwood Peak Tunnel to run your wires underground instead of traversing that ridge. If you are unaware of this potential resource, you should consider expanding the scope of your project to consider it. If you are, indeed, aware of it, then you should explain why the usage of it has been dismissed without mention.

Because it was an electric railway requiring electricity at both ends, it closely follows the alignment of your infrastructure. For the area it spans, it would save you your worst wildfire concerns and your aviation concerns. It should be comparatively very cheap to bolster and use an existing bore, rather than pour cement from helicopters, etc., and potentially could save an enormous amount of money. Naturally, it would also raise questions peculiar to itself which would have to be weighed against potential benefits.

If you have questions into which local knowledge might have insight, please feel free to ask.

Jonathan Goodwin
80 Redwood View Road
Canyon, Calif.

Redwood Peak Tunnel

Edit Info

View Edit

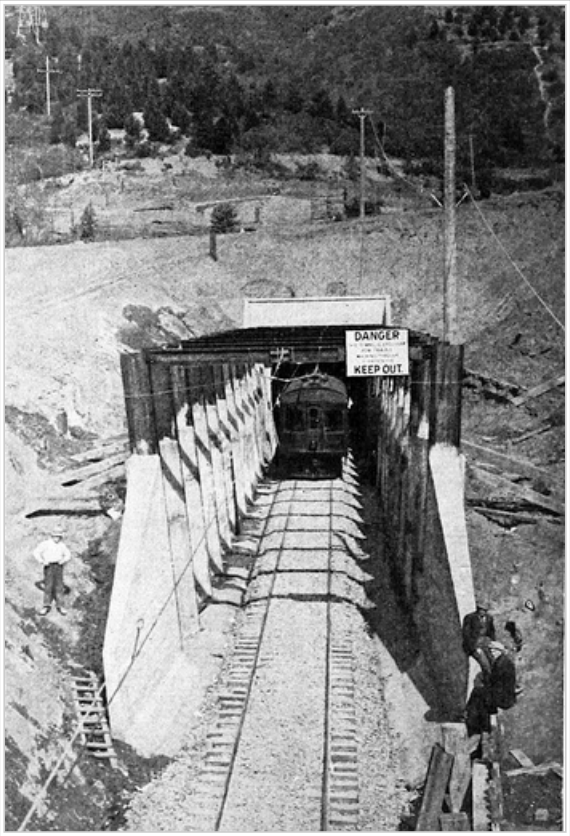
Excerpt from 1949 Oakland East 7.5-minute Quadrangle topo map (in public domain, from UC Berkeley's Historic Topographic Maps of California – San Francisco Bay Area)

The 3700-foot long **Redwood Peak Tunnel** (c.1910–1957) was a railroad tunnel used by the Sacramento Northern Railway (SNR) to go under the Oakland Hills between upper Montclair (SNR's Havens Station) and its Eastport station in Contra Costa County. The tunnel's west portal emerged near the intersection of Saroni Drive and Shepherd Canyon Road (then part of Park Boulevard), and its east portal was adjacent to Pinehurst Road outside Canyon.

The tunnel was dug 1910–13 by the Oakland and Antioch Railway (OAR), predecessor to the Oakland, Antioch and Eastern Railway, which later merged with the SNR. The work was done by contracting company E. B. and A. L. Stone Company, run by Egbert B. Stone and his brother.

Last used in 1957, the tunnel has since been sealed at both ends. In 1982, a house built over its Oakland side was destroyed when the tunnel below it caved in. It's worth reading the court opinion that ended the litigation over this home's destruction, if only for the history of the original easement. Note the references to the Mahogany Eucalyptus and Land Company and People's Water Company. Also note that the plaintiff in the case bought the property from Caltrans, who had purchased it as part of the right-of-way for the proposed Highway 77 (aka the "Park Boulevard Freeway"–details on the Unbuilt Oakland page).

East Portal near Eastport Station [1]



West Portal [3]

Links and References

1. Sacramento Northern at Daniel Levy's OB&E website
2. Platts v. Sacramento Northern Ry. (1988)
3. Oakland History Group on Facebook May 3, 2022 [looking for original source material]

history | montclair | Montclair Railroad Trail | railroad history | transportation history | tunnel

Edit tags

Contributed by   

Nearby LocalWiki regions: Fortress Bay Area | San Francisco Bay | Alameda | Emeryville | East Bay Ride Niches | Berkeley

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: David Markman <markmandp@gmail.com>
Sent: Tuesday, September 2, 2025 10:10 AM
To: Pete Retondo
Cc: PG&E Moraga-Oakland X 115 kV Rebuild Project; Gryler, Stella; officeofthemayor@oaklandca.gov; district4@oaklandca.gov; Phil Gorman
Subject: Re: Comments on draft EIR for PG&E transmission line rebuild Moraga - Oakland (Park Blvd.) Oakland X Substation

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Mr. Retondo has succinctly summarized our feelings on the project and we would ask that you strongly reconsider the EIR and request that PG7E reevaluate the portion of the project that should be undergrounded.

Thank you,

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On Mon, Sep 1, 2025 at 6:36 PM Pete Retondo <peteretondo@gmail.com> wrote:

Dear Tharon Wright,

I am writing to express my disagreement and profound disappointment in the basic scientific integrity of the Draft EIR ("Paci□c Gas and Electric Company Moraga-Oakland X 115 Kilovolt Rebuild Project (A.24-11-005)," to be presented for consideration by the California Public Utilities Commission.

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Not only does this draft EIR fail to consider that a large wildfire is by far THE most significant environmental impact of this project, it accepts a preliminary assessment eliminating the most sensitive portion of the project from consideration for undergrounding, and fails to properly evaluate that decision.

I find that the assessment of retired Moraga-Orinda Fire Chief Dave Winnacker, expressed in a letter to our neighbor, provides a concise and authoritative roadmap to this issue:

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destructive fire. In dense urban and suburban areas, a distribution line start is extraordinarily unlikely to cause a significant fire for three reasons:

1. Ignitions within the community are observed and the fire department puts them out.

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The proposed project gets this exactly backwards. The project is divided into three segments:

1. East portion: Moraga substation to crest of Oakland hills (described in the EIR as "primarily hilly open space and park land owned by East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District (EBMUD)")
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It is only portion 3, the LEAST likely to risk wildfire ignition, that is to be undergrounded. Portion 2 is considered in the EIR for alternate undergrounding (though not through the most obvious route following Park Blvd. in the lower portion) - but the report recommends against that alternate primarily because it DOWNPLAYS THE IMPORTANCE of environmental impacts resulting from the devastation of a large wildfire. Portion 1 is not seriously evaluated for undergrounding, through disqualification by way of a summary preliminary evaluation.

It is in these roughly two miles of portion 1 that a catastrophic wildfire is most likely to be sparked. The land is not accessible by developed roads to fire equipment. Fires there must be fought by the same methods used in remote areas. Surveillance, allowing a rapid response, does not exist or is very limited. There are no fire hydrants or readily-available water supplies. During an easterly high wind in the dry fall, this is exactly the setting for a scenario like that already faced by Santa Rosa, Paradise, and Altadena / Pacific Palisades.

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Sincerely,

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www.retondoarchitecture.com

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Phil Gorman <phil_gorman@msn.com>
Sent: Wednesday, September 3, 2025 8:00 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project; district4@oaklandca.gov; officeofthemayor@oaklandca.gov; Gryler, Stella
Cc: Pete Retondo; David Markman
Subject: Urgent: Once-in-a-Century Opportunity to Prevent Wildfire Catastrophe

Dear Mr. Wright, Mayor Lee, and Council Representatives,

I am writing to add my voice to my neighbors' deep concerns about the Draft EIR for the "Moraga–Oakland X 115 kV Rebuild Project."

This transmission line rebuild is a **rare opportunity** to address the greatest wildfire hazard Oakland faces. If we miss the chance now to underground the high-risk wildland corridor, we will likely not get another opportunity.

After reviewing the Draft EIR, I consulted several fire professionals who confirmed that *zones 1 and 2* should be undergrounded. Mr. Retondo already quoted the response I received from a former fire chief and Brigadier General who oversaw wildfire mitigation efforts in our region, but it is worth reiterating: "Undergrounding of distribution lines reduces the risk of a fire start in the community. In foothill and rural areas, there is a very real risk such a fire start could rapidly grow to become a destructive fire."

The current plan appears to have its priorities inverted: it undergrounds lines where a wildfire would be less catastrophic (zone 3), while leaving them overhead where a spark could set off devastation on a regional scale (zones 1 and 2). Given our shared understanding of climate change, we know that hotter temperatures, prolonged droughts, and shifting wind patterns have transformed wildfires into fast-moving urban disasters. I remember the 1991 Oakland Fire well. It's mindboggling to think that we were *lucky* that only 25 people died, only 150 were injured, and only 3500 structures were burned. But when a single spark from one of those overhead PG&E lines ignites the next big Oakland fire...we will be saying just that, if we survive to tell the tale. Once-rare tragedies, we've seen urban wildfires repeatedly recently. Embers leap miles ahead of a blaze, overwhelming even the most prepared cities. Oakland's wildland–urban interface, aging infrastructure, and limited evacuation routes create a perfect storm that insurance companies already recognize—and that residents and public officials cannot afford to ignore.

Think of Maui. The Marshall fire near Denver. And here in CA: Kincade, Saddleridge, Bobcat, Dixie Fires...all started by power line sparks. And of course, LA earlier this year. Urban wildfires like the Palisades and Eaton Fires obliterated thousands of homes, claimed lives, and triggered insured losses estimated in the tens of billions of dollars. **We should not allow our own infrastructure *UPGRADE* to become the spark for such a catastrophe.**

We understand that undergrounding is expensive, *but the cost of inaction*—measured in lost lives, homes, and billions in damages—*is far higher*. This is our chance to make a generational investment in safety, one that will protect Oakland for decades to come.

I urge PG&E, the CPUC, and the City of Oakland to revisit this plan and prioritize undergrounding the most dangerous segments of these lines. The Draft EIR fails to fully recognize that a catastrophic wildfire is a major environmental impact—please ensure the environmental review reflects this reality. Use this moment to lead boldly and safeguard our city's future.

Thank you for your time and attention.

Sincerely,

Phil Gorman
2229 Trafalgar Place, Oakland, 94611

From: David Markman <markmandp@gmail.com>
Sent: Tuesday, September 2, 2025 10:10 AM
To: Pete Retondo <peteretondo@gmail.com>
Cc: MOX@aspeneg.com <MOX@aspeneg.com>; Gryler, Stella <Stella.Gryler@asm.ca.gov>; officeofthemayor@oaklandca.gov <officeofthemayor@oaklandca.gov>; district4@oaklandca.gov <district4@oaklandca.gov>; Phil Gorman <phil_gorman@msn.com>
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Most significantly, the EIR dismisses undergrounding proposals for the easterly portion 1 of the project primarily because "increased construction activities in EBMUD and EBRDP land would result in more ground disturbance within sensitive habitats and severe visual land scars due to construction clearing." This is where the report crucially fails in its primary task. Does this envisioned disturbance present greater, or less, environmental damage than complete destruction of thousands of acres by wildfire? Question not even posed. The report also cites "extremely disruptive" temporary traffic impacts during construction. I would propose that a poll of residents, asking if they would accept a few weeks of traffic disruption as against having their homes destroyed by fire at some time in the future, would put that objection to rest.

By the way, the report states without evidence that the abandoned railroad tunnel from upper Shepherd's Canyon across to Pinehurst has been "filled in." Delving into the history of that tunnel, that appears not to be the case. In fact, in the early 1950s a house built over the first couple hundred feet of the tunnel was destroyed when the portal partially collapsed.

Overall, the EIR does not adequately evaluate the undergrounding alternate options. It appears to me to go out of its way to emphasize incompletely documented objections, or objections which do not withstand the test of logical analysis.

Does the proposed project reduce the risk of fire? That is what PG&E claims, and apparently some risk reduction is the main consideration of this report and perhaps of the CPUC. The larger question: is it worth $300 million or more to execute a project that does not diminish fire threat from the transmission lines to near zero, when spending more on this once-in-a-hundred-years upgrade could accomplish that goal? I believe the citizens of California, and certainly those who live under threat of PG&E electrically-sparked fires, expect a higher standard of our elected and appointed officials than "better than nothing."

Sincerely,

Pete Retondo, AIA

--

Pete Retondo

510-589-0789

www.retondoarchitecture.com

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Linda Walton <lcdannin@gmail.com>
Sent: Thursday, September 25, 2025 11:56 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Montclair undergrounding--scared resident

Hello, As a long term resident of the Montclair area of Oakland (1975 move in date)I am writing to urge you to advance the UNDERGROUNDING of all wires, cables, etc in my beautiful, tree filled neighborhood. I was here for the 1991 enormous fire, which is one neighborhood away from Montclair and also the not well-known fire on the Zinn fire trail (across from my home on Drake Drive) in 1995. **Please look that one up**. The latter was due to a PGE problem, which they admitted. It was a smaller fire that could have easily spread due to the dry, hot winds that day, and our Fire Dept. put it out and monitored the area post-fire. The fire engine and the Red Cross were parked in front of my home. I am not well versed in the all of the details about towers in Shepard Canyon,etc, but what I do know is that residents in Montclair are well aware of the enormous fire danger in our area because we are only one street over from the 1991 conflagration that decimated neighborhoods and **killed many residents and their pets**. There are so many viable reasons our area should be undergrounded and any other plan is not negotiable. We are in the same kind of neighborhood as the 1991 neighborhood--- lots of trees, narrow roads, minimal amount of egress and ingress for residents, same weather patterns, ie; winds from the canyon and homes on the wind-prone ridges. To be designated as HIGH RISK DANGER ZONE should be **enough** for any decisions to be made by the appropriate governing bodies. Any other plan is just a bandaid and should be scrapped. DON'T WAIT UNTIL ANOTHER FIRE LIKE IN 1991 HAPPENS AND THEN UNDERGROUNDING IS THE ANSWER. IT'S THE ANSWER NOW AND YOU SHOULD ALL AGREE ON THAT AND MAKE IT HAPPEN!!!!! Imagine if you or your loved ones lived in Montclair--what would your recommendation be ????????

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Jennifer Arnest <jmarnest@gmail.com>
Sent: Thursday, September 25, 2025 8:12 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project; assemblymember.wicks@assembly.ca.gov
Subject: Moraga-Oakland X (MOX) Project.

To Whom I hope This Concerns,

We are exhausted by the empty double speak and run around regarding this project. We've been speaking up and writing detailed letters for more than a year now, including to our local assembly member Buffy Wicks, in the hopes of lifting up more concern and care. There just is no good excuse for running wires on towers above ground in the wooded residential area where we all live. It is so short sighted. Scout Rd and these wooded hills need a different solution and better leadership for the imminent threats that fire and towers present, so clearly.

Jennifer Arnest

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Matt Solomon <mattsol@gmail.com>
Sent: Thursday, September 25, 2025 11:22 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Comments on the Draft EIR
Attachments: PGE CEQA comment letter Sept 2025.docx

Please find attached my comments to the Draft EIR for PG&E Moraga-Oakland X 115 kV Rebuild Project (A.24-11-005).

Please confirm receipt of this email and public comment.

Matt Solomon

September 25, 2025

CEQA Comment Letter

Re: Draft EIR for PG&E Moraga-Oakland X 115 kV Rebuild Project (A.24-11-005)

To Whom It May Concern:

I am writing to provide public comment on the Draft Environmental Impact Report for the PG&E Moraga-Oakland X 115 kV Rebuild Project. I strongly urge the CPUC to require undergrounding of the transmission circuit through the Montclair Hills and other densely populated, high-fire-risk portions of the alignment.

The Draft EIR asserts that rebuilding overhead towers will reduce wildfire risk by more than 90%. This is not credible given recent history: catastrophic fires such as Paradise and Altadena originated from transmission equipment that had been "upgraded" or considered "hardened." Overhead infrastructure in heavily wooded, wind-prone canyons will always carry unacceptable residual fire risk. Only undergrounding can truly eliminate this danger to residents, first responders, and the surrounding environment.

This is a once-in-a-century opportunity to correct legacy siting decisions that placed major transmission towers directly through a densely residential neighborhood. The Montclair Hills are designated as Very High Fire Hazard Severity Zones, with narrow, evacuation-limited roadways and high population density. Re-installing overhead lattice towers here effectively guarantees future risk, while undergrounding would permanently resolve it.

In addition to fire danger, the proposed replacement of overhead towers would severely degrade community aesthetics. PG&E's plan to install large, galvanized steel lattice towers—essentially the same industrial design used for the last century—is incompatible with the character of the East Bay Hills. At a minimum, if overhead structures are pursued, they should be designed to blend into the environment, as many telecommunication towers are today (e.g., disguised as trees, painted in earth tones). Simply replicating outdated lattice structures is unacceptable.

For these reasons, I respectfully request that the CPUC identify a full undergrounding option that achieves an environmentally superior alternative (including tower removal as one option). The health, safety, and aesthetics of this high-risk community must take precedence over the convenience of perpetuating PG&E's legacy infrastructure.

Specific Weaknesses of the PGE plan and CEQA Response and Recommended Revisions

The Draft EIR's conclusion that the overhead rebuild is "environmentally superior" pivots on **temporary construction-phase evacuation** concerns while accepting a **permanent overhead ignition risk** in one of California's most vulnerable urban-wildland canyons.

First, the "~90% risk-reduction" claim rests on PG&E's WTRM with **unchanged wind/weather, outage, and fragility inputs**—a modeling shortcut that does not reflect worsening extremes or out-of-ROW tree strikes. The same analysis shows **-100% risk** where structures are removed, confirming that **undergrounding/removal uniquely eliminates** overhead ignition.

Second, PG&E's own filings state undergrounding **reduces ignition ~98%**, while overhead hardening reduces risk by about **67%**. In practice, overhead transmission continues to drive catastrophic tails (e.g., the **115 kV** equipment that ignited the 2018 Camp Fire; ongoing scrutiny after the 2025 Altadena/Eaton fires). The Draft EIR under-weights this tail risk in a VHFHSZ. AP News+5PG&E+5PG&E Corporation Investors+5

Third, policy points toward undergrounding: Oakland's Safety policies direct coordination to **underground lines in WUI/VHFHSZ areas**, and statewide **SB 884** underscores that eliminating ignition sources is the durable solution in high-risk communities.

Finally, **feasible underground alternatives** already exist in the EIR. Pairing two underground segments can carry all four circuits and **remove overhead through Montclair**, with construction sequencing to maintain evacuation routes. The Appendices even include an **underground Hayward Fault crossing profile**, confirming technical viability.

Request:

1. Identify a **paired underground alternative** (e.g., Alternatives 2+3 or 2+4) as the **environmentally superior** choice for the Oakland Hills; or, at minimum, **require PG&E to re-run WTRM** with updated extreme-wind/climate and out-of-ROW vegetation risk before relying on a "90%" figure.
2. Treat construction evacuation impacts as **temporary and mitigable** via phasing, detours, and traffic control; treat **residual overhead ignition** in VHFHSZ as a **permanent, high-consequence** impact.
3. If any overhead remains, adopt **binding design conditions** (context colors, profile minimization, screening)—the current "dull galvanizing/Corten" measure is inadequate for scenic canyons.

This is a **once-in-a-century** chance to remove a known ignition source from a dense, evacuation-constrained VHFHSZ. Please choose elimination of risk over mitigation of consequences.

Sincerely,
Matt Solomon, MD, PhD

2400 Scout Rd

Oakland CA 94611

Appendix:

1) The EIR's "~90% risk reduction" rests on modeling shortcuts; undergrounding removes the tail risk

- The Draft EIR's 90% wildfire-risk reduction comes from PG&E's Wildfire Threat Risk Model (WTRM). But for the rebuild scenario the analysis **kept key parameters unchanged** (wind/weather, historical outages, base fragility), assuming location invariance and "same materials" as existing towers (or equal/better fire resistance). That means the result is largely an **input assumption**, not a field-validated change in ignition mechanisms (e.g., windborne contact, arcing, out-of-ROW tree strikes).
- The same table that drives the 90% figure also shows **-100% risk** where structures are removed—i.e., undergrounding/removal **eliminates** overhead ignition at those locations. That is the only way to zero out the catastrophic tail.
- PG&E itself publicly states undergrounding **cuts ignition risk ~98%**, far above the ~67% they ascribe to overhead "hardening" measures. That aligns with common-sense physics: buried conductors don't blow into vegetation and don't shed hot particles in wind events. PG&E+2PG&E Corporation Investors+2
- Catastrophic history shows why "residual" overhead risk is intolerable in canyons: the **2018 Camp Fire** was ignited by a **115 kV transmission** asset—exactly the voltage class at issue here. "Hardened" or not, overhead transmission still carries fat-tail risk. HTV Prod Media
- Recent tragedies (the **2025 Eaton/Altadena fires**) underscore that overhead equipment remains a plausible ignition source under extreme winds—investigations are ongoing, but regulators and press are already scrutinizing transmission corridors in the foothills. Reuters+1

Ask: Require the CPUC to identify an **undergrounding alternative as environmentally superior** for the Oakland Hills segment, or at minimum require PG&E to **re-run WTRM** with (a) worst-case wind/heat projections, (b) explicit out-of-ROW tree failure risk, and (c) independent validation—not just carry-over parameters—before adopting any "90%" conclusion.

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2) CEQA balancing puts too much weight on temporary construction-phase evacuation impacts—and not enough on permanent life-safety risk

- The EIR labels the **proposed overhead rebuild** (with ~1 mile of undergrounding near Park Blvd) as the **Environmentally Superior Alternative**, primarily because underground options could constrain evacuation and bike/ped access during **construction** (e.g., Montclair Railroad Trail closures and hilly detours). That's a short-term traffic/evacuation issue, not a long-term hazard profile.
- CEQA allows decision-makers to balance factors, but it **doesn't require** selecting the EIR's "environmentally superior" option—especially if a **feasible** alternative avoids a **significant** long-term impact (wildfire ignition in a VHFHSZ) without creating equal or worse impacts. Construction mobility limits can be phased, detoured, or scheduled; **wildfire fatalities and mass evacuations cannot be mitigated after the fact**.
- The EIR itself concedes that the **No Project** is not superior *because it misses the risk-reduction benefit*. That logic, applied consistently, favors **maximal risk elimination**—i.e., undergrounding/removal—over hardening.

Ask: Direct staff to **re-weigh CEQA tradeoffs**: treat construction-phase evacuation management as **mitigable and temporary**; treat **residual overhead ignition** as a **permanent, high-consequence** impact in a VHFHSZ.

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3) Policy consistency favors undergrounding in the Oakland Hills (VHFHSZ/WUI)

- Local safety policy explicitly says: **"Continue to coordinate with PG&E to underground power lines throughout the community, especially in the wildland-urban interface and fire hazard severity zone areas where wildfire risk is greatest."** That is exactly Montclair.
- Oakland's Safety Element identifies wildfire as the primary hazard and requires enhanced evacuation and mitigation in the VHFHSZ. That aligns with eliminating ignition sources, not perpetuating them overhead.

- Statewide, the CPUC/Energy Safety have created the **SB 884** framework to expedite undergrounding in high-risk areas—clear policy direction that **tail-risk elimination** is preferred where feasible. (SB 884 is focused on distribution, but its underlying safety rationale applies here.) California Public Utilities Commission+1
- The project corridor crosses CPUC-designated **High Fire-Threat Districts** (HFTD). Overhead lines in HFTD carry disproportionate ignition share (vegetation contact is the top driver). Undergrounding attacks the root cause. ArcGIS+1

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4) Undergrounding is feasible here—and the EIR already maps alternatives that meet objectives while removing overhead through the hills

- The EIR evaluates multiple **underground alternatives** (Skyline-Colton-Snake; Shepherd Canyon; Skyline-Ascot; Estates) and explains how **two paired underground segments can carry all four circuits**, after which the **overhead structures are removed** between the transition points—exactly what the community seeks.
- The Appendices even include an **underground Hayward Fault crossing profile**, underscoring that geotechnical challenges are **design problems, not show-stoppers**.

Ask: Direct adoption of a **paired underground alternative** that removes overhead through Montclair (e.g., Alternatives 2+3 or 2+4), with a construction traffic/evacuation plan that sequences work to maintain lifeline access.

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5) Aesthetics: the EIR's "mitigation" is minimal; require real design standards if any overhead remains

- Current "Applicant Proposed Measures" are basically **dull galvanizing/Corten finishes** and **non-specular conductors**; they don't address massing, skyline intrusion, or canyon views. If any overhead survives, require **context-sensitive design** (earth-tone coatings, slimmer monopoles where feasible, lower profile/crest avoidance, vegetative screening, similar to how cellular towers are often "masked" by being designed as artificial trees in wooded areas).

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Cynthia Barbera <cynbarbera@gmail.com>
Sent: Friday, September 26, 2025 7:03 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Response to proposed MOX Project - Strongly Opposed to plan. Please underground these lines for fire safety

September 26, 2025

Tharon Wright, CPUC
Moraga-Oakland X Project

Tharon Wright, CPUC,

This is to convey my strongest disapproval for any overhead re-building of the proposed MOX Project to include approximately 5-miles of four overhead 115 kV power lines between Moraga and Oakland X substations.

Given the extreme fire risk throughout the entire area covered by the project, the extraordinary high winds that rush up the Shepherd Canyon, the excessive brush and highly-flammable eucalyptus trees, and the close proximity to thousands of residents, the proposed rebuild of the overhead Transmission lines is a recipe for disaster with an extremely high potential for substantial and tragic loss of property and human life.

This project should therefore <u>not be approved as proposed</u>, and must be undergrounded.

<u>A few points:</u>

- The area in question falls within a “Very High Fire Risk Area” (VHFRA) neighborhood as designated by the City of Oakland. This is the highest fire risk designation possible, and extra caution must be exercised accordingly.

- Our area already sustained one of the worst firestorms in the history of the US in 1991, with 3400 homes destroyed, damages estimated at $3 billion in today’s dollars, and 25 lives lost. We do not want to repeat this.

- The transmission Towers that run through Shepherd Canyon are located in the middle of densely populated areas with thousands of residents nearby and hundreds of homes within only ¼ mile of the towers. Of all the 6 east bay transmission lines, only Shepherd Canyon has homes literally as close as 25 feet.

- To clearcut all vegetation on the hillsides as a remedy for fire risk causes other issues, including dangerous landslide risk in rainy season and reoccurring sediment washes into Shepherd canyon roads and streams.

- The Shepherd Canyon area has extremely limited egress and ingress. Should a fire occur in Shepherd Canyon, it will be extremely difficult to evacuate all residents in a timely fashion down the single main road to safety (Shepherd Canyon Road), and equally difficult for fire fighters to enter the area.

- Shepherd Canyon is a natural wind tunnel that can experience very high winds, especially during dry weather conditions, which can be exacerbated during a fire event which creates its own winds;

I therefore urge all of the overhead 115 kV lines be removed and installed underground.

There are multiple alternative routing options for underground installation of the 115 kV lines east of Estates Drive as outlined in the EIR, and these should now be the only options under consideration.

My family has resided in the Montclair Hills for over 70 years. We witnessed first-hand the tragic 1991 Oakland Hills Firestorm. We also witnessed the1995 fire on the slope of Shepherd Canyon only a block from our home below Asilomar Drive which destroyed several homes, and which PG&E admitted fault and accepted liability.

Let us not knowingly repeat the mistakes of Edison and the ensuing tragedies of the Eaton Fire which is being sued by Los Angeles County for “deliberately prioritized profits over safety” despite knowing of the “extreme fire risk” its equipment posed.

Thank you,

Cynthia Harrison Barbera
5961 Zinn Drive, Oakland
415-235-7804
cynbarbera@gmail.com
(Montclair Resident)

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: SusanLandon <susanlandon@aol.com>
Sent: Friday, September 26, 2025 7:10 AM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Rebuild project

There is no good reason to run wires above ground in a residential area, especially one so close to the 1991 Oakland fire where the neighborhood learned how difficult it is to outrun a hill fire. Construction inconvenience is nothing compared to losing your house or life in a fire.

This is the 21st century, just rebuilt this correctly, aesthetically and safely.

Sent from my iPhone

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: andrewjeffries@comcast.net
Sent: Friday, September 26, 2025 4:13 PM
To: Wright, Tharon; PG&E Moraga-Oakland X 115 kV Rebuild Project
Cc: 'Patty Jeffries'
Subject: Comments and requests on MOX Project and related.

Andrew and Patricia Jeffries
Owners of home at 7075 Sayre Drive (AKA 52 Saroni Ct), Oakland CA
Towers EN 15 and ES 17 directly adjacent to house.
Parcel 48E-7330-83-2

Andrew Jeffries
adjeffries@comcast.net
510-684-5040

Dear Mr Wright,

We own a house, designed and built by my father in 1980, and awarded the PGE Energy Efficiency prize for that year.
There are two towers in our front parking area, very closely adjacent to our house.
Driveway access to our houses is directly by the towers. It's difficult to see how replacement construction won't block the driveways for extended periods of time.

We have been following the progress of the MOX planning and attending the video conferences and reading the posted materials.
From the MOX webpage we had understood construction on the project was to start around August 2028 and had made plans subject to that.

Very recently, we received a call and letter from PGE informing us that our specific towers would be replaced about September 2026, approximately one year from now.
This has come as a significant surprise. We have been told our specific towers are end-of-life now.

At a recent site meeting with the PGE team, I was encouraged about the possibility of moving new smaller and taller cylindrical tapered poles to the east side of the driveway and approximately 65 feet east from the current towers, as per the initial site engineering recommendation, and this would make a tremendous positive difference to all of us, our good neighbor Brenna Galvin included.

Removing the large old towers benefits all. A second acceptable site would be just north of Sayre Drive, below our garden fence. Placing them in our garden area directly or in front of our deck creates unacceptable views.

I feel I have a basic understanding of how this replacement project would proceed in terms of the steps.

I'm less clear about the schedule and the time heavy equipment will block access to the two houses.

To further complicate the situation, I have new interim tenants moving into the house this Oct 1 with an 18-month lease. I had assured them, in the lease, the construction would not start until Aug 2028, as stated on the MOX home page website. This makes the new situation somewhat awkward, and we need to have a clear statement to them about the new timing and access, and ways to mitigate their inconvenience.

Here is my project understanding; please correct any misunderstanding:

1) PG&E engineering will review the site and contact us. We would likely approve the eastern position. Engineering would generate drawings and specification. And have the project approved/permitted.

2) The footing foundation contractor will come and drill deep piers, fill with concrete, and top with steel mounting plate.
When might this happen and how long would it take? Would equipment be moved out each day?

3) At a later date, the circuits would be deenergized, a tall crane will come in and place tubular sections to the full height necessary including the top pieces to hold the wires.

4) At approximately the same time as above, the crane will disassemble and remove the old towers including the concrete footings. And the old wires will be moved to the new towers.
What can we say about the schedule here and the time to complete these tasks and access to the houses?

5) At some time later, probably in 2028, new larger gage wire will be pulled to replace the old wire as a part of the MOX project.

Please quickly help get me a more detailed local project 2025-2027 plan I can share with my new tenants to give needed assurance on minimizing their inconvenience.

Regards,
Andrew and Patricia Jeffries

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Paul Kubicek <pfkub@yahoo.com>
Sent: Friday, September 26, 2025 4:21 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Moraga-Oakland X Project

Tharon Wright, CPUC:

I have reviewed the Draft Environmental Impact Report (EIR) for the Moraga-Oakland X (MOX) 115 Kilovolt Power Line Rebuild Project and am submitting these comments for consideration by the CPUC. I have lived in the Shepherd Canyon area of Oakland in sight of the existing transmission line for over 40 years. My comments are based on my knowledge of the proposed project learned through the EIR process, as well as my familiarity with the existing transmission line and surrounding area.

In my opinion, the following items have not been addressed in sufficient detail within the EIR.

<u>Erosion and Sedimentation in the Sausal Creek Watershed, with Potential Impact on Aquatic Resources, Most Notably Native Rainbow Trout.</u>
The western portion of the project extending from the ridge top separating Alameda and Contra Costa counties southwestward to the Oakland X Substation exists within the Sausal Creek watershed, which includes such streams as Shephard Creek, Cobbledick Creek, Palo Seco Creek, and Sausal Creek. A small native rainbow trout population inhabits portions of the watershed. Land disturbance associated with the proposed project could cause erosion, leading to sedimentation of streams that could impact rainbow trout through degradation of habitat, particularly for spawning, rearing, and food production. Note that this potential effect exists for rainbow trout that may be located far downstream of the disturbance area, as the eroded material may be washed and deposited miles downstream.

Thus, extensive erosion control measures, including revegetation, need to be employed at the construction sites (i.e., new and exiting tower locations and access roads). Then, monitoring of these sites, as well as any needed corrective actions, should be conducted over a sufficient timeframe to ensure that the erosion is fully under control. Note that several existing tower sites and portions of the right-of-way under the existing lines currently have erosion issues. The rebuild project should include assessment of erosion issues at the existing towers and within the right-of-way, followed by corrective actions.

<u>Raptor Interations with the Transmission Line, with Potential for Raptor Injury or Mortality.</u>
Many species of raptors inhabit the project area, including red tailed hawk, red shoulder hawk, and Cooper's hawk in the Shepherd Canyon area. Note that I recently observed an immature bald eagle soaring over the transmission line at the ridge top separating Alameda and Contra Costa counties. Because transmission lines pose potential electrocution and collision hazards for raptors, all necessary measures to minimize these hazards should be included in the design of the rebuilt towers. Additionally, if any of the existing towers will be left unchanged as part of the finished project, all such towers should be assessed and any needed actions taken to ensure that the latest raptor protection measures are being implemented.

Control of Access to Transmission Line Towers and Right-Of-Way Following Construction

During the construction project, numerous temporary roads will no doubt need to be constructed to access new and existing tower locations and laydown areas. To avoid uncontrolled vehicular access to these sites following construction, the roadways will need to be removed and the disturbed areas returned to natural conditions in association with the erosion control work discussed above. If any of the construction access roads are to remain for long-term maintenance purposes, secure locked gates and fencing should be used to prevent public access.

Maintenance of Project Area Sites Following Construction

Many of the existing tower sites are accessible to the public by way of public roads and trails. Some of the more frequented sites have experienced trash disposal and painting of graffiti. A good example of this is the set of towers that sits on a knoll between the City of Oakland Maintenance Yard on Shepherd Canyon Road and the old Railroad Right-Of-Way Trail above it. A long-term maintenance element of this project should be a program of regular inspection and clean-up at these sites.

Thank you for the opportunity to provide these comments for consideration.
Paul Kubicek
Resident of Shepherd Canyon

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Undergrounding Montclair <undergrounding.montclair@gmail.com>
Sent: Friday, September 26, 2025 5:01 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Subject: Comments in MOX Rebuild Project in Shepherd Canyon

Dear Tharon Wright, CPUC,

We are a group of residents residing in the Oakland Hills area adjacent to the Shepherd Canyon. We strongly oppose the rebuilding the MOX transmission line overhead above the Shepard Canyon.

As further discussed below, Shepard Canyon is a very high risk wildfire zone. Overhead powerlines above Shepard Canyon exacerbate the wildfire risk of the entire Oakland Hills region. The MOX overhead transmission should be removed from Shepherd Canyon or undergrounded. Rebuilding the MOX transmission line overhead in the same location in Shepherd Canyon is losing a great opportunity to significantly reduce the wildfire risk of the area for decades to come.

Shepherd Canyon is situated within the Very High Fire Hazard Severity Zone designated by the City of Oakland. On June 18, 2025, Oakland Fire Chief Covington stated in the Oakland City Council meeting, and the Council agreed, that the Oakalnd Hills area should be designated as the V HFHSZ according to the requirements Government Code Section 51182.

Shepherd Canyon high fire risks include-

-rugged terrain
-dense and dry vegetation throughout the canyon
-strong canyon wind, especially during the dry seasons
-dense population in close proximity to the canyon
-lack of sufficient ingress/egress route for fire fighting and evacuation.

Please remove and underground the overhead powerlines above Shepherd Canyon and reduce the wildfire risks for our neighborhood

Thank you!

Brenda So
2000-2100 blocks on Drake Drive, Oakland.

Email: PG&E'S Moraga-Oakland X 115 kV Rebuild Project

From: Schlemer, Erica (LAW) <EJSX@pge.com>
Sent: Friday, September 26, 2025 4:03 PM
To: PG&E Moraga-Oakland X 115 kV Rebuild Project
Cc: Liddell, Brandon; Taylor, Colleen
Subject: PG&E's Comments on Moraga Oakland X 115 kV Rebuild Project Draft EIR
Attachments: PGE Moraga-Oakland X - Comments on DEIR FINAL_.pdf

Classification: Public

Hello,

Please find PG&E's comments on the Draft EIR prepared for the Moraga Oakland X 115 kV Rebuild Project attached.

Attachment 2, the Infraterra Landslide Study, is too large to send over email. It will be sent separately via a File Transfer Tool link from Jacobs.

Thank you and if you have any questions, please let me know.

Erica Schlemer
Counsel
Pacific Gas & Electric Company

Erica Schlemer
Counsel

Pacific Gas & Electric Company
Attn: Law Department

300 Lakeside Drive
Oakland, California 94612

(415) 722-1851
Email: Erica.Schlemer@pge.com

September 26, 2025

Tharon Wright, CPUC Project Manager
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 967
San Francisco, CA 94104-2920
MOX@aspeneg.com

Re: Comments on Draft Environmental Impact Report for the Pacific Gas and Electric Company Moraga-Oakland X 115 Kilovolt Rebuild Project (A.24-11-005), State Clearinghouse #2025-02-0944

Dear Ms. Wright,

Pacific Gas and Electric Company ("PG&E") provides these comments on the Draft Environmental Impact Report for the PG&E Moraga-Oakland X 115 Kilovolt (kV) Rebuild Project ("Proposed Project" or "Project") (A.24-11-005), State Clearinghouse #2025-02-0944, published by the California Public Utilities Commission ("CPUC") on August 12, 2025 ("DEIR").

I. INTRODUCTION AND SUMMARY

The DEIR provides a thorough, comprehensive analysis prepared in accordance with the requirements of the California Environmental Quality Act ("CEQA"). PG&E appreciates the substantial time and effort by the CPUC and its consultants in evaluating the Proposed Project and preparing the DEIR.

The Proposed Project will rebuild the existing Moraga-Oakland X 115 kV power line by replacing approximately four miles of two overhead parallel double circuit 115 kV power lines in place, from Moraga Substation to the intersection of Estates Drive and Park Boulevard, and placing underground approximately one mile of two parallel double circuit 115 kV power lines from the intersection of Estates Drive and Park Boulevard to Oakland X Substation. The Proposed Project includes critical life cycle maintenance and provides important system reliability and wildfire safety improvements to better serve the Oakland area. The Proposed Project will replace structures that are approximately 100 years old with modern equipment that meets reliability and safety requirements with overhead and underground portions. Replacing the existing conductor will provide capacity to accommodate the region's reasonably foreseeable future energy demands.

In preparing these comments, PG&E focused on the four issues for which evidence or comment can be provided only in the CEQA environmental review process, as specified in the Assigned Commissioner's Scoping Memo and Ruling issued March 11, 2025 ("Scoping Ruling"), and the Administrative Law Judge's Ruling Setting Prehearing Conference issued September 5, 2025 ("ALJ Ruling"). Those four issues are: Issue 1 ("What are the significant environmental impacts of the Proposed Project, if any"); Issue 2 ("Are there potentially feasible mitigation measures that will avoid or lessen the identified significant environmental impacts"); Issue 3 ("Between the Proposed Project and the project alternatives, which is environmentally superior?"); and Issue 4 ("Are the mitigation measures or environmentally superior project alternatives infeasible for economic, social, legal, technological or other considerations?").[1] PG&E's comments in Sections II, III and IV below explain the following.

Section II. While the DEIR correctly selects the Proposed Project (in the configuration proposed by PG&E) as environmentally superior, evidence demonstrates that the alternatives considered in the DEIR for undergrounding portions of the Project in the Oakland Hills (i) present more difficult engineering challenges that may cause the alternatives to be infeasible, and (ii) would result in greater impacts (including to neighboring properties and in the areas of transportation and wildfire risk), than the DEIR recognizes (Issues 3 and 4). In particular:

- The undergrounding alternatives present substantial construction challenges as recognized in the DEIR;
- Alternative 3 (Shepherd Canyon Underground Alternative) involves particularly significant landslide risk, including deep and moderate landslides that pose a risk of deformation of the underground duct bank and elongation of the line beyond its maximum two-inch tolerance, and may be infeasible;
- Alternative 2 (Skyline-Colton-Snake Underground Alternative) also involves significant landslide risk due to the steep canyon that raises feasibility concerns;
- Alternative 4 (Skyline-Ascot Underground Alternative) requires a new Manzanita Transition Station and potentially an overhead line along Scout Road that raise feasibility concerns;
- The DEIR does not fully recognize the construction impacts of an undergrounding route in the Oakland Hills, as any route would result in the

[1] Scoping Ruling at 3-5 (specifying on page 5 that: "Any person or party who wishes to present evidence or comment to be considered on these Issue Nos. 1- 4 must do so through participation in the CEQA review process, i.e., public review and comment on the draft environmental document"; and "We will not take evidence regarding those CEQA issues outside of the final environmental document."). *See also* ALJ Ruling at 3 ("The Draft Environmental Impact Report was issued on August 12, 2025 with a public comment due date of September 26, 2025. As indicated in the Scoping Memo, any person or party who wished to present evidence or comment to be considered on Issues 1 to 4 had to do so through participation in the CEQA review process.").

combined construction impacts of two alternatives, plus transition facilities and removal of existing towers and lines; and

- Undergrounding in the Oakland Hills would result in more significant transportation and air quality impacts than the DEIR recognizes due to the nature and extended duration of construction.

Section III: The DEIR imposes mitigation measures that are stricter than necessary to mitigate impacts and raise feasibility concerns for construction (Issue 4). In particular:

- Wildfire Mitigation Measure WF-1a should be revised to use the specific evacuation routes determined by local jurisdictions; and

- Wildfire Mitigation Measure WF-1b should be modified to expand the months when full road closures are allowed so that they align with months when fire risk is low.

Section IV: The DEIR overstates the Proposed Project's impacts in the areas of Biological Resources, Transportation, Wildfire Risk, and Noise (Issue 1). In particular:

- The DEIR's assessment of Biological Resources speculatively finds that the Proposed Project would have significant impacts on species that have not yet been identified as present in the Proposed Project area and imposes unnecessary mitigation measures;

- The DEIR's assessment of Impact T-1 incorrectly finds that the Proposed Project would be inconsistent with a number of local transportation programs and policies;

- The DEIR's assessment of Impact T-4 incorrectly finds that the Overhead Power Line Rebuild would result in significant and unavoidable impacts to emergency access;

- The DEIR's assessment of Impacts T-5 and T-6 incorrectly finds that the Overhead Power Line Rebuild would have significant and unavoidable impacts to pedestrian and bicycle safety and accessibility;

- The DEIR's assessment of Impact T-7 incorrectly finds that impacts to public transit would be significant and unavoidable;

- The DEIR's assessment of Impact WF-1 incorrectly finds that the Proposed Project would result in a significant and unavoidable wildfire risk; and

- The DEIR's assessment of Impact N-2 incorrectly finds that the Proposed Project would expose persons to or generate excessive ground borne vibration.

These points are explained in detail below.

PG&E's comments also include and incorporate by reference the following Attachments, which include selected evidence from PG&E's Proponent's Environmental Assessment filed with the application ("PEA") and PG&E's responses to CPUC data requests.

Attachment 1:	Text Revisions and Requests for Clarification. Attachment 1 is a table showing "fine-grained" comments on mitigation measures and identifying the specific text revisions that PG&E is requesting, including minor text revisions for accuracy or consistency.
Attachment 2:	InfraTerra Landslide Study (PEA Appendix E4)
Attachment 3:	PG&E Response to CPUC Data Request 6, Part B
Attachment 4:	PEA Chapters 4 and 6
Attachment 5:	PG&E Response to CPUC Data Request 9
Attachment 6:	Recent Historic Fire Risk by Month

PG&E's comments are intended to ensure that the Final Environmental Impact Report ("Final EIR") for the Project will be accurate, complete, and consistent with CEQA, and to ensure that the Final EIR provides a full record on Issues 1-4 in the Scoping Ruling. PG&E respectfully requests that the CPUC incorporate the information and proposed revisions to the DEIR presented in this letter and Attachment 1 into the Final EIR. PG&E reserves the right to supplement its comments on the DEIR at a later date.

II. THE DEIR CORRECTLY SELECTS THE PROPOSED PROJECT AS ENVIRONMENTALLY SUPERIOR BUT EVIDENCE SHOWS THAT THE UNDERGROUNDING ALTERNATIVES PRESENT MORE DIFFICULT ENGINEERING CHALLENGES AND WOULD HAVE GREATER IMPACTS THAN THE DEIR RECOGNIZES.

A. The DEIR correctly selects the Proposed Project as the environmentally superior alternative.

The DEIR concludes that the Proposed Project in the configuration proposed by PG&E is the environmentally superior alternative.[2] CEQA requires a lead agency to evaluate alternatives "that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects."[3] The DEIR analyzes the environmental impacts of the Proposed Project and four alternatives to portions of the Proposed Project that would (i) remove the existing 115 kV overhead line, (ii) install new lines underground, and (iii) build new transition stations for the underground segments. The alternatives to the Proposed Project's central section—Alternatives 2, 3, and 4—would each only accommodate two of the four circuits,

[2] DEIR at 4-64.

[3] CEQA Guidelines, Cal. Code Regs., tit. 14, § 15126.6(c).

which means that two of those three underground alternatives must be constructed to meet the Proposed Project objectives.[4] The DEIR concludes that Alternative 4 would have the most significant impacts of the three alternatives. The DEIR therefore concludes that the combination of Alternatives 2 and 3 would minimize the impacts of underground alternatives and compares Alternatives 2 and 3 to the Proposed Project's central section. The DEIR also compares Alternative 5 to the Proposed Project's overhead segment west of State Route 13 to the Estates Drive and Park Boulevard intersection where the Proposed Project's underground segment begins.

The DEIR concludes that the Proposed Project is the environmentally superior alternative because it "would result in substantially less disruptive construction impacts compared to underground construction of four 115 kV circuits in steep, narrow, and/or winding roadways. The analysis in the DEIR also demonstrates that no significant and unavoidable impacts of the Proposed Project would be eliminated by the underground alternatives and that the Proposed Project offers a major improvement over the existing setting by reducing the wildfire risk associated with the older existing 115 kV lines."[5]

The DEIR concludes that the alternatives would create new significant and unavoidable impacts not presented by the Proposed Project. The DEIR finds that Alternatives 2 and 3 "would create new significant and unavoidable impacts related to Transportation (Impact T-7) and Geology and Soils (Impact GEO-3)," and "would have more severe and a longer duration of construction impacts across a larger geographic area."[6] The DEIR concludes that Alternative 5 would create new significant and unavoidable impacts to Geology and Soils, and would have more severe transportation impacts on Sims and Somerset Drives, which are dead-end streets, because residents and emergency vehicles would be unable to reach those residences during construction activity, and evacuation would be severely hampered due to the narrow streets.[7]

The DEIR's conclusions regarding the significant and unavoidable impacts of the Proposed Project's central section and each alternative to the central section are summarized the table below. The DEIR's finding of a significant and unavoidable impact is indicated in the table as "SU". Impacts marked as "**SU**+" indicate that although the DEIR found that the Proposed Project's central section would have a significant and unavoidable impact in that area, the DEIR found that the alternative would have a more severe significant and unavoidable impact in the same area. Because the alternatives would replace only the Proposed Project's central section, the table shows the significant and unavoidable impacts that the DEIR identified for the central section. For example, the Proposed Project's central section does not result in the T-7 significant and unavoidable transportation impact identified for other Project sections.[8]

[Table appears on the following page]

[4] DEIR at 4-3.

[5] DEIR at ES-1 to ES-2; *id*. at 4-64.

[6] DEIR at 4-62.

[7] DEIR at 4-64.

[8] *See* Section IV.E below.

Significant and Unavoidable Impacts in the DEIR					
Identified Impact	**Proposed Project (Central Section)**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5[9]**
T-1	SU	**SU+**	**SU+**	**SU+**	**SU+**
T-4	SU	**SU+**	**SU+**	**SU+**	**SU+**
T-5	SU	**SU+**	**SU+**	**SU+**	**SU+**
T-6	SU	**SU+**	**SU+**	**SU+**	**SU+**
T-7	-	SU	-	-	SU
WF-1	SU	SU	SU	SU	SU
GEO-3	-	SU	SU	SU	SU
AES-3	-	-	-	SU	-

The table above shows that the alternatives would not avoid the Proposed Project's significant and unavoidable impacts, and instead would exacerbate those impacts and result in additional significant and unavoidable impacts. The DEIR correctly determined that the Proposed Project is the environmentally superior alternative.

B. The undergrounding alternatives present additional feasibility issues not discussed in the DEIR.

1. The undergrounding alternatives present substantial construction challenges as recognized in the DEIR.

The DEIR recognizes that "[b]ecause of the narrow, steep, and winding roads between SR-13 and Manzanita Drive (see Figure 4.3-1), any underground route between SR-13 and Manzanita Drive would have to overcome several substantial construction challenges. Some of these challenges may be determined to be so severe that a segment of the alternative route is found to be infeasible."[10] These construction challenges include:

- Landslides: More than half of the Oakland Hills contain defined landslide zones. The DEIR recognizes that "more extensive studies would be required to design the specific protective measures for any selected underground segment east of Mountain Boulevard."[11] PG&E's PEA included a landslide study, which is attached hereto as Attachment 2 (InfraTerra Landslide Study (PEA Appendix E4)) and the CPUC completed a preliminary screening for landslide risk based on available data.[12] The DEIR concluded that the underground alternatives would have an

[9] Note that the impacts of Alternative 5 are compared to the impacts of the Proposed Project from SR13 to Estates Drive.

[10] DEIR at 4-4.

[11] DEIR at 4-6.

[12] DEIR at 4-6.

additional significant and unavoidable impact to geology during operations (Impact GEO-3) because the underground alternatives would "[b]e located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse."[13]

- Vault Installation: Undergrounding would require installation of 10 to 30 large vaults for each of the alternatives where sections of the underground cable are pulled through the duct banks and spliced together.[14] The cumulative horizontal curvature of the line between vaults determines how far apart the vaults may be because "[w]hen the conduit is not straight, the cable will push against the sidewall as it moves around a bend. Tighter bends create more sidewall pressure." In roads with more bends, vaults need to be closer together to splice the line more frequently and relieve the sidewall pressure. More splices also often are less reliable during operation.[15] As noted in the PEA, "Alternative B would have up to approximately 25 to 30 vaults minimum with a maximum spacing at approximately 1,000 feet per line to address the friction created in the cable."[16] The narrow and winding roads are also space-constrained. Construction activities to install vaults may require additional space beyond the minimum road to accommodate the duct banks and vaults. This additional space would be needed to safely operate construction equipment, or to shore the sides of the excavation by pile driving adjacent to the vault. This could result in additional vegetation removal or impacts to private property. An underground alternative may be infeasible if such space is not available.[17] Furthermore, as noted in the PEA, straight road segments of approximately 165 feet are needed to install precast vaults.[18]

- Crossing Hayward Fault: This is not feasible for an underground line, so all alternatives include transitions to overhead lines for crossing the fault.[19] Transition stations increase the potential for adverse environmental impacts, as they require more ground disturbance, increasing the likelihood of disturbing habitat or cultural resources.[20]

- Construction-Driven Road Closures: Because roads in the Oakland Hills are narrow, construction of an underground line would block stretches of each roadway

[13] DEIR at ES-20.

[14] DEIR at 4-5.

[15] Attachment 3 (PG&E Response to CPUC Data Request 6, Part B), Question ALT-1, at 1-2.

[16] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-16.

[17] Attachment 3 (PG&E Response to Data Request 6, Part B), Question ALT-1, at 2-3.

[18] Attachment 4 (PEA Chapters 4 and 6), PEA at 6-14.

[19] DEIR at 4-4.

[20] DEIR at 4-30.

requiring residents to use alternate routes. Additionally, construction on steep slopes would be slower, extending closures. Numerous construction vehicles would have to traverse these roads every day, including back-hoes, dump trucks with soil and backfill material, worker vehicles, etc. This traffic would add to the existing commuting and school access traffic during the construction period.[21]

- Conflicts with existing underground utilities: All roads in the Proposed Project area have existing underground utilities. Due to the narrowness of the roads, it is likely that existing utilities would need to be relocated within the road. The Proposed Project's 115 kV lines could be installed at greater depth in some instances below existing utilities, requiring extended construction timeframes and longer road closures.[22]

Landslide risk presents a particularly difficult challenge. The Oakland Hills area contains multiple existing landslides and areas of extremely elevated landslide susceptibility. These areas can continue to move for reasons that include rainfall, earthquakes, and destabilization from construction activities.[23] Movement of these slides is common, although unpredictable, and can be observed in the area.[24] See Attachment 4 (PEA Chapters 4 and 6) (Fig. 4.2-9 from PEA) for an example of a slide in Novato, California, an area with similar soils and geology, showing that "deep-seated landslides may extend below a valley floor and may uplift soil near the base of the slope."[25]

Earth movement due to a landslide or earthquake that causes the cable to elongate or move more than the cable's maximum allowable elongation likely would damage the cable beyond use. PG&E presented evidence that the maximum allowable elongation of the cable is approximately two inches, based on cable manufacturer guidance.[26] Repair of the underground power lines would require demolition of the duct bank and cable, resulting in a long-term outage of the power line on the order of six months or greater. This estimate does not include other ground stabilizing construction that would need to be performed following a landslide to stabilize the slope and road prior to repairing the power line facilities.[27]

As the DEIR recognizes, the potential for landslides, slope creep, or earthquakes would increase the risk of underground line damage during the Project's operational life, and may warrant construction of additional infrastructure.[28] This would include engineering solutions to prevent

[21] DEIR at 4-5.

[22] DEIR at 4-5.

[23] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[24] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[25] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[26] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[27] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[28] DEIR at 4-30.

damage to the underground lines by stabilizing the roadways and surrounding slopes. Engineering solutions would likely require thicker duct banks or retaining walls.[29] However, these engineering solutions cannot be defined until intrusive geotechnical investigations are completed. The DEIR also recognizes that "further investigation would be required before its feasibility could be confirmed and a design developed."[30] Any protective design measures identified in geotechnical investigations could create offsite impacts to private property or adjacent residences or extend the construction timeframe by many months.[31]

Specific geological challenges of landslide risk in individual underground alternatives are further detailed in Sections II.B.2 through 4 below.

2. Alternative 3 (Shepherd Canyon Underground Alternative) involves particularly significant landslide risk and may be infeasible.

Alternative 3 would remove two existing circuits and install new circuits underground, beginning with a transition pole just east of Saroni Drive, with the underground circuits installed in Saroni Drive, to Shepherd Canyon Road, to the Fire Station Transition Station. Alternative 3 would follow the same route as a portion of PG&E's Alternative C analyzed in the PEA.[32] The DEIR finds a significant and unavoidable impact from Alternative 3 due to the "widespread unstable slopes in the Oakland Hills and uncertainty about engineering requirements to ensure stable duct banks."[33] The DEIR notes that PG&E presented a landslide study prepared by an expert consultant.[34] This report demonstrates that retaining walls or other civil infrastructure along the north side of Shepherd Canyon Road would be required to protect the underground duct banks in Alternative 3, and that installing such protective measures could require removing existing residences.[35] The DEIR states that geologists from the CPUC consultant team disagreed with PG&E's assessment and concluded that Alternative 3 "would be feasible and likely constructible without engineering requirements that would affect private property…"[36] However, the DEIR's conclusion is contrary to the evidence provided by PG&E, which is described and further supported below.

[29] DEIR at 4-62.

[30] DEIR at ES-8.

[31] DEIR at 4-37.

[32] DEIR at 4-9.

[33] DEIR at 4-46.

[34] Attachment 2 (InfraTerra Landslide Study (PEA Appendix E4).

[35] DEIR at 4-47.

[36] DEIR at 4-47.

a. Evidence shows that several mapped landslides along Shepherd Canyon Road are deep or moderate, posing an unacceptable risk without engineered protective measures.

Mapping by the California Geological Survey[37] identifies several mapped landslides in Shepherd Canyon that contradict the DEIR's statement that "shallow failures are considered more likely to occur than deep failures." Notably, this mapping shows a landslide on the north side of Shepherd Canyon Road approximately 1,800 feet wide by 1,900 feet long, affecting approximately 70 acres, with an estimated thickness classified as "deep - >50 ft," while others are "moderate - 10 to 50 ft." This is generally consistent with the InfraTerra Landslide Study provided by PG&E, which reports landslide deposits in the same area exceeding 15 feet in thickness.[38]

The dimensions, scale, and thickness of this feature strongly suggest that it is a deep-seated rotational slide, which commonly causes deformation at the base of the slide, also known as the toe area. Shepherd Canyon Road is in the likely toe area of this deep-seated rotational slide. While shallow failures may occur, the conditions shown in the California Geological Survey mapping tool clearly demonstrate that deep-seated failures are plausible and documented in this setting. The presence of a 70-acre feature with thicknesses exceeding 50 feet contradicts the assumption that only shallow failures are of concern. Rainfall induced landslides are likely to occur more frequently and result in predominantly shallow slides, but the Project must include consideration of continued safe operation following a seismic event which includes deep-seated landslides.

b. A visual assessment of the roadway is insufficient to reach the determination that undergrounding in Shepherd Canyon Road is feasible.

In disagreeing with PG&E's assessment of landslide risk and the need for engineered protection for the duct banks, the DEIR states:

> Geologists from the CPUC consultant team evaluated the InfraTerra report and the statements in the PEA. There is no visible damage to the roadway in the area identified by InfraTerra. The slopes adjacent to Shepherd Canyon are steep, so shallow failures are considered more likely to occur than deep failures. However, these shallow failures may not affect the roadway or utilities buried under the road, especially with a robust concrete duct bank.[39]

The statement appears to be based solely on a visual inspection of the roadways and adjacent slopes without further analysis or evidence, including the CGS mapping discussed above showing the potential for deep and medium thickness slides. A visual assessment of road damage

[37] California Department of Conservation, California Geological Survey, Landslide Inventory, available at: https://maps.conservation.ca.gov/cgs/lsi/.

[38] Attachment 2 (InfraTerra Landslide Study (PEA Appendix E4)) at Figures 3 - 12.

[39] DEIR at 4-47.

is not sufficient to determine landslide risks. At a minimum, the pavement may have been recently repaired, obscuring the effects of a landslide.

As described in the PEA, PG&E's assessment of landslide risk was based on a field visit by PG&E Geosciences staff in 2024 to a large landslide area along Shepherd Canyon Road, west of Paso Robles Drive, where staff made field observations at numerous locations, include at the ground surface and road cuts, assessing the type of rock, estimates of the strength of the blocks of rock, and how fractured and weathered the rock is.[40] These observations were incorporated into two strength models to estimate the mechanical behavior of typical rock masses and evaluate the probability of geotechnical conditions, including slope stability and landslide deformation.[41] Based on these predictive landslide models, the Alternative C underground segment in Shepherd Canyon Road likely would be subject to deformation of 23 to 27 inches, far greater than the two-inch elongation that the cables can withstand.[42] Because of this risk of severe deformation, exploratory geotechnical data would be needed from each landslide area shown in Attachment 4 (PEA Chapters 4 and 6) (Figure 4.2-4b in PEA). This would involve extensive sampling, heavy construction equipment, and potentially grading and vegetation removal.

The standard duct bank is not designed to accommodate significant changes in loading while maintaining the required less than two inches of elongation. While a reinforced duct bank may be used in some circumstances, without detailed geotechnical information, the need for retaining walls cannot be ruled out. Further, the anticipated ground movements along Shepherd Canyon Road are far beyond those for which the duct bank may be feasibly designed and will require additional mitigation to reduce the loading on the duct bank. The required engineered protection would need to be designed after a detailed – and impactful – geotechnical investigation.

The feasibility of reinforced engineered protection to protect the underground lines from instability can only be determined with substantial in-situ geotechnical information. Exploratory data from geotechnical investigations would be needed throughout each landslide shown on Attachment 4 (PEA Chapters 4 and 6) (Fig. 4.2-3c in PEA). Such investigation would include extensive soil boring sampling using a track-mounted drill rig to collect samples every 50 to 100 feet along a transect from a duct bank location to the top of the landslide as well as one boring above the landslide. These sampling transects would need to be completed approximately every 200 feet. This requires the use of heavy construction equipment, including drilling rigs, on residential properties. Because of the steep slopes in this area, sampling locations may need to be graded to provide vehicle access, which would require removing trees and shrubs in the area of sampling and could affect much of the existing vegetation on each property. After establishing access and a safe working area, sampling would take approximately two days. If working from a roadway, a single lane closure would be required. This exploratory soil boring data would confirm whether engineered protection is needed at each slide location and, if so, the size or type needed.

Options to protect underground lines include reinforced duct banks and retaining walls. A reinforced duct bank is a duct bank with much thicker concrete walls, reinforced with rebar.

[40] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-18.

[41] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-18.

[42] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-18.

Reinforced duct banks require greater road width, and existing narrow road widths present a construction constraint. Reinforced duct banks also would take longer to construct and require more lengthy road closures. The amount of duct bank reinforcement that can feasibly be installed in a location is also limited by practical considerations including duct bank geometry, reinforcement detailing, and the required construction means and methods. If reinforced duct banks are not feasible or do not present sufficient protection, retaining walls would likely be constructed.[43] The length of the wall would extend the length of the landslide. The wall design would depend on the depth of the landslide. Shallower landslides may only need a simple retaining wall and a duct bank itself could be designed to be a headwall to deflect soil movement. Moderate landslides may need a retaining wall that is 15 to 30 feet high, which would be visible to surrounding areas. Large landslides may require a much more robust wall, for example with tiebacks or rock anchors. Construction of each retaining wall would require removal of vegetation and excavation into the hillside. Installation of a retaining wall can vary from approximately three weeks to several months depending on the wall type, which can include construction activities such as pile driving. Based on current data, it is assumed that a retaining wall of unknown size would be needed along all landslides shown on Attachment 4 (PEA Chapters 4 and 6) (Fig. 4.2-3c in PEA) to prevent elongation of more than two inches.[44] If a retaining wall was built to protect an underground line, land use restrictions would need to be applied to upslope properties to avoid excess loading of the retaining walls or other load-bearing components that could impact the underground line installation. Such land use restrictions may include requirements that the property may not change buildings or plant new trees.[45]

As noted above, additional engineered protective measures to protect an underground power line in Shepherd Canyon Road would need to be designed based on detailed geotechnical investigations that would themselves have impacts that were not assessed in the DEIR. Yet, without these impactful geotechnical investigations and resulting data, there is nothing to support the assertion that "engineering requirements that would affect private property" are not needed or that an undergrounded powerline would be protected by a "robust" duct bank.

c. PG&E's evidence does not support a conclusion that Shepherd Canyon's shape would protect against unacceptable deformation of the duct bank in the event of a deep or moderate landslide.

In its assessment of the feasibility of Alternative 3, the DEIR states that:

> The CPUC team concluded that this alternative would be feasible and likely constructible without engineering requirements that would affect private property, because the predicted landslide is located on both sides of Shepherd Canyon. The canyon's shape results in the road being effectively buttressed against movement

[43] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-15.

[44] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-15.

[45] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-15.

on the opposite side, so it is less likely that a duct bank buried in Shepherd Canyon Road would be damaged.[46]

While the InfraTerra Landslide Study does show predicted landslide on both sides of Shepherd Canyon Road in many locations, these are separately mapped landslides. Each of these predicted landslides must be evaluated independently. The DEIR asserts that the shape of the canyon itself would act to "buttress against movement" at the base of the canyon. There is no evidence provided in the DEIR to support that conclusion. PG&E's evidence shows that such damage is highly likely. The roadway and canyon floor are relatively flat compared to the steep adjacent slopes, creating a cross-sectional profile more similar to an inverted trapezoid than a V-shape. This geometry allows the toe of deep-seated rotational slides to extend laterally beyond the slope base and into the canyon floor. Shepherd Canyon Road is located on the canyon floor, where it is likely that the toe of a deep-seated rotation slide would extend. A comparable case occurred in Vasquez Canyon in 2015, where a slide occurred within a canyon with an inverted trapezoid shape. Despite the shape of the canyon, the slope failure propagated beyond the slope base and displaced the roadway. Photos of this slope failure are shown in the photographs in Figures 1 through 3 below. As shown in these photographs, the deep failures extend into the flat roadway and are constrained by the slope on the other side of the roadway. The resulting ground deformation under the roadway is significant and greater than the two-inch threshold for the duct bank.

Figures 1 through 4, Vasquez Canyon Slope Failure (2015)

Vasquez Canyon Road Landslide Failure Plane and Roadway Uplift. November, 20, 2015. Source: https://youtu.be/Ef4e6eybLmk

[46] DEIR at 4-47.

Vasquez Canyon Road Landslide Failure Plane and Roadway Uplift. November, 20, 2015. Source: https://youtu.be/Ef4e6eybLmk

KTLA reporter Mark Mester stands next to Vasquez Canyon Road, which continued to buckle on Nov. 20, 2015. (Credit: KTLA)

Los Angeles County Engineering Geologists climb on top of the buckled road where Vasquez Canyon Road has lifted up due to soil movement closing the road between Saugus and Canyon Country. Photo taken in November 2015 by Dan Watson, The Signal.

3. Alternative 2 (Skyline-Colton-Snake Underground Alternative) also involves significant landslide risk that raises feasibility concerns.

The DEIR notes the "widespread unstable slopes in the Oakland Hills and uncertainty about engineering requirements to ensure stable duct banks,"[47] but the DEIR appears to base its assessment of landslide risk solely on visual observations of the roads along the Alternative 2 route and whether landslide activity appears to be present.[48] PG&E presented geotechnical investigations which demonstrate significant landslide risk along Alternative 2 that should be recognized in the Final EIR as discussed below.

Alternative 2 would remove two existing 115 kV circuits and install new circuits underground within Skyline Boulevard, Colton Boulevard, Heartwood Drive, Snake Road, and Shepherd Canyon Road. As noted in the DEIR, Alternative 2 would require approximately one-half mile of construction within Skyline Boulevard. PG&E did not consider an underground route along Skyline Boulevard due to greater landslide potential than along Manzanita Drive.[49]

[47] DEIR at 4-44.

[48] DEIR at 4-44.

[49] DEIR at 4-44.

Otherwise, the underground alternative comprised by Alternative 2 in the DEIR is similar in route to Alternative B that PG&E analyzed in the PEA.[50]

PG&E noted in the PEA that the area Alternative 2 crosses contains steep slopes, where seismic activity can cause new slides. PG&E used a proprietary regional landslide model and USGS data to identify locations with a greater than 50 percent probability of landslides that would exceed the two-inch threshold of elongation of a duct bank and cause a failure of the line. Attachment 4 (PEA Chapters 4 and 6) (Fig. 4.2-3c in PEA) shows these landslides mapped along Alternative 2.[51] These landslides could impact the duct banks containing the underground power lines by several feet, which would exceed the two-inch elongation tolerance of the cable. As discussed above, this would require reconstruction of the underground line duct bank and could affect power delivery to large portions of the East Bay for six months or more.[52] This risk of landslides presents an unacceptable risk to reliability of the underground lines without engineered protection and additional construction.[53]

As discussed above in Section II.B.2.b above, the feasibility of safely constructing and operating underground lines along Alternative 2 entirely depends on conducting detailed geotechnical investigations to understand where and what type of engineered protective measures are required. Construction of these additional protective measures will result in numerous environmental impacts, such as removal of vegetation, aesthetic impacts, and extended construction and associated traffic impacts that are not discussed in the DEIR. The Final EIR should recognize the evidence of landslide risk on this route and the impacts of conducting necessary geotechnical studies and installing engineered solutions to protect the underground lines from failure due to landslides and seismic activity.

In addition to the impacts to Geology and Soils, Alternative 2 would also require construction of the Fire Station Transition Station and associated transition pole, which would have additional potential impacts that are not recognized in the DEIR. The Fire Station Transition Station would be located in a Municipal Service Yard parking area owned by the City of Oakland, which has a "non-standard" shape, and excavation into the hill to the north may be required to fit required equipment. Vegetation removal may be required to provide a setback around the transition station to be consistent with PG&E's Wildfire Program. Both activities could result in potential biological and aesthetic impacts. Construction of a new City of Oakland Municipal Service Yard also may be required, which would have additional impacts. The Municipal Service Yard parking area is used as parking by recreational visitors accessing the MRRT and Shepherd Canyon Park, and loss of that informal access and parking area may result in recreational impacts.

[50] DEIR at 4-8.

[51] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[52] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-14.

[53] Attachment 4 (PEA Chapters 4 and 6), PEA at 4-15.

4. Alternative 4 (Skyline-Ascot Underground Alternative) requires a new Manzanita Transition Station and potentially an overhead line along Scout Road that raise feasibility concerns.

Alternative 4 would require the construction of the Manzanita Transition Station. The DEIR describes a Manzanita Transition Station as being "located adjacent to the east side of Manzanita Drive at the intersection with the Project right-of-way."[54] This would require construction of the Manzanita Transition Station directly under the existing power lines, which cannot be done while the lines are in service. Power line clearances, which can be taken only from November to March, remove lines from service so that construction activities can be safely done. However, only two lines (one double-circuit line) can be cleared at a time, so the Manzanita Transition Station could not be constructed directly under the existing alignment unless the lines were moved. It may be possible to avoid the existing overhead lines by installing a temporary shoofly on either side of the existing power lines to which the power lines can be moved during construction. This would allow for construction under the existing lines, but it would require substantial vegetation removal under the temporary lines moved to the shoofly, thereby resulting in biological and potential aesthetics impacts not assessed in the DEIR. A northern shoofly would be on East Bay Regional Park District property and would require approval from East Bay Regional Park District.

The Manzanita Transition Station location cannot be moved to the north because the terrain drops steeply just east of Manzanita Road. The Manzanita Transition Station location could be moved to the south; however, this would require elimination of a substantial portion of the parking lot for The Hills Swim & Tennis Club. It also would require extensive vegetation removal, both at the Manzanita Transition Station itself and along the new easement angling from the existing alignment to the new Manzanita Transition Station. For any Manzanita Transition Station, regardless of location, substantial earthwork and structural supports (potentially visible from KOP 3b) on the downhill side likely would be required given the elevated landslide potential on the eastern-facing slope.

Alternative 4 also includes two potential options to connect the underground portion to the remainder of the route to the west. Option 1 would construct an overhead line along Scout Road from Ascot Drive to the existing alignment, as shown in DEIR Figure 4.3-7B. This Figure shows a transition pole and Scout Poles 1 to 6 along Scout Road, but there likely is not sufficient space to physically accommodate all six Scout Poles. The required clearance also likely would require substantial vegetation removal. The DEIR also proposes that the existing distribution lines would be underbuilt on the new transmission poles. Underbuilding the distribution lines on the same structures as the transmission line is not recommended due to this configuration of distribution and power line circuits on a single structure introduces the non-standard single-point-of-failure issue. Therefore, Option 1 in Alternative 4 may not be feasible.

[54] DEIR at 4-31.

C. The DEIR does not fully recognize the construction impacts of an undergrounding route in the Oakland Hills, as any route would result in the combined construction impacts of two alternatives, plus transition facilities and removal of existing towers and lines.

Because Alternatives 2, 3, and 4 each accommodate two of the Project's four circuits, two of those three alternatives would need to be constructed to meet the Proposed Project objectives,[55] which means that the impact analysis must consider the combined impacts of installing two underground alternatives to replace one overhead segment of the Proposed Project. Additionally, no matter which two alternative routes are selected, a transition station and a transition pole must also be constructed. Therefore, the combined impacts of the two alternatives selected must be considered in combination with impacts from transition facilities. It also appears that the DEIR does not consider the impacts of removing the existing overhead power line facilities where the alignment would be rebuilt underground by an alternative. The Final EIR should indicate the extent of construction that would be required to adopt the underground alternatives as compared to the Proposed Project.

For example, the DEIR notes that Alternative 2 would require approximately 2.2 miles of underground double-circuit duct bank and would replace approximately 1.3 miles of the overhead Proposed Project route.[56] But a second underground alternative would also be required to underground the other two circuits. Including Alternative 3 would add 1.1 miles of underground trenching in public roadways, for a total of 3.3 miles of underground construction to replace 1.3 miles of the overhead Proposed Project route.[57] Additionally, there would be construction impacts similar to the Proposed Project associated with the removal of the existing overhead electric towers and lines.

When comparing the Proposed Project to the combination of Alternatives 2 and 3, the DEIR combines each of the significant and unavoidable impacts of Alternative 2 and Alternative 3 and presents them as a single impact, when in fact each impact is doubled. For instance, transportation impacts would occur on both the Alternative 2 (Skyline-Colton-Snake) and Alternative 3 (Shepherd Canyon) routes. The total number of receptors affected by underground power line construction would be the sum of the underground portion of the Proposed Project, plus receptors affected by Alternatives 2 and 3, which equates to approximately 339 homes, Oakland Fire Station No. 6, Shepherd Canyon Park, and Oakland Fire Station No. 24.[58] If Alternative 5 was also selected, impacts from that underground alternative would also need to be included, and the total number of receptors affected would be 419 individual homes, plus the Academia de mi

[55] DEIR at 4-3 ("Due to the steep, narrow, and sharply winding roads in the Oakland Hills, placing all four overhead 115 kV lines underground in one road may not be feasible due to the width and separation required for two separate double-circuit duct banks (PG&E, 2025a). As a result, Alternatives 2, 3, and 4 assume that only two circuits would be installed in each road, requiring two of those three alternatives to be selected.").

[56] DEIR at 4-9.

[57] DEIR at 4-25 (Table 4.5-1).

[58] DEIR at 4-61 (Table 4.8-1).

Abuela and Corpus Christi School. The Final EIR should indicate that selecting the alternatives would result in the combined impacts from two of Alternatives 2 and 3, as well as Alternative 5, and also recognize the impacts associated with removal of the overhead lines.

D. Undergrounding in the Oakland Hills would result in more significant impacts than the DEIR recognizes.

The DEIR acknowledges numerous impacts that would result from constructing and operating underground power lines and transition stations or poles in the Oakland Hills, including:

- disruptive construction activity near a large number of residents for long periods of time;
- a substantial level and duration of local traffic disruption due to road closures or access limitations;
- a substantial volume of truck and equipment traffic;
- extensive trenching in public roadways of unknown depth, depending on the presence of existing utilities, and the potential relocation or disruption of existing utilities;
- re-paving after the work is complete that will require additional temporary road closures; and
- high visibility of the transition stations or poles.[59]

Despite recognizing these impacts, the DEIR does not describe other adverse impacts from undergrounding in the areas of transportation and air quality, as explained below.

1. Undergrounding in the Oakland Hills would result in more significant transportation impacts than the DEIR recognizes.

Undergrounding would have particularly significant transportation impacts. The DEIR is clear that the underground alternatives would have more severe transportation impacts than the Proposed Project, which the DEIR found to have significant and unavoidable transportation impacts. This is demonstrated in the following findings.

- Impact T-1: "**This impact would be more severe for underground alternatives**, because construction would last much longer, would obstruct traffic more directly (due to trenching and vault installation), and in many more locations. These impacts result from temporary road closures, degradation of road conditions due to temporary steel plates being installed, and temporary obstruction of evacuation routes by construction vehicles."[60]

- Impact T-4: "**The impact would be more severe for underground alternatives**, because construction would last much longer, would obstruct traffic more directly

[59] DEIR at 4-29.

[60] DEIR at 4-38 (emphasis added).

(due to trenching and vault installation), and would occur in many more locations."[61]

- Impact T-5: "**The impact would be more severe for underground alternatives** than for the proposed Project, because construction would be more intense, would last much longer and would occur in many more locations along roadways."[62]

- Impact T-6: "**The impact would be more severe for underground alternatives**, because construction would last much longer, would present more obstructions to walking and biking (due to trenching and vault installation), and would occur in many more locations."[63]

In addition to these severe transportation impacts, evidence shows that undergrounding the Project in the Oakland Hills would have even more significant transportation impacts than the DEIR recognizes. First, as explained in PG&E's responses to data requests, construction along the underground alternatives would move more slowly than undergrounding proposed on Park Boulevard because (i) more vaults would be required in roads with more curves, (ii) the winding, narrow, and steep streets present more construction challenges, and (iii) the smaller residential roadways may have more limited construction working hours.[64] The narrow and winding roads may limit access for large trucks required to deliver precast vaults. For sites where delivery trucks or cranes (to lift vaults into place) cannot access the work site, the vaults must be cast in place. The excavation, installation, and concrete curing of the vault would likely require road closures of three to four weeks per vault, as compared to the assumed two weeks of road closures to install a precast vault.

Second, undergrounding would require more complete road closures because of workspace needs. The minimum road width to construct a duct bank with two power line circuits and associated vaults while maintaining a 10-foot traffic lane is 34 feet, subject to certain underlying assumptions.[65] If any portion of a block is less than 34 feet wide, it is assumed the entire block would require a complete road closure. On Skyline Boulevard, Colton Boulevard, Heartwood Drive, Snake Road, Shepherd Canyon Road (west of Saroni Drive), and Ascot Drive between Manzanita Drive and SR-13, and for Sims Drive, Somerset Drive, and Estates Drive (west of Somerset Drive), most blocks are less than 34 feet wide for most of the block length and would require a complete road closure.[66] Additional detail is provided in PG&E's response to CPUC Data Request 9, provided as Attachment 5.

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[61] DEIR at 4-39 (emphasis added).

[62] DEIR at 4-39 (emphasis added).

[63] DEIR at 4-40 (emphasis added).

[64] Attachment 5 (PG&E Response to CPUC Data Request 9), Question ALT-7 at 3.

[65] Attachment 5 (PG&E Response to CPUC Data Request 9), Question ALT-6 at 2.

[66] Attachment 5 (PG&E Response to CPUC Data Request 9), Question ALT-6 at 2-3.

Third, on these narrow roadways where the underground alternatives are located, it may not be possible to reopen a road or lane closure at the end of the workday for safety reasons and space limitations.[67]

2. Undergrounding in the Oakland Hills would result in more significant air quality impacts than the DEIR recognizes.

All four underground alternatives (but not the Proposed Project) would require additional mitigation to reduce air quality impacts because of the lengthier construction period.[68] Impact AQ-2 is a "cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard."[69] This air quality impact would be caused by emissions from construction vehicles and equipment and the "much more intense construction activity required for installation of underground alternatives."[70] The construction activity emissions have the potential to exceed the regional Bay Area Air District ("Air District") emissions threshold for nitrogen oxides ("NOx") emissions on a daily basis averaged over each year of construction.[71]

The DEIR classifies this impact as less than significant with mitigation, because the DEIR imposes Mitigation Measure AQ-2a in the event any underground alternative is approved. MM AQ-2a would require PG&E to ensure that project construction is scheduled such that emissions do not exceed Air District emission thresholds. The impact of this mitigation measure is that construction activities would occur over a longer period of time in order to avoid exceeding daily NOx emission limits.

While MM AQ-2a would cause construction emissions to avoid exceeding the Air District's daily NOx emission limit, it does so by extending the time period in which the construction-related NOx emissions are occurring. Extending the construction period would not reduce cumulative NOx emissions. The total quantity of NOx and other pollutant emissions would be substantially greater for the underground alternatives than for the central section of the Proposed Project. Alternative 2 and Alternative 3 are approximately three times the length of the Park Boulevard underground section, and, therefore, would have at least three times the total pollutant emissions of Park Boulevard construction, in addition to the overhead rebuild emissions expected to occur with any alternative. Note that this estimate does not account for emissions from other construction activities that may need to occur specifically for the underground alternatives, such as retaining walls and utility line moves, that would likely further increase construction emissions. The increase in total emissions, with more construction equipment used over a longer duration, would likely result in greater pollutant exposure and higher health risks, especially from diesel particulate matter. Extending the construction schedule under MM AQ-2 also would delay the wildfire benefits of removing the existing structures by up to several years (it is possible that Park

[67] Attachment 5 (PG&E Response to CPUC Data Request 9), Question ALT-7 at 4.

[68] DEIR at ES-11.

[69] DEIR at 4-36.

[70] DEIR at 4-36.

[71] DEIR at 4-36.

Boulevard underground, Alternative 2, and Alternative 3 would need to be constructed consecutively and not concurrently to avoid exceeding NOx limits), while portions of the lines are being installed underground.

III. THE DEIR IMPOSES MITIGATION MEASURES THAT ARE STRICTER THAN NECESSARY TO MITIGATE IMPACTS AND RAISE FEASIBILITY CONCERNS FOR CONSTRUCTION.

A. Wildfire Mitigation Measure WF-1a should be revised to use the specific evacuation routes determined by local jurisdictions.

Mitigation Measure WF-1a requires PG&E to submit an Evacuation Plan to the CPUC at least 90 days before the start of construction on affected roadways. The Evacuation Plan must include identification and mapping of "critical" and "non-critical" evacuation routes in the event of an emergency. Mitigation Measure WF-1a states that the "critical" and "non-critical" evacuation routes would be determined by PG&E based on whether closure of such route would lead to an increase in evacuation times or create a dead-end. But whether closure of a certain route will lead to an increase in evacuation times is variable—it will depend on time of day, day of the week, and the location of the wildfire, among other factors. This binary determination of "critical" or "non-critical" evacuation routes cannot be made in advance and hard coded into the Evacuation Plan.

Further, the designation of "critical" and "non-critical" evacuation routes is unclear as these are not terms used in other municipal planning documents. The City of Oakland has designated "primary" and "secondary" evacuation routes in the area of the Proposed Project, as shown in DEIR Figure 3.18-7. Communications to the public during an evacuation event via Genasys Protect would communicate evacuation routes based on jurisdictional-identified evacuation routes and may conflict with a PG&E Evacuation Plan utilizing different terminology. This could cause confusion during a time when clarity on how to evacuate safely is paramount.

PG&E has proposed text edits to MM WF-1a that would ensure consistency in evacuation planning with local jurisdictions and minimize the risk of confusion to local residents in the event of an emergency. These proposed edits are included in Attachment 1. PG&E respectfully requests that these edits are adopted in the FEIR.

B. Wildfire Mitigation Measure WF-1b should be modified to expand the months when full road closures are allowed so that they align with months when fire risk is low.

The second wildfire Mitigation Measure, WF-1b, requires that full road closures on designated evacuation routes may only occur between December 15 and February 28, "when the risk of fire is generally the lowest."[72] This range is unreasonably short and allows for construction only during winter months when rains are likely. Imposing this restriction without expansion could render construction of certain structures much more difficult.

[72] DEIR, MM WF-1b.

MM WF-1b's statement that December 15 to February 28 is when "the risk of fire is generally the lowest" is not supported by any evidence in the record. It is contrary to the DEIR which states that low-fire risk weather is "typically between December and April."[73] Additionally, the DEIR states that based on Oakland weather data, the highest risk of fire would likely occur between June and October,[74] meaning that the period *without* a heightened risk spans November to May. The unreasonably short window of December 15 to February 28 in MM WF-1b is thus inconsistent with these statements in the DEIR.

PG&E has evaluated the predicted risk of fire in the Proposed Project area using PG&E's internal forecasts of the risk of fire. Each day PG&E's internal meteorology department forecasts fire risk in Project areas using a scale from "R1," indicating the lowest risk of fire, to "R5+," indicating the highest risk of fire. Historical fire risk for 2020 to 2025, shows that low-fire risk weather, as indicate by a fire risk of R1, typically occurs and is the dominant risk category from December to May, as shown in Attachment 6 (Recent Historic Fire Risk by Month). Based on this data analysis, and the DEIR's statements regarding periods of low fire risk detailed above, PG&E requests that the period during which road closures on certain routes is allowed be designated as December 1 through May 31. PG&E agrees with the mitigation measure's language that full road closures would be prohibited during that period if there is a National Weather Service Red Flag Warning, Fire Weather Watch, or a PG&E forecasted fire risk of R3 or greater. Proposed edits to MM WF-1b consistent with these comments are detailed in Attachment 1.

Modifying the date range during which full road closures are permissible is important because, as currently proposed, MM WF-1b could significantly extend the construction duration. If construction on designated evacuation routes may only occur from December 15 to February 28, certain work areas would be difficult to access during that time. These are areas with steep slopes with vegetation and wet soils during the winter period of December 15 to February 28. It would not be feasible to do foundation work in these areas in this limited, winter timeframe. Attempting to access non-paved work areas in these wet weather conditions would present substantial safety hazards to construction workers and would damage vegetation and soils. Without the foundation work, setting the structures and all subsequent conductor work cannot take place. This narrow time restriction is likely to substantially extend the Proposed Project's construction schedule, possibly extending the duration by a year or more. At the restricted work areas, if any work that requires a road closure due to the type of work or equipment necessary is not completed by February 28, PG&E may not complete that work until over nine months later beginning on the following December 15.

PG&E respectfully requests that the dates MM WF-1b when full road closures are permissible be changed to December 1 through May 31.

[73] DEIR at 5-25.

[74] DEIR at 3.18-3.

IV. THE DEIR OVERSTATES THE PROPOSED PROJECT'S IMPACTS IN THE AREAS OF BIOLOGICAL RESOURCES, TRANSPORTATION, WILDFIRE RISK, AND NOISE.

A. The DEIR's assessment of Biological Resources speculatively finds that the Proposed Project would have significant impacts on species that have not yet been identified as present in the Proposed Project area and imposes unnecessary mitigation measures.

For a number of plant and animal species, despite the application of APMs approved by the resource agencies in the Bay Area Habitat Conservation Plan ("HCP"), Incidental Take Permits ("ITP") - Final ITP EIR and HCP Final Environmental Assessment ("EA") and Finding of No Significant Effect ("FONSI"), the DEIR concludes that the Proposed Project's impacts on such species "would be significant." It is speculative and inaccurate to find that impacts to a given species would be significant for as-yet unknown populations because significance depends on whether the species is present, where it is present, if the area is avoidable, and the timing and nature of construction activities proposed to occur in or near that area. Thus, even if a given species is determined in the future to be present in the Proposed Project area, impacts to that species may not be significant given implementation of measures already outlined in the HCP, ITP, ITP FEIR and HCP EA-FONSI, and PG&E's PEA.

The DEIR includes additional mitigation measures beyond the APMs and the mitigation measures that PG&E is already required to comply with under the relevant HCP, ITP, and ITP FEIR that are applicable to the Project and have been approved by the resource agencies. Some of the DEIR's proposed Mitigation Measures include measures that are not necessary to provide additional protection to biological resources beyond the APMs and mitigation measures in the approved HCP, ITP, and ITP FEIR that apply to these species, yet would add to ratepayer costs associated with the Project.

The DEIR provides no support for the conclusion that operation and maintenance ("O&M") activities would have significant impacts given that PG&E's O&M activities will be essentially unchanged as a result of the Proposed Project, and the continuation of an existing maintenance program is not a Project impact. Moreover, CDFW reviewed PG&E's O&M activities and minor new construction project within the Bay Area O&M ITP FEIR.[75] The O&M activities evaluated in that ITP FEIR are the same O&M activities evaluated in the DEIR. The ITP FEIR is a final, certified, and non-appealable CEQA document that concluded all impacts are less than significant with the mitigation that has been incorporated here. The CPUC is bound by the conclusions of the ITP FEIR, as PG&E's future O&M on Project facilities will not involve any substantial change to the O&M activities reviewed in the ITP FEIR, nor are there any new significant impacts or substantial increases in the severity of previously-identified significant impacts related thereto (see CEQA Guidelines Sections 15162, 15163.)

In Attachment 1, PG&E provides detailed proposed revisions to the DEIR's discussion of Biological Resources and associated Mitigation Measures to more accurately reflect the potential impacts of the Proposed Project and provide mitigation measures that acknowledge the existing

[75] ITP Final EIR, at 1-1

measures, acknowledge necessary coordination with resource agencies, and/or provide for more feasible and effective protection of resources. PG&E respectfully requests that these revisions are accepted and adopted in the FEIR.

B. The DEIR's assessment of Impact T-1 incorrectly finds that the Proposed Project would be inconsistent with a number of local transportation programs and policies.

The DEIR's findings overstate the Proposed Project's transportation impacts. The Overhead Line Rebuild portion of the Proposed Project is consistent with local programs, plans, ordinances, and policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities as well as emergency evacuation plans and emergency response plans. In some cases, the DEIR mischaracterizes the impacts of the Proposed Project, and no conflicts would occur. For example, the Proposed Project would not require lane or road closures in the City of Orinda (therefore not conflicting with the *Orinda Fire Evacuation Guide* or the *City of Orinda General Plan, Land Use and Circulation Element* and *Safety Element*) or in unincorporated Contra Costa County (therefore not conflicting with *Contra Costa General Plan, Transportation Element*). In other cases, the plan or policy does not apply to the Proposed Project. For example, none of the Project is located in unincorporated Alameda County, and therefore the *Alameda County General Plan Mobility Element* does not apply to the Project. Very few evacuation routes designated in local plans and policies would be affected by Project construction. In addition, the effectiveness of Mitigation Measure T-1a is understated; the mitigation would include implementation of measures to maintain operation of the circulation system during construction in a manner consistent with applicable plans and policies.

While the DEIR states that the Proposed Project will have significant and unavoidable impacts on transportation because it would be inconsistent with certain local plans and policies,[76] the evidence presented in Attachment 1 and summarized above is clear that the Proposed Project is not inconsistent with these plans and policies. PG&E respectfully requests that Impact T-1 should be reclassified as "less than significant with mitigation."

C. The DEIR's assessment of Impact T-4 incorrectly finds that the Overhead Power Line Rebuild would result in significant and unavoidable impacts to emergency access.

The DEIR finds a significant and unavoidable impact based on the assessment that the Proposed Project would result in inadequate emergency access. This is not accurate. The DEIR's finding is contrary to findings in the Draft EIR for the City of Oakland's General Plan 2045, which evaluates how construction of development projects could impair adopted emergency response plans or emergency evacuation plans. The General Plan Draft EIR notes (page 4.18-18)[77] that

[76] DEIR at 3.15-23 to -24.

[77] City of Oakland, Phase I Oakland 2045 General Plan Update Draft Environmental Impact Report, March 2023: https://files.ceqanet.lci.ca.gov/277566-3/attachment/40cIBfQ1ctMug38oNNu6DqhQRPwCXbfEK9_DQYryfO50_9UY5QU963D6kN0um_DYnSU1AjQ7LIWPQ9kU0.

"construction of future development under the Proposed Project [the General Plan] would include the transportation and movement of equipment, materials, and construction workers. If located along evacuation routes or in areas subjected to limited or constrained access, these construction activities could impair or interfere with adopted emergency response plans or emergency evacuation plans, which could be potentially significant." The analysis notes that obstruction permits are required when construction obstructs public rights-of-way, for example for staging, construction, or traffic control purposes. The analysis also notes that preparation and implementation of a construction Traffic Control Plan would be required to set comprehensive traffic control measures for auto, transit, bicycle, and pedestrian accommodations or detours. This includes designating access routes for construction activity.

During the obstruction permit and Traffic Control Plan review process, a proposed project's potential impacts to key evacuation routes would be identified and addressed through compliance with the City's proposed 2045 Safety Element. The City will review the Traffic Control Plan for compliance with applicable measures from the General Plan Safety Element, including policies SAF-8.5 (Cohesive Evacuation Routes Network), SAF-8.15 (Traffic Signaling), and SAF-8.18 (Priority Route Coordination). The policies and associated actions address maintaining evacuation routes via interconnected routes, traffic signaling, and roadway improvements. Additional Safety Element policies reviewed for compliance include Policy SAF-8.7 to promote compliance with the Local Hazard Mitigation Plan. For these reasons, the General Plan Draft EIR concludes that impacts to adopted emergency response plans or emergency evacuation plans from construction work would be less than significant. The Final EIR reflected the same conclusion.[78]

As stated previously, the Proposed Project will not require temporary road closures or otherwise obstruct roads in unincorporated Contra Costa County, unincorporated Alameda County, or the City of Orinda. For the roads in the cities of Piedmont and Oakland that will have temporary road closures, PG&E will be preparing a Traffic Management Plan (TMP) (as outlined in APM TRA-1 and MM T-1a) as part of procuring encroachment permits for each jurisdiction. To minimize disruption and ensure safe and efficient traffic flow, the TMP will address a wide variety of issues, including: minimizing construction effects on roadways, transit services, pedestrian facilities, and bicycle facilities; staging and parking areas, haul routes, equipment use and timing; street or lane closures, detours, signing and traffic control device placement; and temporary relocation or closure of bus stops. The TMP will be reviewed by local jurisdictions and agencies prior to construction with the approval process expected to occur through issuance of road encroachment permits. The issuance of encroachment permitting by the City of Oakland will be consistent with its analysis in the Oakland General Plan 2045 Draft EIR.

Alternate routes are available for all work areas, with four exceptions in the Overhead Power Line Rebuild, as shown in DEIR Table 2.3-6. The four locations without secondary access are at the end of dead-end roads such as courts. Closure at these locations will affect approximately 1 to 2 residences each of the four locations. As noted in APM TRA-1 and MM T-1a, safe transport

[78] City of Oakland, Phase I Oakland 2045 General Plan Update Final Environmental Impact Report, July 2023: https://www.oaklandca.gov/files/assets/city/v/1/planning-amp-building/documents/dp/ceqa/2011-present/oakland-phase-i-2045-gpu-feir_july-2023.pdf.

will be provided for these residences. Road closure for crane use will occur only during construction work hours.

Emergency access for vehicles from Oakland Fire Stations 6 and 24 will not be obstructed. The nearest temporary road closure to Fire Station 6 is on Skyline Boulevard, approximately 0.5 mile away. Several alternate routes are available to this neighborhood, including Manzanita Drive. The single closure on Shepherd Canyon Road, on which Fire Station 24 is located, is one lane for up to one day to install guard poles, and access will be maintained. Oakland Fire Department will be participating in the review of the TMP described in APM TRA-1 and MM T-1a.

Manzanita Drive will not be closed currently with Skyline Boulevard. The two crews that will work on Overhead Power Line Rebuild will not be at adjacent work areas in roadways where they would make a nearby detour route for one of the work areas unavailable.

For these reasons, the conclusion that construction impacts of the project's Overhead Power Line Rebuild to emergency access would be significant and unavoidable is not supported by the evidence in the record. PG&E respectfully requests that the conclusion be changed to less than significant with mitigation in the Final EIR.

D. The DEIR's assessment of Impacts T-5 and T-6 incorrectly finds that the Overhead Power Line Rebuild would have significant and unavoidable impacts to pedestrian and bicycle safety and accessibility.

The DEIR states that "closure and rerouting of pedestrian and bicycle travel routes could still cause unsafe conditions if the alternative routes are longer or are not suitable for walking or biking because of more steep or narrow roadways, such as the residential areas along Balboa Drive and Sayre Drive that may lose their direct connections to the Montclair Railroad Trail and to the Montclair Village."[79] This is not a significant impact for the following reasons:

- No roads in the vicinity of the Overhead Power Line Rebuild have sidewalks except Mountain Boulevard. As noted in Attachment 1, the sidewalk closure is where the sidewalk ends such that it will not impact pedestrians.
- Pedestrians and cyclists in areas such as Balboa Drive and Sayre Drive are accustomed to walking and cycling on steep and narrow roadways and can continue to do so.
- The MRRT is a recreational trail, not a commute route.
- The brief one-lane closures for guard structures will not obstruct pedestrians and cyclists.
- The TMP will provide at least 30 days advanced notice of closures, which are short term, and will include measures such as detours, adequate signage, and flaggers to protect pedestrians and cyclists. Pedestrians and cyclists will be able to plan ahead which will mitigate any potential impacts.

For these reasons, the conclusion that construction impacts of the project's Overhead Power Line Rebuild on pedestrian and bicyclist safety and accessibility would be significant and

[79] DEIR at 3.15-48.

unavoidable is not supported by the evidence in the record, and PG&E respectfully requests that Impacts T-5 and T-6 be reclassified as "less than significant."

E. The DEIR's assessment of Impact T-7 incorrectly finds that impacts to public transit would be significant and unavoidable.

The DEIR notes three AC Transit bus lines that may be affected by the Proposed Project. Each of these is discussed below, demonstrating that the conclusion of a significant and unavoidable impact to transit is not supported by the evidence in the record and should be revised to less than significant in the Final EIR.

AC Transit Line V is a Transbay commute bus that runs along Park Boulevard and has limited hours in the morning and late afternoon, some of which may occur outside regular construction hours. One lane will remain open each way on Park Boulevard during active construction, and trenches will be plated to allow use of both lanes each way during non-construction hours. Temporary bus stops within several hundred feet (approximately 0.1 mile) will be set up in coordination with AC Transit if stops adjacent to the construction area cannot be safely accessed during construction. The schedule for lane closures and location of any temporary bus stops will be included in the TMP per APM TRA-1 and MM T-1a, with coordination and approval by AC Transit. Per MM N-1b, written notice of construction activities at least 30 days in advance will be provided to transit agencies and residences within 500 feet of construction areas, which will provide adequate time for preparation for the temporary closures and any transit stop relocations.

AC Transit Line 33 is no longer active, per AC Transit's website.[80] Therefore, there cannot be any impacts to this transit route.

The route for AC Transit Line 642 intersects the Proposed Project site in only one location, on Monterey Boulevard. At this location, a lane will be closed for up to one day for guard pole installation. The buses will not be obstructed on this route, and no bus stop for this line is located in the Proposed Project footprint.

The scope and scale of transit impacts of the Proposed Project can be compared to that of the Egbert Switching Station Project, which has approximately four miles of underground transmission lines. The Egbert Project's Draft EIR notes that the project could affect bus transit and bus stops (Impact TRA-1).[81] Implementation of an APM that includes methods for minimizing construction effects on transit service by maintaining access to such facilities along the project construction area or by providing an alternate route if one is needed, as well as procedures for notifying affected agencies in advance of construction activities, would result in project impacts that are less than significant.

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[80] AC Transit: https://www.actransit.org/bus-lines-schedules/33

[81] Draft Environmental Impact Report - Pacific Gas & Electric Company Egbert Switching Station (Martin Substation Extension) Project SCH No. 2018112046 (CPUC): https://ia.cpuc.ca.gov/environment/info/dudek/egbert/Egbert_DEIR_Sept2019.pdf

PG&E respectfully requests that Impact T-7 be reclassified as less than significant.

F. The DEIR's assessment of Impact WF-1 incorrectly finds that the Proposed Project would result in a significant and unavoidable wildfire risk.

The DEIR's assessment of Impact WF-1 finds that the Proposed Project would "[s]ubstantially impair an adopted emergency response plan or emergency evacuation plan (construction, overhead power line rebuild)." As discussed above with respect to Transportation Impacts T-1 and T-4, the Proposed Project will not interfere with emergency evacuation plans or emergency response plans. Impacts will be less than significant with PG&E's use of APMs and mitigation measures. Statements in the DEIR that "many of the alternate routes require detours that could substantially increase evacuation time,"[82] and that "the required use of alternate routes would increase the [Evacuation Time Estimates] for persons living or working near the closure sites due to the longer and less direct drive times"[83] are not supported by evidence.

In addition, the DEIR incorrectly states that "[[i]n a wildfire event requiring emergency evacuation, construction vehicles may be blocking multiple roadways in the Oakland Hills."[84] As PG&E has stated, only two crews will be working at a time on the Overhead Power Line Rebuild.[85] Each crew would be working at one location. Based on the evidence in the record, at any time only zero to two roadways, evacuation routes or otherwise, would be temporarily blocked during regular construction hours. The only designated evacuation routes in the Overhead Power Line Rebuild that would have temporary full closure are Skyline Boulevard and Park Boulevard. The closure locations are over two miles apart and the roads serve different parts of the City of Oakland. As noted in DEIR Table 2.3-6, alternate evacuation routes will be available at each temporary closure location. For the four work areas at the end of cul-de-sacs, safe transport will be provided for affected residents. Emergency access and evacuation will be addressed as part of the Traffic Management Plan (per MM T-1a), which will be approved by local agencies. As noted above with respect to Impact T-4, the City of Oakland General Plan 2045 Draft EIR concludes that impacts to adopted emergency response plans or emergency evacuation plans from construction work on roads would be less than significant with approval and implementation of a Traffic Control Plan.[86]

Based on the evidence in the record, PG&E respectfully requests that the Final EIR reflect that this impact is less than significant with mitigation.

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[82] DEIR at 3.18-28.

[83] DEIR at 3.18-29.

[84] DEIR at 3.18-29.

[85] DEIR at 3.15-19.

[86] https://www.oaklandca.gov/Planning-Building/General-Plan-Neighborhood-Plans/City-of-Oakland-Current-General-Plan-Elements/Land-Use-and-Transportation-Element-LUTE

G. The DEIR's assessment of Impact N-2 incorrectly finds that the Proposed Project would expose persons to or generate excessive ground borne vibration.

The FTA Groundborne Vibration Impact Criterion referenced in the DEIR's analysis is for FTA Land Use Category II: Residences and buildings where people normally sleep. Construction equipment, including pile drivers, will be used during regular construction (daytime) hours. Therefore, the vibration impacts from the pile driving (or other construction equipment) would not occur during the night when residents are sleeping. This conclusion is supported, for example, in the City of Oakland's EIR for the California College of the Arts Oakland Campus Redevelopment Project. Specifically, that EIR concludes:[87]

> Because the locations of grading, soil compaction, and other construction activities that would require the use of construction equipment with the potential to exceed the disturbance threshold (75 VdB for residences) would vary over time across the site, the impacts of these activities on the residences at the 225 Clifton Street apartment building would not be expected to last more than a few days at a time. In addition, SCA-NOI-1: Construction Days/Hours (#67) limits construction activities to the hours between 7:00 a.m. and 7:00 p.m. Monday through Friday, and limits construction with the potential to generate extreme noise (which is generally correlated with the potential to generate high vibration) to the hours between 8:00 a.m. and 4:00 p.m. Therefore, severe vibration would be restricted to normal daytime hours, thereby reducing the likelihood of disturbing residents by interfering with sleep.

Therefore, MM N-2a Vibration Assessment and Control is not necessary to reduce vibration impacts to persons to a less than significant level. PG&E recommends this mitigation measure be revised as shown in Attachment 1.

[87] https://files.ceqanet.lci.ca.gov/252748-3/attachment/H4lSUn75yJlyMb0NX_Ul3b1mA4mVZqtnUsgFiejcbNEn-Yk_I7BTNEvAeckp_ySPEiqJC77kYLjd6wC10 at 463.

V. CONCLUSION

PG&E appreciates the opportunity to present these comments on the DEIR. PG&E respectfully requests that the CPUC incorporate the information and proposed revisions to the DEIR presented in this letter and Attachment 1 into the Final EIR.

* * * * *

Thank you for considering PG&E's comments. Please do not hesitate to contact me with any questions.

Very truly yours,

/s/ Erica Schlemer

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Attachment 1
Text Revisions and Requests for Clarification

Moraga-Oakland X 115 Kilovolt Rebuild Project
PG&E Comments on Draft Environmental Impact Report
Attachment 1: Text Revisions and Requests for Clarification

Page	DEIR Language	Comments
Executive Summary		
ES-1	As described briefly in Section ES.8 of this Executive Summary and in detail in Section 4 of the EIR, the DEIR evaluates four alternatives that would remove existing segments of the 115 kV lines east of Estates Drive and install them underground.	The four DEIR alternatives (DEIR at 4-3) are located between Estates Drive and Manzanita Drive, and do not extend east of Manzanita Drive. *Suggested clarification*: As described briefly in Section ES.8 of this Executive Summary and in detail in Section 4 of the EIR, the DEIR evaluates four alternatives that would remove existing segments of the 115 kV lines ~~east of Estates Drive~~ and install them underground between Manzanita Drive and Estates Drive.
ES-2	The existing land uses in the Project area include a utility facility in the city of Orinda, open space and parks in unincorporated Contra Costa County, and residential, commercial, parks, places of worship and schools within the cities of Oakland and Piedmont.	Suggest updating the description of existing land uses in city of Orinda to include recreational use and a school. Refer to DEIR Figure 3.14-1, Map 1.
ES-8	Numerous public and agency scoping comments requested that all of the overhead 115 kV lines be removed and installed underground.	PG&E has not identified any agency scoping comments that request that all of the overhead 115 kV lines be removed and installed underground. One general comment about undergrounding is provided in the bullet list under "March 11, 2025: Oakland Fire Department" that states "In favor of undergrounding power lines." Refer to DEIR at page 5 of Appendix C Scoping Report, Section 3.4 Other Public Outreach. *Suggested clarification*: Numerous public ~~and agency~~ scoping comments requested that all of the overhead 115 kV lines be removed and installed underground.
ES-8	Due to the steep, narrow, and sharply winding roads in the Oakland Hills, placing all four circuits underground in one road may not be feasible due to the width required for two separate duct banks.	Clarify that the two separate duct banks would be double-circuit duct banks. *Suggested clarification*: Due to the steep, narrow, and sharply winding roads in the Oakland Hills, placing all four circuits underground in one road may not be feasible due to the width required for two separate double-circuit duct banks.
Chapter 1 - Introduction		
1-4	PG&E plans to submit as-built information on the MOX Project to CAISO after receiving project approval and a Permit to Construct from the CPUC (PG&E, 2025c).	As stated in PG&E's response to Data Request #11, PG&E would inform CAISO of CPUC MOX Project approval. As-built information would not be available until project construction is completed. *Suggested correction*: PG&E plans ~~to submit as-built information on the MOX Project~~ to inform CAISO after receiving project approval and a Permit to Construct from the CPUC (PG&E, 2025c).

Page	DEIR Language	Comments
Chapter 2 –Description of the Proposed Project		
2-2	….approximately 15 existing parallel double-circuit structures no longer being needed. These would be removed after the lines are installed underground and put into service.	Clarify that conductors would be removed as well. *Suggested clarification*: These existing structures and overhead lines would be removed after the lines are installed underground and put into service.
2-4	There is no difference between the existing system and the proposed system in terms of capacity, distribution substations, and customers served.	As noted in DEIR at page 2-4: The conductor on the rebuilt lines would accommodate a summer coastal emergency rating of approximately 1,212 amps compared to the existing conductor with a summer emergency rating of approximately 406 amps. *Suggested clarification*: There is no difference between the existing system and the proposed system in terms of ~~capacity,~~ distribution substations~~,~~ and customers served.
2-12	The permanent fenced areas of Moraga and Oakland X substations, approximately 1.31 acres and approximately 15.80 acres, respectively, would not change as part of the Project.	The acreage amounts are inverted. *Suggested clarification*: The permanent fenced areas of Moraga and Oakland X substations, approximately ~~1.31~~ 15.80 acres and approximately ~~15.80~~ 1.31 acres, respectively, would not change as part of the Project.
2-26	**Telecommunications**. The OPGW would be installed in the top conductor position of Circuits 1 and 2 on the northern line and would transition underground at the same location as the power lines.	The OPGW and SW (static wire) are located in the top positions on each line. *Suggested clarification*: The OPGW and SW would be installed in the top conductor positions of ~~Circuits 1 and 2 on the northern~~ each line and would transition underground at the same location as the power lines.
2-37	Soil removed during excavations, having been pre-characterized, would be placed directly into trucks, removed from the area, and disposed of offsite at an appropriate landfill, or it would be used for backfill if clean.	*Suggested clarification* to align with discussion on DEIR at page 2-38 and other locations: Soil removed during excavations, if it has ~~having~~ been pre-characterized, would be placed directly into trucks, removed from the area, and disposed of offsite at an appropriate landfill, or it would be used for backfill if clean.
Chapter 3 –Environmental Impacts and Mitigation Measures		
Aesthetics		
3.2-1	The Project alignment is approximately 5 miles in length and originates in a suburban setting approximately 2 miles southwest of the City of Orinda.	The project originates at Moraga Substation in the City of Orinda. *Suggested clarification*: The Project alignment is approximately 5 miles in length and originates in a suburban setting ~~approximately 2 miles southwest of~~ in the City of Orinda.
3.2-1	3.2.1 Environmental Setting	While the environmental setting includes discussion of the project where it is located within the City of Piedmont, the city itself is not mentioned. Please insert mention of the City of Piedmont in the environmental setting discussion where appropriate.

Page	DEIR Language	Comments
3.2-7	KOP 3a. This viewpoint is also at the site of a planned group campground.	The viewpoint is from a recreational trail and it has a partial view of a planned group campground. *Suggested clarification*: This viewpoint ~~is~~ also has views of ~~at~~ the site of a planned group campground.
3.2-16 and 3.2-23	Alameda County General Plan Open Space Element (1994 as amended)	This regulation is not applicable, and all description and reference should be removed because the project is not located in unincorporated Alameda County. Within Alameda County, the project is located in the jurisdictions of City of Oakland or the City of Piedmont.
3.2-23	Project construction would require minimal grading, and while some permanent removal of existing vegetation would be necessary, this would be limited for the most part to vegetation that encroaches on existing access and spur roads, stringing sites, construction laydown and work areas, staging yards, and helicopter landing zones to permit the safe operation of construction equipment.	Suggest replacing use of "stringing sites" with "tension pull sites" to align with commonly used proposed Project component terminology.
3.2-29	The relocation of a 1.2-mile segment of the Project alignment underground would result in the permanent removal of 16 power line structures along the existing ROW between Estates Drive and Oakland X Substation.	There are 17 existing structures between Estates Drive and Oakland X Substation. Fifteen of the existing structures would be removed after this length of the alignment is rebuilt underground; two existing structures immediately west of Estates Drive are proposed to be replaced with transition structures to connect with the underground portion. *Suggested clarification*: The relocation of a 1.2-mile segment of the Project alignment underground would result in the permanent removal of ~~16~~ 15 power line structures along the existing ROW between Estates Drive and Oakland X Substation.
3.2-32	Table 3.2-4 Consistency with Applicable Regulations | Local | Alameda County General Plan, Open Space Element	The project is not located in unincorporated Alameda County and the county's General Plan, Open Space Element is not applicable. It does not cross a "very limited amount" of county jurisdiction. Therefore, its discussion should be removed from Table 3.2-4.
3.2-37 and 7-6	**MM AES-3a Screen construction activities from view.**	PG&E recommends revisions to MM AES-3a. Requiring staging areas to be screened that may also be used by helicopters would introduce a substantial safety hazard and is not feasible to implement. The exemption statement included in the measure does not allow exceptions for safety, only visibility. *Suggested revisions*: Construction yards, staging areas, and material and equipment storage areas shall be visually screened using temporary screening fencing. Fencing shall be of an appropriate structure, material, and color for each specific location, as determined in coordination with the appropriate local (County or City) authority. This requirement shall not apply if PG&E can demonstrate that installing temporary fencing will introduce a safety hazard or that construction yards are located away from

Page	DEIR Language	Comments
		areas of high public visibility including public roads, residential areas, and public recreational facilities. For any site that PG&E proposes to exempt from the screening requirement, PG&E shall define the site on a detailed map demonstrating its visibility from nearby roads, residences, or recreational facilities submitted to the CPUC for review and approval at least 60 days prior to the start of construction at, or use of, that site.
Biological Resources		
3.4-24	**Section 3.4.4 Impact Analysis and Mitigation Measures,** PLANTS Bullet list at bottom of page	We believe the intent was to list FP-14 not FP-17. FP-14 applies also to the lists for the bumble bee and monarch and its inclusion would make this section consistent with Section 7, MMRP. *Suggested correction*: "BAHCP FP-01 through FP-04, FP-07, FP-10 through FP-12, FP-14~~17~~"
3.4-25	**Section 3.4.4 Impact Analysis and Mitigation Measures,** PLANTS First paragraph	The DEIR analysis concludes that impacts to possible unknown future populations would be significant. Although it is possible new plant populations could become established prior to construction, creating as yet-unknown impacts, it is speculative and inaccurate to indicate that project impacts to these as-yet unknown and possibly non-existent populations **would** be significant. The size of population, species, extent of any impact, and whether such impact would be avoidable are all important factors that cannot be ascertained now. Please revise language to indicate the impact potentially could be significant in the absence of mitigation. *Suggested clarification*: However, even with application of the APMs, potential Project impacts to as-yet unknown future populations of special-status plant species potentially could ~~would~~ be significant. Plant populations are known to migrate or have persistent seed banks that germinate during specific environmental conditions. Additional populations of known special-status plants may establish prior to or during construction. With the implementation of Mitigation Measure (**MM) BIO-1a, Special-Status Plants Avoidance and Impact Minimization** (full text is presented in Section 3.4.5), impacts to special-status plant species would be less than significant. This mitigation measure would require plant surveys by a qualified botanist, conducted during appropriate blooming periods, prior to vegetation removal or ground disturbing activities. If special-status plant species are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid and minimize impacts to those species. **MM BIO-1a** would also protect special-status plant species that were determined to have a low potential to occur because of marginal habitat.
3.4-26	**Section 3.4.4 Impact Analysis and Mitigation Measures,** Crotch's bumble bee Last full paragraph	The DEIR correctly summarizes PG&E's relevant proposed measures from the HCP, ITP, and also from the CDFW-authored ITP FEIR which specifically addresses Crotch's bumble bee and where CDFW concludes that with implementation of these measures, impacts would not be significant. However, the MOX DEIR analysis then continues by stating that project impacts would be significant because the APMs do not define suitable habitat and do not define the steps to take if an

Page	DEIR Language	Comments
		active nest is found. A lack of specific definition of habitat in the documents quoted does not justify the overall conclusion that project impacts would be significant, given the bee may not be present or areas may be avoidable if present, and where present, CDFW has concluded that impacts are not significant. The language should be modified to indicate that Proposed Project impacts potentially could be significant, not that they would be significant. In order to complete the work in Crotch's bumble bee habitat, PG&E will obtain a Memorandum of Understanding (MOU) as part of the CDFW 2081(a) process (MOU/ITP), which includes submittal of a survey plan to CDFW outlining survey methodology and level of effort. Results of the surveys will be provided to CDFW, and appropriate avoidance and minimization measures will then be determined as part of the 2081(a) MOU/ITP. The detailed survey and other measures in MM BIO-1b should instead reference the ITP/MOU process and defer to coordination with CDFW to define the appropriate survey methodology. The impact analysis should be revised to describe the ITP/MOU process and coordination with CDFW. MM BIO-1b should be modified as discussed below. With implementation of the HCP, ITP, and ITP FEIR measures, and PG&E MOX APM BIO-2, using habitat evaluation and bee survey methods to be developed in the MOU with CDFW, and implementation of avoidance and minimization measures, impacts would be less than significant, which is consistent with the ITP FEIR conclusions. This discussion could be incorporated into the impacts analysis since no further mitigation should be required as stated by CDFW. MM BIO-1b should reflect CDFW's authority to determine mitigation methods in the MOU process. *Suggested clarification*: ~~However, even with the application of APMs, Project impacts on Crotch's bumble bee would be significant. The APMs do not define suitable habitat for Crotch's bumble bee and they do not define the steps to be taken if an active nest is found.~~ **~~MM BIO-1b, Crotch's Bumble Bee Avoidance,~~** ~~i~~Impacts to Crotch's bumble bee would be less than significant. CDFW has concluded in the ITP FEIR that with inclusion of these APMs, impacts to Crotch's bumble bee would be less than significant. Further, PG&E will develop a Memorandum of Understanding (MOU) with CDFW as part of the CDFW 2081(a) process that specifies bee habitat evaluation and survey methodologies as applied to the project, and survey findings will then be provided to CDFW. ~~This~~ CDFW ~~mitigation measure~~ would require a qualified biologist conduct a survey for bumble bee habitat and individuals and potential nest sites within the limits of disturbance per the agreed upon methods that will be specified in the MOU. If bumble bee species are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid sensitive areas and exclude construction activities, or as otherwise specified in the MOU. If take is unavoidable, a 2081(a) MOU will be developed with CDFW. Mitigation Measure Bio-

Page	DEIR Language	Comments
		1b outlines the process further. ~~The measure does not allow destruction or "take" of a Crotch's bumble bee nest.~~ Refer to row with DEIR at 3.4-67 to -69 for suggestions to clarify MM BIO-1b, if retained.
3.4-27	**Section 3.4.4 Impact Analysis and Mitigation Measures,** Monarch 2nd paragraph	Please correct language to match the PEA (Pg 5.4-22). It is grassland near the substation that could support the milkweed; the substation itself does not support suitable habitat. *Suggested clarification*: Individuals could migrate through the BSA during the migration and breeding season (February through fall) and utilize floral resources present in the grassland and shrub habitat of the Project area; or utilize or establish an unknown overwintering site during the winter in the woodland or forest habitat. Though no milkweed plants were observed during the botanical surveys, there is grassland habitat that could support milkweed and floral foraging, and grassland near the Moraga Substation could support native narrow leaf milkweed based on Calflora habitat prediction models for the species.
3.4-27	**Section 3.4.4 Impact Analysis and Mitigation Measures,** Monarch Last full paragraph	It is speculative to say impacts to monarchs would be significant since there may not be any milkweed or wintering sites. Please modify wording to indicate that these impacts potentially could be significant if these resources are found during surveys, not that it is known that they would be significant. *Suggested clarification*: However, even with the application of APMs, Project impacts on monarchs potentially could ~~would~~ be significant if milkweed or wintering sites are found during surveys in potentially affected areas. The APMs do not discuss protection of milkweed plants, if found, and they do not define the steps to be taken if larva or an unknown wintering site is found. With the implementation of **MM BIO-1c, Monarch Avoidance,** impacts to monarchs would be less than significant. This mitigation measure would require a survey for milkweed species and monarch overwintering sites prior to vegetation removal or ground-disturbing activities. If milkweed species are found, they would be flagged for avoidance. If overwintering sites are found, the Project would be required to implement measures from the BAHCP, ITP, and ITP FEIR to avoid sensitive areas and ensure species protection.
3.4-34	**Section 3.4.4 Impact Analysis and Mitigation Measures,** Northwestern Pond Turtle 3rd full paragraph	As noted in the PEA, the CDFW-authored ITP FEIR addresses impacts to the pond turtle and concludes that with incorporation of the specified measures, including surveys conducted by PG&E biologists prior to construction, impacts on special-status reptiles including pond turtle are considered less than significant and no further mitigation is required (CDFW 2022a). The extended setback to 400 feet can be accommodated but should be dependent on the habitat within that buffer area as determined by the qualified biologist: not all habitat within 400 feet is likely to be potential nesting habitat depending on substrate and other site-specific factors. The PG&E turtle specialist,

Page	DEIR Language	Comments
		approved by the CPUC, will identify likely habitat and survey requirements within that habitat. *Suggested clarification*: However, even with the application of these APMs, impacts to northwestern pond turtle could ~~would~~ still be significant if turtles are present. The APMs only require a 100-foot setback to streams and therefore do not reduce the risk of damage to inconspicuous nesting sites if northern pond turtles are found. With the implementation of MM BIO-1d, Northwestern Pond Turtle Avoidance, impacts to northwestern pond turtle will be less than significant. This mitigation measure would require a survey for northwestern pond turtle prior to any ground-disturbing or vegetation removal within 400 feet of any perennial waterbody, to the extent the CPUC-approved PG&E biologist identifies potential nesting habitat within such 400 feet area. If pond turtles are found, construction monitoring would be required, including monitoring turtles for nesting behavior, and establishment of buffers if nesting behavior is suspected. ~~Activities within potential nesting habitat would only be confined to periods outside of the nesting, development, and hatching for northwestern pond turtle.~~
3.4-36 and 3.4-48	**Section 3.4.4 Impact Analysis and Mitigation Measures,** Bald and Golden Eagles 3rd full paragraph	On page 3.4-36, the impact to eagles is characterized correctly as LESS THAN SIGNIFICANT, but on page 3.4-38 changes the conclusion to say it would be significant. As commented for other species, there is no evidence to support a conclusion that even with implementation of APMs, impacts to as yet unknown resources would be significant and this language should be modified as shown below. Further, the discussion states: "Surveys limited to the work area would be insufficient to cover nesting eagles that may be disturbed by the Project." PG&E agrees with this statement, and has developed APMs that require surveys within the standard buffers established for eagles (1/2 mile). The DEIR statement appears to reflect an erroneous assumption that PG&E only surveys within work areas, whereas PG&E's APMs and existing ITP FEIR measures require surveys within standard buffer areas, which for the eagle is ½ mile as is stated in Appendix B6 of the PEA and Appendix D Nesting Bird Management Plan in the ITP FEIR, and is referenced in **ITP FEIR APM BIO-6.** The **ITP FEIR APM BIO-6** has been incorporated into the PEA and the DEIR including use of Appendix B6: Nesting Birds: Species-specific Buffers for PG&E activities. Please correct the measure to acknowledge that the surveys will be conducted within those appropriate buffers. The CPUC-proposed Mitigation Measure for eagles summarizes the measures provided in the PEA, **ITP FEIR APM BIO-6** and PG&E's Species-specific buffers in Appendix B6, and does not define new measures. The Mitigation Measure should either be removed or the language clarified to indicate it is summarizing already existing measures. *Suggested clarification, Page 3.4-38 last 2 paragraphs within the eagle discussion:*

Page	DEIR Language	Comments
		~~However, even with the application of APMs,~~ Potential impacts to eagles if present could be significant. Given the sensitivity of the species, specific-specific surveys are required to identify location of eagle nests and implement a half-mile no disturbance buffer as described in PG&E's Species Specific Buffers (PEA Appendix B6) and PG&Es ITP, referenced in **ITP FEIR APM BIO-6.** With these measures, impacts would be less than significant. ~~Surveys limited to the work area would be insufficient to cover nesting eagles that may be disturbed by Project activities.~~ MM BIO-1e, Eagle Avoidance (see full text in Section 3.4.5) ~~is required in order~~ summarizes these measures to ensure that impacts to golden eagle would be less than significant. This measure requires protocol-level surveys for bald and golden eagles during the breeding season, identification of nest locations, and routine inspections as required under **ITP FEIR APM BIO-6**, ITP Appendix D, and PEA Appendix B6. If active eagle nests are identified within one-half mile of Project activities, avoidance buffers will be implemented and inspections will be conducted to verify no Project-related disturbances are occurring, as is standard protocol under **ITP FEIR APM BIO-6** and PEA Appendix B6.
3.4-46	**Section 3.4.4, Impact Bio-1 Overhead Power Line Removal.** 2nd full paragraph	Please see previous comments on impact discussions and new mitigation to modify the language in this discussion to reflect revised mitigation measures as outlined in individual species discussions. *Suggested revision*: With the implementation of APMs and BAHCP habitat mitigation requirements, the impact to special-status species from overhead power line removal remains potentially significant because the Project could impact unknown future populations of special-status plant species, ~~the APMs do not define suitable habitat for~~ Crotch's bumble bee ~~or step to be taken if an active nest is found, there is no protection of milkweed plants or steps taken if monarch larva or an unknown~~ monarch ~~wintering site is found~~, and ~~the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, and surveys limited to the work are would be insufficient to cover nesting~~ eagles, if present.
3.4-47 through 3.4-48	**Section 3.4.4, Impact Bio-1 Operations and Maintenance.** 3rd full paragraph	The conclusion on page 3.4-47 that Operations and Maintenance impacts are "LESS THAN SIGNIFICANT WITH MITIGATION" should be changed to "LESS THAN SIGNIFICANT". The existing lines are already subject to O&M activities that would remain essentially unchanged if the Project is constructed; continuing these existing O&M operations is not an impact of the Project. There is no justification for a finding of significance when the Project does not result in changed O&M practices, and these activities are covered under the HCP, HCP EA-FONSI, the ITP, and ITP FEIR. It is also speculative and inaccurate to state that the impact to special-status species and resources would be significant because new populations may be found in the future; the HCP, ITP, and ITP FEIR measures adequately address O&M activities present and future and no new mitigation is needed.

Page	DEIR Language	Comments
		Should new species be listed and potential take anticipated, those would be addressed by PG&E obtaining resources agency authorization under existing or new permits, as needed. *Suggested revision*: ~~"With the implementation of APMs and BAHCP habitat mitigation requirements, the impact to special-status species from O&M activities remains significant because the Project could impact unknown future populations of special-status plant species, the APMs do not define suitable habitat for Crotch's bumble bee or step to be taken if an active nest is found, there is no protection of milkweed plants or steps taken if monarch larva or an unknown monarch wintering site is found, the stream setback does not reduce damage to inconspicuous nesting sites of northwestern pond turtle, and surveys limited to the work are would be insufficient to cover nesting eagles that may be disturbed by Project activities. Implementation of MMs BIO-1a, BIO-1b, BIO-1c, BIO-1d, and BIO-1e would reduce impacts to special-status species to a less than significant level. MM BIO-1a would require plant surveys by a qualified botanist, conducted during the appropriate blooming period, prior to vegetation removal; and require implementation of APMs from the BAHCP, ITP, and ITP FEIR to avoid and minimize impacts to those species. MM BIO-1b would require a qualified biologist to conduct a survey for Crotch's bumble bees and potential nest sites, and if nests are found, avoid sensitive areas and exclude construction activities. MM BIO-1c would require a survey for milkweed species and monarch overwintering sites prior to vegetation removal or ground disturbing activities; and avoid areas where milkweed or overwintering sites are found. MM BIO-1d would require a survey for northwestern pond turtle prior to any ground-disturbing activities or vegetation removal within 400 feet of perennial streams, monitoring for nesting behavior if turtles are found, and establishing buffers around potential nesting habitat. Finally, MM BIO-1e would require protocol-level surveys for eagles and avoidance buffers if nesting eagles are found within one-half mile of Project activities.~~ ~~Mitigation Measures for Impact BIO-1 MM BIO-1a Special-Status Plants Avoidance. See full text in Section 3.4.5 (Mitigation Measures). MM BIO-1b Crotch's Bumble Bee Avoidance. See full text in Section 3.4.5 (Mitigation Measures). MM BIO-1c Monarch Avoidance. See full text in Section 3.4.5 (Mitigation Measures). MM BIO-1d Northwestern Pond Turtle Avoidance. See full text in Section 3.4.5 (Mitigation Measures.) MM BIO-1e Eagle Avoidance. See full text in Section 3.4.5 (Mitigation Measures)."~~ Given that O&M activities such as inspections and maintenance programs are essentially unchanged from the current existing measures, these activities are part of the existing condition and there is no Project change to existing practices or impact due to changed O&M activities. Maintenance activities will be less in the first 5 years than existing conditions, resulting in a reduction of any O&M impacts. Current ongoing vegetation management programs are sufficient for the powerlines, substations, and access roads, and no additional activities would be required under the Proposed Project.

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		Implementation of the HCP, ITP, and ITP FEIR measures have been deemed appropriate avoidance and mitigation by resource agencies for the existing current activities and for future covered PG&E activities such as the activities on the rebuilt lines, and no mitigation is required for continuation of those activities beyond those already approved measures.
3.4-67 and 7-37	**MM BIO-1a Special-Status Plants Avoidance**	PG&E will refresh plant surveys prior to ground disturbance; however, the requirement to perform these surveys within 2 weeks of vegetation removal or ground disturbing activities is in conflict with the need to perform the surveys when the plants are present and identifiable and with language allowing surveys to be completed up to 3 years ahead of vegetation removal/ground disturbance. Please see proposed revised language. Any new species or populations will be covered under the HCP and ITP measures as described. *Suggested revision*: **"MM BIO-1a Special-Status Plants Avoidance.** ~~Within two weeks prior to any vegetation removal or ground-disturbing activities that will occur within the blooming period of special-status plant species with a moderate or higher potential to occur in the region, a~~ A qualified botanist(s) approved by CPUC that is knowledgeable of the plant species in the region shall conduct surveys for special-status plants within the limits of the disturbance area prior to vegetation removal or ground disturbance. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. Surveys may be adjusted to reflect proposed work schedules and locations and need not be performed all at one time. The surveys shall be conducted during the appropriate blooming period(s) according to protocols established by CDFW and CNPS (CDFW, 2018) or more recent protocols, if available. All special-status plant species, including listed threatened or endangered, and those ranked CRPR 1A, 1B, 2, 3, and 4, that are located shall be documented during surveys using a precision GPS unit. Results of surveys shall be valid for a period of three years if conducted during a period of average rainfall; however, the Project shall not be delayed during a drought year and would rely on baseline or previously collected data. If vegetation removal does not occur in a previously surveyed area within three years, the surveys shall be repeated provided there is adequate rainfall to support germination. If special-status plant species are found, special-status plants shall be avoided where feasible in accordance with **ITP FEIR APM BIO-3, BIO-4**, and **BIO-5**. If vegetation removal or ground disturbing activities would have a direct impact on special-status plant species, PG&E shall implement **AMM Plant-04, -05, -06, -07, and -08,** as applicable. Observations will be submitted to CNDDB in accordance with **O&M ITP-6.8**."
3.4-67 to -69	3.4.5 Mitigation Measures, Crotch's Bumble Bee Avoidance **MM BIO-1b, Crotch's Bumble Bee Avoidance**	The language in the current DEIR MM BIO-1b should be revised to indicate that PG&E will prepare an MOU with CDFW as part of the ITP process that outlines the appropriate methodologies for habitat assessments and bee surveys methodology and reporting. There is no standard accepted methodology for overwintering surveys described in the DEIR, nor are these typical, and the

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		overwintering season surveys described in the DEIR would be highly disruptive to the bees if present. A thorough search to "look for potential [bees]" would temporarily move litter or debris in which bees may be overwintering, could increase the risk of crushing bees by survey foot traffic, and could affect overwintering success. Such an activity would in fact pose a greater risk to bees than is necessary and is not likely to be effective. Appropriate measures for overwintering habitat and other surveys will be discussed with CDFW, described in the MOU, and implemented. Potential overwintering habitat will be identified and avoided where possible, with other measures already determined by CDFW to be sufficient for the impact to be less than significant. Other proposed changes below reflect the authority of CDFW on methods and measures as these will be determined in the MOU. PG&E recognizes that take as defined under CESA can only be authorized by CDFW. *Suggested revision*: **MM BIO-1b Crotch's Bumble Bee Avoidance and Minimization.** Within one year prior to any vegetation removal or ground-disturbing activities a qualified biologist(s) approved by CPUC that is knowledgeable of Crotch's bumble bee species identification and habitat shall conduct a habitat assessment evaluating the likelihood of bumble bees occurring within and adjacent to the clearance survey of area identified as potential foraging, nesting, and/or overwintering habitat within the limits of disturbance. The survey will also include a 100-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns or as otherwise determined with CDFW. Surveys may be adjusted to reflect proposed work schedules, activities, and locations and need not be performed all at one time. Bumble bee identification shall include visual identification and non-lethal photo vouchers, or other methods as outlined in a 2081(a) Memorandum of Understanding (MOU) with CDFW for bumble bee survey and handling. Nest sites can be determined through following bees from blooms to their nests and looking for concentrated bee activity in suitable nest habitat. PG&E will develop a survey plan and obtain an MOU from CDFW, which includes submittal of the survey plan outlining survey methodologies for habitat assessments including foraging and colony habitats and overwintering habitat and will identify reporting requirements. Results of the surveys will be provided to CDFW, and any additional appropriate avoidance and minimization measures beyond those already accepted will be determined. If take is unavoidable, a 2081(a) MOU/ITP will be developed. ~~*Overwintering Season Surveys*: If ground disturbing or vegetation management activities in any given work area occurs during the overwintering season (November 1 through January 31), and the work area has been identified as potential foraging or overwintering habitat, the qualified biologist shall conduct overwintering season surveys within areas of suitable habitat (i.e., where vegetation and floral resources occur) in each area planned for Project activities within two weeks in advance of vegetation removal or ground disturbance in that area.~~

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		~~Overwintering season surveys shall look for potential Crotch's bumble bee overwintering queens and hibernacula such as leaf litter, logs, and rodent burrows. If overwintering queens or other Crotch's bumble bee are found utilizing hibernacula during surveys, all ground disturbing activities and vegetation removal shall stop within 50 feet of the queen and/or hibernaculum and all workers will be notified not to enter the environmentally sensitive area. The qualified biologist shall record the queen's location with a GPS (including datum and horizontal accuracy in feet) and include photographs and a map of the queen's location.~~ *Colony Active Period Season Surveys*: If ground disturbing or vegetation management activities in any given work area occurs during the Colony Active Period (February 1 – September 30), and the work area has been identified as potential foraging or nesting habitat, the qualified biologist shall search for Crotch's bumble bee throughout the area planned for Project activities in advance of vegetation removal or ground disturbance in that area. Survey efforts for each area will be laid out in the MOU between PG&E and CDFW, including measures such as ~~shall include at least two~~ visual surveys consisting of meandering transects occurring no more than 10 days prior to the start of ground and vegetation disturbing activities in that area or as otherwise determined in the MOU. ~~The qualified biologist shall conduct the sur- veys at least four days apart, with the second survey occurring within two days prior to starting ground and/or vegetation removal activities in that area.~~ The survey duration shall be appropriate to the size of the area covered in the MOU and would include one person-hour per 3 acres of suitable habitat for areas planned for Project activities plus a 100-foot-wide buffer (unless otherwise prohibited due to legal access or safety concerns) or as otherwise determined in the MOU ~~based on the metric of a minimum of one person-hour of searching per three acres of suitable habitat~~. The qualified biologist shall conduct surveys between 7:00 AM and 6:00 PM (Pacific Time) on sunny days between 55-and 95-degrees Fahrenheit with sustained wind speeds measuring less than 10 miles per hour or as otherwise outlined in the MOU. ~~If ground disturbing activities are halted for longer than three days within a work area supporting suitable habitat during the Colony Active Period defined as the Queen Flight Season (February 1 through March 31), the qualified biologist shall perform a minimum of one additional survey in the work area in accordance with the prior to reinitiating Project activities in the work area.~~ If a Crotch's bumble bee nest is identified during ~~Colony Active Period Season focused~~ surveys or during ground disturbance of vegetation removal activities, PG&E shall establish a 50-foot no disturbance buffer around each nest. The size and configuration of the no disturbance buffer will be based on the best professional judgement of the bee specialist or as otherwise determined in the MOU. Buffers shall remain in place until the nest has senesced or project activities are complete. To determine if a nest has senesced, the qualified biologist shall monitor the nest for senescence in late summer and fall. Nest senescence can typically be denoted after the presence of reproductives (gynes and males) are observed. ~~Nests shall be monitored for a minimum of one hour per day for three~~

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		~~consecutive days during optimal weather conditions (i.e., from 7:00 AM–6:00 PM, low wind, and low cloud cover conditions, etc.).~~ If there has been no nest activity after the above conditions are met, the no disturbance buffer may be removed, or as otherwise determined in the MOU. If Crotch's bumble bees, overwintering site, or nest sites are detected, **ITP FEIR APM BIO-2** shall be implemented, which requires protection of special status wildlife species encountered. Should an active nest or overwintering site be discovered, PG&E shall implement **ITP FEIR APM BIO-3** to avoid sensitive areas and **ITP FEIR APM BIO-5** to exclude construction activities to ensure species protection. The qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Documentation and reporting of Crotch's bumble bee habitat assessments, bee observations, overwintering sites, and/or nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Observations will be submitted to CNDDB in accordance with O&M ITP 6-8. Other measures as outlined in the MOU will be implemented as determined in the ITP. ~~Destruction of a Crotch's bumble bee nest site is defined as take under CESA and is not authorized under this measure.~~
3.4-67 to -69 and 7-40	3.4.5 Mitigation Measures, Monarch Avoidance **MM BIO-1c Monarch Avoidance**	This measure can also be clarified similar to the plant surveys in MM BIO-1a: milkweed surveys and overwintering surveys should not be restricted to within 2 weeks of ground disturbance when milkweed, larvae, and adults may not be present, but should be conducted, as is noted later in the measure, at the appropriate season. PG&E acknowledges that take authority can only be granted by the appropriate wildlife agency. *Suggested revisions*: **MM BIO-1c Monarch Avoidance.** ~~Within two weeks prior to any vegetation removal or ground-disturbing activities,~~ A qualified biologist approved by CPUC that is knowledgeable of milk-weed species in the region and monarch overwintering sites shall conduct surveys ~~for~~ within the limits of the disturbance area. The survey shall include a 250-foot-wide buffer unless otherwise prohibited due to legal access or safety concerns. ~~Injury or mortality of monarch butterfly is not authorized under this measure.~~ Documentation and reporting of monarch overwintering sites and milkweed species shall be conducted in accordance with O&M ITP-6.8, -6.10, and ITP FEIR APM BIO-2. Monarch observations will be submitted to CNDDB in accordance with O&M ITP-6.8. *Overwintering sites*: Surveys for overwintering sites will be conducted from October 1 through March 31 and will include wind-protected blue gum eucalyptus, pine, fir, cypress, and oak trees, particularly in canyons or drainages near water sources and southwest facing slopes. Overwintering sites will be determined by the presence of monarchs clustered together in large numbers. If monarch overwintering sites are observed or suspected, PG&E shall implement ITP FEIR APM BIO-3 to avoid sensitive areas, and ITP FEIR APM BIO-5 to exclude construction activities to ensure species protection.

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		Milkweed Plants: Surveys for milkweed plants will be conducted from March 31 through October 1 and will include any native milkweed species known from the region. ~~Transects for milkweed species will be spaced 20 meters apart or less given the terrain and visual barriers. If milkweed species are observed,~~ Specific survey methods will be determined by the qualified project biologist, similar to rare plant survey protocols. AMM Plant-01, which prohibits herbicide use, AMM Plant-04, which requires barriers to minimize disturbance, and O&M ITP-5.12, which requires delineation and avoidance of sensitive habitat features, will be implemented. If milkweed species cannot be avoided, the plants will be inspected for signs of eggs (undersides of leaves), larva, signs of herbivory, and presence of frass. If evidence of eggs, larva, or larval use is found, ITP FEIR APM BIO-2 shall be implemented, which requires protection of special status wildlife species encountered, and the plant will be avoided until October 1. If no evidence of eggs, larva, or larval use is found, AMM Plant-05, -06, and -07 will be implemented.
3.4-69 to -70 and 7-41	3.4.5 Mitigation Measures, NWPT Avoidance **MM BIO-1d Northwestern Pond Turtle Avoidance**	Per our comments above, the HCP/ITP/FEIR measures listed were determined by CDFW in their FEIR to be adequate mitigation for potential impacts to pond turtles of these activities. Species surveys and habitat evaluation areas and methodology will be determined by the CPUC-approved PG&E biologist implementing resource agency-standard survey protocols. The CPUC-approved PG&E biologist may modify buffers and seasonal restrictions depending on site-specific factors such as intervening barriers, or specific activities (non-ground-disturbing activities on existing roads, for instance) can continue with appropriate monitoring as determined by the biologist. This could include work in the nesting season within buffers in certain conditions, such as if work does not involve ground disturbance or movement of heavy equipment off established access roads; this determination would be made by the qualified biologist and work monitored. PG&E requests deletion of MM BIO-1d or modification as follows: **MM BIO-1d Northwestern Pond Turtle Avoidance.** Prior to any ground-disturbing or mechanical vegetation removal activities within 400 feet of any perennial waterbody (e.g., lake, pond, river, stream, wet meadow, seep, spring) that has the potential to support northwestern pond turtle as determined by the qualified biologist, a qualified biologist(s) approved by CPUC will conduct a survey within the limits of disturbance no more than 24 hours prior to commencing activities to search for the presence of northwestern pond turtle individuals. If adult or juvenile northwestern pond turtles are present, the qualified biologist(s) will remain onsite throughout the duration of activities to ensure that impacts are avoided in accordance with **O&M ITP-6.4**. Any northwestern pond turtle adults or juveniles that are present will be allowed to leave the area on their own volition. If it is not possible to allow the animal to leave the work area on its own, the qualified biologist(s) will relocate it to the nearest suitable habitat out of harm's way. If

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		northwestern pond turtle is formally listed as federally threatened or endangered, any take or handling would only be authorized under the context of the appropriate permits from USFWS. If northwestern pond turtle is present, and project activities are scheduled to occur April 1 through August 31 (when females are searching for suitable nest sites), the qualified activities biologist will monitor turtle overland for nesting behavior and the presence of nesting sites. If nesting behavior is suspected, a buffer of 300 feet will be implemented around any overland activities conducted by the turtle(s). The buffer may be modified by the qualified biologist if appropriate due to factors such as fencing and intervening barriers. The biological monitor will have authority to stop work and implement appropriate buffers in accordance with **O&M ITP-5.3 and -5.12**. The qualified biologist will implement the buffer based on their observations, habitat presence, and known life history of the species, to protect nesting behavior and potential nesting sites. This buffer shall be maintained, and no work shall be allowed, from the onset of observed nesting behavior to spring of the following year, to allow eggs to develop and young to hatch. If some work is necessary within that appropriate buffer, the qualified biologist will determine whether the specific work activities can safely be conducted, and if so, will monitor the work. If the biologist determines, through surveys and monitoring, that the nest has hatched or has been predated, work may proceed in the area. If mechanized vegetation removal must be conducted in potential nesting site habitat during the nesting season, CDFW will be contacted for further guidance if the species has not been federally listed; and USFWS will be contacted for further guidance if the species has been federally listed. Documentation, reporting, and submittal to CNDDB of northwestern pond turtle observations and potential nesting sites shall be conducted in accordance with **O&M ITP-6.8, -6.10,** and **ITP FEIR APM BIO-2**. Potential nesting habitat will be avoided during future activities in accordance with **ITP FEIR APM BIO-3**.
3.4-70	3.4.5 Mitigation Measures, Eagle Avoidance **MM BIO-1e Eagle Avoidance**	As explained above, MM BIO-1e summarizes already existing measures ITP FEIR APM BIO-6 and the commitments in Appendix B6 of the PEA and Appendix D of the ITP FEIR. *Suggested revision*: **MM BIO-1e Eagle Avoidance.** Within 30 days prior to any ground-disturbing or vegetation removal activities that would occur during the breeding season for eagles (January 15 through August 31), a qualified biologist(s) approved by CPUC shall conduct USFWS and/or CDFW protocol-level surveys for bald and golden eagles in suitable breeding habitat within the area of disturbance, following the requirements of ITP FEIR APM BIO-6, PG&Es Nesting Management Plan (ITP Appendix D), and PEA Appendix B6, Species Specific Buffers for PG&E Activities. ~~The survey area will include a half-mile buffer, unless otherwise prohibited due to legal access or safety issues.~~ Surveys shall follow the most recent USFWS and/or CDFW guidelines unless alternative methods are otherwise approved

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		by the resource agencies. All eagle observations, including individual eagles, active nests ~~or territories~~, and roosting sites shall be recorded using a precision GPS unit and included on Project maps. If an active eagle nest is identified or is known to be active through coordination with USFWS, CDFW, or other conservation land managers, a one-half mile (2640-foot) avoidance buffer shall be established in accordance with the Species Specific Buffers for PG&E Activities (PEA Appendix B6) and ITP Appendix D. Helicopter and drone use shall be prohibited within the one-half mile avoidance buffer unless topographical conditions provide adequate visual and audible screening and the flight path within the avoidance buffer would not come in direct line-of-sight of the nest. The avoidance buffer may be adjusted based on topography, local site conditions, line-of-sight between the nest and work areas, status of the nest, tolerance of the birds to human disturbance, and proposed work activities. The buffer shall only be reduced through coordination with the USFWS, CDFW, and the applicable conservation land managers. The qualified avian biologist(s) shall perform routine inspections of the nest to determine that status and ensure that the avoidance buffer is being properly implemented. The biologist shall have the authority to halt work if the birds are exhibiting increased levels of distress as required in PEA Appendix B6. Any take of bald or golden eagle would be prohibited. Documentation, reporting, and submittal to CNDDB eagle observations and survey results shall be conducted in accordance with **O&M ITP-6.8, -6.10**, and **ITP FEIR APM BIO-2** and **BIO-6**.
3.4-71 and 7-43	**MM BIO-5a Tree Trimming and Removal Requirements.**	PG&E requests clarification that tree removal may also occur in support of project construction work area or access safety: **MM BIO-5a Tree Trimming and Removal Requirements.** Trimming and removal of trees shall be conducted in accordance with the International Society of Arboriculture (ISA) American National Standards Institute (ANSI) A300 Tree Care Standards and ISA's Pruning Best Management Practices and overseen by an ISA Certified Arborist. The ISA Certified Arborist will evaluate trees that may be impacted by the Project and determine which trees can be retained and which trees shall be removed. Trees would only be proposed for removal if they would interfere with construction work areas or access safety, utility structures, trimming of the tree branches or roots would be severe enough to impact tree health and result in tree decline, trees are considered a safety hazard to structures or personnel, or retention of the tree would not be in compliance with CPUC General Order 95 for vegetation clearance around powerlines.

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3.4-71 and 7-43	**MM BIO-3a Ephemeral Channel Protection and Restoration**	PG&E proposes minor changes to the wording of MM BIO-3a, to clarify reasonably feasible implementation. *Suggested revisions*: **MM BIO-3a Ephemeral Channel Protection and Restoration.** Construction activities that require temporary disturbances to ephemeral channels shall be conducted during the dry season when the bed and bank are dry, and no rain is anticipated until the channel has been fully restored. Restoration of ephemeral channels include restoration of bed and bank to <u>as close to</u> pre-Project conditions <u>as feasible</u>. Vegetation removed shall be restored in compliance with BAHCP FP-14, AMM Plant-04, and ITP FEIR APM BIO-2. Erosion control APMs BAHCP FP-11, FP-12, O&M ITP-5.9, and -5.10 shall be implemented to stabilize the area until vegetation has been restored. Permanent impacts to aquatic resources are prohibited. PG&E shall obtain all required aquatic resource permits for ~~temporary~~ impacts, as applicable, prior to disturbance to ephemeral channels. All permit conditions shall be implemented.
3.4-71 and 7-43	**MM BIO-7a Bird and Bat Collision Reduction**	Mitigation Measure BIO-7a, Bird and Bat Collison Reduction is unnecessary because reduction of impacts is already incorporated into PG&E's Proposed Project design standards and requirements, as described in the PEA. PG&E's PEA Project Description states that project design includes collision reduction measures: "The new structures will meet current raptor safety requirements" (PEA at 3-14). PG&E's intention to include this design element is reiterated and expanded in the impact analysis in PEA Section 5.4.4.4: *PG&E will minimize the potential for electrocution or accidental line collision by rebuilding the electrical lines in accordance with avian-safe construction standards and will implement the processes and procedures outlined in the PG&E Avian Protection Plan [APP].* *Conductors and ground wires will be spaced sufficiently apart so that raptors will not be electrocuted and all power line and substation facilities for the project will be designed to be avian safe, as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012)* Impact BIO-7 (Create a substantial collision or electrocution risk for birds or bats) repeats the PEA impact discussion text (DEIR 3.4-66), and the contents of the DEIR Project Description (DEIR at 2-9) repeats PG&E's intent to implement the safety requirement. However, Impact BIO-7 makes the conclusion that because a design standard was not repeated in an APM, it has to be in a mitigation measure so the requirement will be implemented. A design standard is not optional and does not need to be repeated as an APM. If an expanded description of the design element needs to be in the

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		Proposed Project description to reflect that APP, copy the quoted statements to an appropriate part of the project description and remove the unnecessary MM BIO-7a.
Geology and Soils		
3.7-24	In addition, within this area, duct banks would be encased in 1.5-foot-thick thermal concrete located a minimum of 3 feet below the road surface, which would ensure that the duct banks would not be susceptible to damage from expansion and contraction of shallow soils.	A portion of the installed duct bank would include thermal concrete surrounding the conduits. The entire duct bank is not encased in thermal concrete at that dimension. Refer to PEA Figure 3.3-6, Underground Duct Bank Cross Sections, Item 9, Thermal Concrete. *Suggested clarifications*: In addition, ~~within this area~~, conduits within the duct banks would be encased in 1.5-foot-thick thermal concrete located a minimum of 3 feet below the road surface, which would ensure that the duct banks would not be susceptible to damage from expansion and contraction of shallow soils.
Noise		
3.11-34	**MM N-2a Vibration Assessment and Control**.	The Federal Transit Administration (FTA) Groundborne Vibration Impact Criterion referenced in the analysis is for FTA Land Use Category II: Residences and buildings where people normally sleep. Construction equipment, including pile drivers, will be used during regular construction (daytime) hours. Therefore, the vibration impacts from the pile driving (or other construction equipment) would not occur during the night when residents are sleeping, and the Category II distance of 150 feet and the 80 VdB annoyance threshold are not applicable to the project. This conclusion is supported, for example, in the City of Oakland's EIR for the California College of the Arts Oakland Campus Redevelopment Project (https://files.ceqanet.lci.ca.gov/252748-3/attachment/H4lSUn75yJlyMb0NX_Ul3b1mA4mVZqtnUsgFiejcbNEn-Yk_I7BTNEvAeckp_ySPEiqJC77kYLjd6wC10). Specifically, that EIR concludes: *Because the locations of grading, soil compaction, and other construction activities that would require the use of construction equipment with the potential to exceed the disturbance threshold (75 VdB for residences) would vary over time across the site, the impacts of these activities on the residences at the 225 Clifton Street apartment building would not be expected to last more than a few days at a time. In addition, SCA-NOI-1: Construction Days/Hours (#67) limits construction activities to the hours between 7:00 a.m. and 7:00 p.m. Monday through Friday, and limits construction with the potential to generate extreme noise (which is generally correlated with the potential to generate high vibration) to the hours between 8:00 a.m. and 4:00 p.m. Therefore, severe vibration would be restricted to normal daytime hours, thereby reducing the likelihood of disturbing residents by interfering with sleep.* Therefore, MM N-2a Vibration Assessment and Control is not necessary to reduce vibration impacts to persons to a less than significant level, and PG&E recommends the following edits to MM N-2a:

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		Where ~~pile driving may be required within 150 feet of residential or commercial structures,~~ sonic pile drivers <u>may be required</u> within 40 feet of a historic structure or impact pile drivers within 115 feet of a historic structure, or if an impact pile driver is used within 60 feet of an occupied structure, PG&E shall prepare a Vibration Control Plan prior to the commencement of construction activities, meeting the following requirements: • The Vibration Control Plan shall be prepared by a licensed structural engineer and shall include all reasonable methods required to minimize vibration such that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~. These methods may include limiting the extent of pile driving activity near ~~occupied~~ structures and using alternative installation methods for piles. Final design efforts and construction methods will consider soils and hammer type and use when assessing potential for vibration. • Site-specific minimization measures such as pre-drilling pilot holes to reduce resistance, modifying the type of hammer, reducing hammer energy, modifying hammer frequency, or using vibratory pile driving will be implemented as necessary to reduce the potential effects of off-site vibration. • Vibration monitoring will be conducted during pile driving activities, or in response to a complaint, to confirm that monitored vibration levels do not exceed 0.5 inches per second Peak Particle Velocity ~~or the annoyance threshold of 80 VdB at residential structures~~. • If threshold levels are exceeded, vibration monitoring reports shall document the site-specific minimization measures implemented to reduce or limit the duration and level of the impact and shall document actions taken to adjust construction activities in response to field conditions. • The Vibration Control Plan shall also establish baseline conditions at potentially affected structures, provide shoring design to protect buildings and structures from damage, document damage at the conclusion of vibration generating activities, and include recommendations for repair if necessary. • Monitoring for vibration may be reduced or eliminated when it has been established that these measures, if required, are effective for the site conditions.
Recreation		
3.14-12	Impact REC-3, Operations and Maintenance	The DEIR concludes that O&M activities on the power line in parks and open spaces would be the same (or less) as current activities, so there would be no change from the baseline. This analysis supports PG&E's request to revise the conclusion for Impact REC-3 from "LESS THAN SIGNIFICANT" to "NO IMPACT."

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3.14-14	Impact REC-5, Operations and Maintenance	The DEIR concludes that O&M activities on the power line in parks and open spaces would be the same (or less) as current activities, so there would be no change from the baseline. This analysis supports PG&E's request to revise the conclusion for Impact REC-5 from "LESS THAN SIGNIFICANT" to "NO IMPACT."
Transportation		
3.15-5	The average 2020 vehicle miles traveled (VMT) in the study area is estimated to be higher than 25 VMT per capita just north of SR-13, and between 20 and 25 VMT per capita just south of SR-13.	The measure of VMT should be clarified as follows: The average 2020 <u>daily</u> vehicle miles traveled (VMT) in the study area is estimated to be higher than 25 VMT per capita just north of SR-13, and between 20 and 25 VMT per capita just south of SR-13.
3.15-15	Table 3.15-2 | FP-12	Table 3.15-2 lists FP-12 as a measure to reduce transportation impacts. However, FP-12 is a measure from PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan to address protection of water bodies from soil stockpiles. FP-12 is not relevant to roadways or transportation impacts from the project. APM TRA-2 includes restoration of roadways following construction, which would include removing any soil left on the roadway. Please delete all discussion of FP-12 in the transportation chapter.
3.15-18	Subsection *Temporary Road Closures for Crane Operation*	This section incorrectly lists Park Boulevard Way and Estates Drive as roadways that will have temporary closures for crane operation. No cranes will be used on these roadways, which are located in the underground portion of the project. PG&E requests that Park Boulevard Way and Estates Drive are deleted from this bullet list. In addition, temporary road closures for cranes will occur on Glendora Avenue; this road should be added to the bullet list. Refer to DEIR Figure 2.1-2.
3.15-19	Subsection *Temporary Guard Structures and Netting*	Temporary road closures for guard structure installation will occur on Saroni Court and Paso Robles Drive; these roads should be added to the bullet list. Refer to DEIR Figure 2.1-2.
3.15-19	However, the following four locations would have no secondary vehicle access during road closures.	These four locations have no secondary access because they are at the end of dead-end roads. Note that closure at these four locations will affect approximately 1 to 2 residences each. As noted in APM TRA-1, safe transport will be provided for these residences. *Suggested clarification*: "However, the following four locations would have no secondary vehicle access during road closures <u>because they are located at the end of a roadway, such as a court</u>:"
3.15-22	"…several roadways, which include Saint James Drive, Hollywood Avenue…"	No construction activity will occur on Hollywood Avenue. The temporary road closure for guard pole installation at this location is on Glendome Circle. Replace "Hollywood Avenue" with "Glendome Circle" in this sentence.

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3.15-22	The construction for the overhead power line removal would occur over 18 months (from June 2029 through November 2030).	As shown in PEA Table 3.6-3 and DEIR Table 2.4-3, the removal of the overhead line west of Estates Drive is planned for January 2031 through July 2031. The schedule of June 2029 to November 2030 applies to the rebuild of the overhead line east of Estates Drive. *Suggested correction*: The construction for the overhead power line removal would occur over 7~~18~~ months (from January 2031 ~~June 2029~~ through July 2031 ~~November 2030~~).
3.15-22	"…and the sidewalks along local streets south of SR-13" in subsection *Construction of the Overhead Power Line Removal*	The overhead power line removal will be done between Estates Drive/Park Boulevard intersection (not SR 13) and Oakland X Substation. *Suggested revision*: "…and the sidewalks along local streets ~~south of SR-13~~between the Estates Drive/Park Boulevard intersection and Oakland X Substation"
3.15-22	Construction work areas would include excavation followed by installation of vaults (2 weeks for each vault), duct banks (6 days for a 240-foot length), cable pulling (12 days for each vault), cable splicing (20 days for each vault), and repaving and lane striping (2 days for each vault) for the underground portion of the Project.	This sentence does not accurately summarize construction activities. *Suggested correction*: "Durations for specific construction activities include 2 weeks for excavation and installation of each vault; 40 to 100 feet/day per crew for duct bank trenching and conduit installation; and 6 days to pull cable between adjacent vaults; 20 days for splicing at each vault."
3.15-22	Two crews would be working in a linear fashion along the underground line route during trenching work.	Minor correction should be made to the sentence, per Part A Response to CPUC Data Request #6. *Suggested correction*: Two to three crews would be working in a linear fashion along the underground line route during trenching work.
3.15-23	…and the sidewalks along Park Boulevard and local streets south of SR-13 (first full paragraph on page)	Underground power line construction will not include areas between Estates Drive/Park Boulevard and SR 13. Sidewalks for underground power line construction may affect sidewalk access only on Park Boulevard, Estates Drive, and Park Boulevard Way. *Suggested revision*: …and the sidewalks along Park Boulevard, Estates Drive, and Park Boulevard Way. ~~and local streets south of SR-13~~
3.15-26	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *Orinda Fire Evacuation*	The Project is not inconsistent with the Orinda Fire Evacuation Guide. No temporary roadway closures will occur in the City of Orinda. Several roads in Orinda will be used for construction access. Lost Valley Road will be used to access Moraga Substation, Edgewood Drive, and Dolores

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	Guide | Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with evacuation planning provided in the Orinda Fire Evacuation Guide directing the public to use certain routes that may be blocked by the proposed Project.	Way. No construction vehicles will block or obstruct Lost Valley Road. Construction vehicles will not park on these roadways and no temporary road closures will occur. Finally, none of the planned temporary road closures will impede access to any of the evacuation routes shown in the *Orinda Fire Evacuation Guide*. Therefore, no impacts will occur to emergency response and evacuation in the City of Orinda, including the designated evacuation routes listed in Table 3.15-3, and the project is consistent with the *Orinda Fire Evacuation Guide*. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-26	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *City of Orinda General Plan, Land Use and Circulation Element |Construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the roadway connections provided in the City of Orinda General Plan, Land Use and Circulation Element; and the directive under Safety Element, Policy S-11 to ensure adequate capacity, safety, and viability of evacuation routes*.	As discussed previously for the Orinda Fire Evacuation Guide, no temporary road closures will occur in the City of Orinda, and no roads will be blocked or otherwise obstructed. The project will not affect the capacity, safety, or viability of any evacuation route in Orinda. The project is consistent with the City of Orinda General Plan Land Use and Circulation Element or Safety Element Policy S-11. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-26	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *Contra Costa County General Plan Transportation Element | Closures and construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the overarching goals of the Contra Costa General Plan, Transportation Element of improving safety and enhancing mobility and connectivity for all roadway users; and the directive under Health and Safety Element, Policy HS-P7.3 of ensuring construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period*.	The Contra Costa County General Plan applies only to unincorporated areas of the county. For the project, the County's General Plan applies to the portion approximately between structures RN4/RS4 and the county boundary near Manzanita Drive, including construction access on Old Tunnel Road via SR 24. None of the designated evacuation routes for Contra Costa County listed in DEIR Table 3.15-3 would be blocked or otherwise obstructed by the project. Therefore, the project is consistent with Contra Costa County General Plan Transportation Element. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-27	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing	This plan is about effective management of emergency operations within Contra Costa County. It addresses processes, roles and responsibilities, and similar topics; it does not address evacuation or

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	the Circulation System | *Contra Costa Operational Area Emergency Operations Plan | Because of the narrow streets and steep topography in this area, alternative routes may increase evacuation and emergency response times, which would be inconsistent with the intent of the Contra Costa Operational Area Emergency Operations Plan to prepare for and respond to emergencies*.	evacuation routes. The project does not affect the procedural topics addressed in this plan and therefore is consistent with the plan. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-27	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *Alameda County General Plan, Mobility Element | Closures and construction activities on roadways would restrict local roadway, bicycle, pedestrian, evacuation, and emergency access, which would be inconsistent with the general goal of the Alameda County General Plan, Mobility Element to provide a safe, multi-modal transportation system*.	The Alameda County General Plan applies only to unincorporated areas of the county. None of the project is located in unincorporated Alameda County. Therefore, the general plan goals and policies do not apply to the project. In addition, none of the roads listed as evacuation routes for Alameda County in Table 3.15-3 will be blocked or otherwise obstructed by the project. No impact and no plan inconsistencies will occur with regards to the Alameda County General Plan Mobility Element. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-28	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *City of Oakland General Plan, Safety Element | Road and lane closures would be required on designated evacuation routes, which would be inconsistent with the directives under the City of Oakland General Plan, Safety Element, Policies SAF-8.5 and 8.18 to ensure that the evacuation routes network is interconnected with adequate capacity and to protect critical evacuation routes*.	The City of Oakland General Plan Safety Element shows primary and secondary local evacuation routes (refer to General Plan Figure SAF-13a). Of the evacuation routes shown, only two roads may have temporary road closures due to crane use during construction: Skyline Boulevard and Park Boulevard. Alternate routes for these roads are listed in DEIR Table 2.3-6, and egress is available on either side of the road closures. Note that Manzanita Drive is not a designated evacuation route in the City of Oakland General Plan Safety Element, and only a small portion of Snake Road (between Mountain Boulevard and Shepherd Canyon Road and between Thornhill Drive and Skyline Boulevard) is a designated evacuation route. In addition, for the SR-13 crossing, the California Highway Patrol and Caltrans will be contacted to organize 5-minute rolling stops, and emergency evacuation on SR-13 will not be obstructed. As noted in APM TRA-1, if required for local encroachment permits, PG&E will prepare a Traffic Management Plan (TMP) in coordination with the City of Oakland to address evacuation routes, detours, signage, and other traffic controls. For all these reasons, PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-28	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *City of Oakland Pedestrian Master Plan | Road closures and other construction*	The City of Oakland Pedestrian Master Plan addresses the construction and maintenance of infrastructure to support pedestrian access, such as upgraded signals and improved lighting to increase pedestrian safety (Outcome 1); sidewalk repair, curb ramps, and art to create places that promote walking (Outcome 2); and improving sidewalk connections and wayfinding signage to

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	activities would restrict pedestrian access, which would be inconsistent with the intent of Outcomes 1, 2, and 3 in the City of Oakland Pedestrian Master Plan related to increasing pedestrian safety, promoting walking, and improving walkability.	improve walkability to key destinations (Outcome 3). Any obstructions of pedestrian access during project construction are temporary, and per APM TRA-1 and MM T-1a, PG&E will provide appropriate traffic controls during the temporary closures to maintain pedestrian safety and access, including along Park Boulevard. Per APM TRA-2, any sidewalks or pedestrian infrastructure damaged during construction will be restored. The project is consistent with the City of Oakland Pedestrian Master Plan. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-29	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *The City of Oakland Bicycle Master Plan | Road closures and other construction activities would restrict bicycle access, which would be inconsistent with the goals of the City of Oakland Bicycle Master Plan related to supporting increased neighborhood access and providing a network of safe and comfortable bikeways*.	The City of Oakland Bicycle Master Plan addresses new projects and programs to enhance existing communities and their mobility needs through actions such as increasing the supply of bicycle parking; designing bikeways that provide first and last mile connections to transit; and providing fix-it and hydration stations. The master plan does not address temporary bicycle facility closures due to construction. Any obstructions of bicycle access during project construction are temporary, and per APM TRA-1 and MM T-1a, PG&E will provide appropriate traffic controls during the temporary closures to protect bicycle access and safety. Per APM TRA-2, any road or bicycle infrastructure damaged during construction will be restored. The project is consistent with the City of Oakland Bicycle Master Plan. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-29	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *City of Oakland Complete Streets Policy | Road closures and other construction activities would restrict transit, bicycle, and pedestrian access, which would conflict with the purpose of the City of Oakland Complete Streets Policy of ensuring all streets can safely accommodate all users, including pedestrians, bicyclists, transit riders, and drivers, regardless of age or ability*.	The City of Oakland Complete Streets Policy addresses design, construction, and maintenance of a comprehensive transportation network that addresses the needs of all categories of users, including pedestrians and bicyclists. The policy does not address effects of temporary construction activities on access. APM TRA-1 and MM T-1a include appropriate traffic controls during the temporary road closures to provide for ongoing access, and APM TRA-2 includes restoration of any road or related infrastructure damaged during construction. The project is consistent with the City of Oakland Complete Streets Policy. PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-29	Table 3.15-3. Summary of Consistency with Programs, Plans, Ordinances, or Policies Addressing the Circulation System | *Policy 19.20 of the City of Piedmont General Plan Environmental Hazards Element | Road and lane closures would be required on designated evacuation routes. In addition, road closures and other construction activities would restrict transit, roadway, bicycle, pedestrian, and emergency access, which would be inconsistent with*	Policy 19.20 of the City of Piedmont General Plan Environmental Hazards Element is intended to ensure that design of development projects provides access for the Piedmont Fire Department, for example, entry into gated communities and adequate roads to critical infrastructure. It does not address temporary construction activities. Policy 19.30, however, does address temporary construction activities and calls for a Transportation Construction Plan to be approved by the City of Piedmont. APM TRA-1 and MM T-1a include preparation of a Traffic Management Plan, with local agency approval, to address the items such as provision of traffic controls listed in Policy 19.30.

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	the directives of the City of Piedmont General Plan, Environmental Hazards Element, Policies 19.20 and 19.30, and Transportation Element, Policy 10.4 of ensuring that the Piedmont Fire Department has complete access to all locations in the City; ensuring that emergency access and evacuation routes are not inhibited; and accommodating bicycles and improving connectivity.	Piedmont's Hazards Element lists complete routes, rather than individual roads, for evacuation. The project will include temporary lane closure on only one of Piedmont's major evacuation routes (Hampton Road to Estates Avenue to Park Boulevard). To evacuate residents in this area if and when a lane is temporarily closed for guard pole installation on Estates Avenue or Park Boulevard, or when Park Boulevard is temporarily closed for crane use, multiple alternate roads are available. For example, Hampton Road connects to other evacuation routes, such as Crocker Avenue to Mandana Avenue and LaSalle Avenue to Mountain Boulevard. Because two or more evacuation routes will be available during a temporary road closure at Estates Drive/Park Boulevard, and APM TRA-1 and MM T-1a will include a TMP consistent with Policy 19.30, the project is consistent with the City of Piedmont General Plan Environmental Hazards Element Policies 19.20 and 19.30. Policy 10.4 of the Transportation Element calls for accommodating bikes on Piedmont roads where feasible to improve connectivity with bike routes in other cities but does not address temporary construction activities; that is addressed in Policy 19.30 in the Environmental Hazards Element. Therefore, the project is consistent with the City of Piedmont Transportation Element Policy 10.4. For all these reasons, PG&E requests that the "Consistency" column be revised to delete "Inconsistent" and replace it with "Consistent."
3.15-28	Table 3.15-3	Manzanita Drive is not designated as evacuation route in the City of Oakland General Plan Transportation Element (refer to Figure SAF-13a). PG&E requests that Manzanita Drive is deleted from the list of designated evacuation routes for the City of Oakland on p. 3.15-28.
3.15-38	Paragraph starting "Project construction would not alter the road geometry…"	No road closure for crane use is planned for Park Boulevard Way. PG&E requests that Park Boulevard Way is deleted from the list of temporary road closures for crane use. In addition, temporary closure for crane use is expected for Glendora Avenue, which should be added to the list in the last sentence of this paragraph.
3.15-38	Paragraph starting "To reduce hazards from incompatible uses…"	Guard structures will be used on Saroni Court and Paso Robles Drive. In the last sentence of this paragraph, PG&E requests that Saroni Court and Paso Robles Drive are added to the list of roadways spanned by temporary guard structures.
3.15-46	Table 2.3-6 in Section 2.3.8.2 of the Project Description identifies six road segments where no secondary vehicle access is available because construction would occur on dead-end streets.	Table 2.3-6 lists four such roads with no secondary vehicle access. *Suggested correction*: Table 2.3-6 in Section 2.3.8.2 of the Project Description identifies <u>four</u> ~~six~~ road segments where no secondary vehicle access is available because construction would occur on dead-end streets.
3.15-54	**MM T-1a Traffic Management Plan and Safe Transport.**	Local jurisdictions and agencies may not have a method to approve a TMP outside of issuing an encroachment or traffic control permit. To enable PG&E's communication to CPUC of TMP preparation and review before construction, clarification on coordination is suggested.

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		Some of the agencies listed in MM T-1a are not expected to issue encroachment permits, including Alameda County (none of the project is in unincorporated Alameda County). Edits are suggested below to note that coordination with all listed agencies is not required. Additionally, obtaining approval of the TMP from local jurisdictions and agencies at least 1 month prior to construction is unlikely to align with typical processes of permits. The review often occurs during a road encroachment permit process. The permit may be issued right before construction is planned. Clarification on timing also is suggested. MM T-1a also states that the "TMP shall include measures for directing delivery and haul trucks away from sensitive receptor locations (e.g., residential neighborhoods, schools) and congested intersections during construction." Because many of the work areas are by necessity located in residential neighborhoods and near schools, it will not be reasonably feasible to avoid some locations and intersections. The TMP can identify routes that minimize driving of delivery and haul trucks through sensitive receptor locations as feasible. *Suggested revisions*: **MM T-1a. Traffic Management Plan and Safe Transport.** PG&E shall prepare a Traffic Management Plan (TMP) for review ~~approval~~ by local jurisdictions and agencies within the Project area at least 3 months prior to any construction activities requiring heavy vehicle and equipment traffic on public roadways or full or partial closure of public streets. Documentation of coordination with local jurisdictions and agencies issuing encroachment or traffic control permits will be provided to the CPUC prior to construction associated with the permit. Local jurisdictions and agencies may include ~~but are not limited to~~ Contra Costa County, Alameda County, City of Orinda, City of Piedmont, City of Oakland, EBMUD, EBRPD, ~~and~~ AC Transit, or others where appropriate. The TMP must be reviewed ~~approved~~ by local jurisdictions and agencies ~~at least 1 month~~ prior to construction, ~~with~~ which may occur separately from the approval process ~~expected to occur through~~ associated with the issuance of road encroachment or traffic control permits prior to construction. The TMP shall establish methods for minimizing construction effects on roadways, transit services, pedestrian facilities, and bicycle facilities; and address staging areas, haul routes, types of equipment anticipated to be used, timing of heavy equipment and material deliveries, workers and equipment parking, potential street or lane closures, alternative routes and detours, signing, lighting, temporary relocation or closure of bus stops, and traffic control device placement to minimize disruption and ensure safe and efficient traffic flow. The TMP shall include measures for directing delivery and haul trucks away from sensitive receptor locations (e.g., residential neighborhoods, schools) and congested intersections during construction, where reasonably feasible. The TMP shall also establish the timing and method for notifying emergency service providers regarding Project activities and

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		notifying the public, including wayfinding signage, regarding full or partial closure of public streets, detours, and alternative routes for various travel modes including relocated or closed bus stops. The Traffic Management Plan shall include a separate section entitled "Safe Transport." This section shall define the following components: • A list of all residences (by street address) that could have access blocked by construction equipment or activities and that have no alternate or secondary routes for entry or egress (see EIR Table 2.3-6). • A defined outreach effort (stating the frequency, method, and intended audience for outreach, such as the general public or a targeted community) that identifies one or more contacts within each household to define likely transport needs during the construction timeline, including consideration of family size and age (and whether car seats or pet carriers are needed), disability or special needs, and timing of typical daily ingress and egress needs. Based on the result of the outreach efforts, PG&E shall prepare transport plan and provide all requested transport during the construction activity. • A written communication plan to be provided to each affected household prior to the start of each week's construction that describes the anticipated daily construction activities, the specific location and type of activity, and the resulting constraints on household vehicle use.
3.15-55	References	Add a reference for the *Contra Costa Operational Area Emergency Operations Plan*. The Plan can be located at https://www.contracosta.ca.gov/DocumentCenter/View/7352/Emergency-Operations-Plan-2010-11?bidId=.
Tribal Cultural Resources		
3.16-8	**MM TCR-2a. Native American Monitoring**	PG&E looks forward to retaining a Confederated Villages of Lisjan Nation (CVLN) Tribal monitor(s) to support protection of Tribal Cultural Resources. PG&E will invite the CVLN Tribal monitor(s) to monitor ground-disturbance activities in areas with high sensitivity for buried Tribal Cultural Resources. PG&E will support CVLN discretion, in consultation with the CPUC, to reduce or discontinue monitoring based on field conditions observed. Tribal Cultural Resources monitoring distances typically are described being within 100 feet from areas with high sensitivity for buried Tribal Cultural Resources. For example, this distance is included in CPUC's Estrella Substation and Paso Robles Area Reinforcement Project Final Environmental Impact Report, Mitigation Measure TCR-1: Tribal Monitoring and Treatment of Tribal Cultural Resources. *Prior to the commencement of any ground disturbing activity, the Proposed Project Applicants (HWT and PG&E) shall retain a monitor from the Xolon-Salinan tribe, who consulted on this project pursuant to AB 52. The Xolon monitor will work in tandem with the archaeological monitor. The Xolon monitor will be present during construction phases that involve*

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		ground-disturbing activities to depths of 6 feet that may occur within 100 feet of Dry Creek, Huer Huero Creek, the Salinas River, and the Estrella River, all of which have been identified as culturally sensitive, or within 50 feet of all known Native American archaeological sites. Monitoring of ground disturbance would also occur in the vicinity of Santa Ysabel Ranch, which was identified as culturally sensitive for buried archaeological resources that could be TCRs by the tribe. Ground-disturbing activities are defined as activities that may include, but are not limited to boring, grading, grubbing, excavation, drilling, and trenching, within the project areas. The tribal monitor will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, and any cultural materials identified. Upon discovery of any TCRs, construction activities shall cease in the immediate vicinity of the find (not less than the surrounding 50 feet) until the find can be assessed. As such, PG&E proposes similar language for consideration in MOX DEIR MM TCR-2a below. If a field assessment finds the resource may qualify for listing, PG&E will likely avoid before evaluating. Evaluation usually happens only if avoidance is not reasonably feasible. As such, PG&E suggests clarification to replace the "NRHP/CRHR evaluation of inadvertent discoveries" with "an in-field assessment of potential significance by a qualified archaeologist." This clarification enables consistency with other APMs and MMs relating to inadvertent discoveries and doesn't assume evaluation is needed before assessment and avoidance where reasonably feasible. To avoid confusion with the Tribal monitor's authority to halt or redirect work, it is suggested that "halted" as in, *Monitoring may be reduced or "halted",* be replaced with "discontinued". *Suggested revisions to MM TCR-2a based on the above comments are as follows*: **MM TCR-2a. Native American Monitoring.** Prior to ground disturbing activities, a Confederated Villages of Lisjan Nation (CVLN) Tribal monitor(s) shall be retained to monitor all ground disturbing construction activity within 100 ~~500~~ feet of a current or historic creek channel. Confederated Villages of Lisjan Tribal monitor(s) will have the authority to halt and redirect work should any archeological or tribal cultural resources be identified during monitoring. If archeological or Tribal cultural resources are encountered during ground disturbing activities, work within 100 feet of the find must halt so that an assessment of its potential significance can be undertaken by a qualified archaeologist ~~and the find must be evaluated for listing in the CRHR and NRHP~~. Monitoring may be reduced or ~~halted~~ discontinued at the discretion of the CVLN monitor, in consultation with the lead agency, as warranted by soil conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of the entire area of ground disturbance. If monitoring is reduced to spot checking, spot checking shall occur when ground disturbing activities moves to a new location

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		within the Project site and/or when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).
Wildfire		
3.18-4	Page numbering	After page DEIR 3.18-4, the page numbering starts again at DEIR 3.18-1. Please correct. (References to page numbers in this table use the numbering shown in the DEIR).
3.18-10	One lane would be maintained open on Park Boulevard between Leimert Boulevard and Estates Drive during installation of the transition structures (TS27A/TS27B), so these structures are not included in Table 2.3-6.	The text should be clarified to state that one lane in each direction will remain open on Park Boulevard, as suggested below. *Suggested clarification*: One lane <u>in each direction</u> would be maintained open on Park Boulevard between Leimert Boulevard and Estates Drive during installation of the transition structures (TS27A/TS27B), so these structures are not included in Table 2.3-6.
3.18-12	Manzanita Drive – A two-lane road that connects Pinehurst Road from the southeast to Skyline Boulevard, Snake Road, and Colton Boulevard to the northwest.	Manzanita Drive is not a designated primary or secondary evacuation route in the City of Oakland's General Plan Safety Element and should be deleted from the list of primary evacuation routes and text at the bottom of page 3.18-12. *Suggested clarification*: ~~Manzanita Drive – A two-lane road that connects Pinehurst Road from the southeast to Skyline Boulevard, Snake Road, and Colton Boulevard to the northwest.~~ Work areas or guard structures would be located along several evacuation routes, which include ~~Manzanita Drive,~~ Skyline Boulevard, Shepherd Canyon Road, Mountain Boulevard, SR-13, <u>and</u> Park Boulevard, under the proposed Project. <u>Guard pole installation will not require full road closure.</u>
3.18-12	Snake Road – A two-lane road that runs east/west connecting Shepherd Canyon Road from the east to Mountain Boulevard to the west. This road also runs north/south connecting to Skyline Boulevard to the north.	The bullet should be clarified to note that Snake Boulevard is a designated evacuation route only between Mountain Boulevard and Shepherd Canyon Road and between Thornhill Drive and Skyline Boulevard. *Suggested clarification*: Snake Road – A two-lane road that runs east/west connecting Shepherd Canyon Road from the east to Mountain Boulevard to the west. This road also runs north/south connecting to Skyline Boulevard to the north. <u>Snake Boulevard is a designated evacuation route between Mountain Boulevard and Shepherd Canyon Road and between Thornhill Drive and Skyline Boulevard.</u>
3.18-13	Work areas or guard structures would be located along evacuation routes, which include Mountain	Estates Drive is designated by the City of Piedmont as an evacuation route, and it should be added to the list of work areas located along evacuation routes. *Suggested revision*:

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	Boulevard, SR-13, and Park Boulevard, under the proposed Project.	Work areas or guard structures would be located along evacuation routes, which include Mountain Boulevard, SR-13, Estates Drive, and Park Boulevard, under the proposed Project.
3.18-25	APM WFR-1 Construction Fire Prevention Plan	There is a mistake in the sub-bullets under *Procedures for fire reporting, response, and prevention that include*: The following are not sub-bullets and should be edited to be first-tier bullet points: • Coordination procedures with federal, state, and local fire officials and emergency responders, including notifications of temporary lane or road closures • Crew training, including the construction fire prevention practices described in APM WFR-2 • Method(s) for verifying that all plan protocols and requirements are being followed
3.18-27	As discussed in Section 3.18.1.6, several work areas and guard structures would be located on identified evacuation routes, including Park Boulevard, Manzanita Drive, and Skyline Boulevard.	Manzanita Drive is not a designated primary or secondary evacuation route in the City of Oakland's General Plan Safety Element. *Suggested revision*: As discussed in Section 3.18.1.6, several work areas and guard structures would be located on identified evacuation routes, including Park Boulevard, ~~Manzanita Drive,~~ and Skyline Boulevard.
3-18-39	**MM WF-1a Prepare Emergency Evacuation Plan**	PG&E requests the following revisions to MM WF-1a, as discussed in further detail in PG&E's comment letter. **MM WF-1a Prepare Construction Coordination Emergency Evacuation Plan.** At least 90 days before the start of construction on affected roadways, PG&E shall submit to the California Public Utilities Commission (CPUC) for review and approval a~~n~~ Construction Coordination Emergency Evacuation Plan that defines the following information: ▪ Documentation of coordination with each affected jurisdiction, and incorporation of each jurisdiction's requirements. ▪ Identification and mapping of all designated evacuation routes defined by jurisdictions in the Project area. Identification of an alternate route to be used for emergency egress for each temporary road closure proposed to a jurisdiction. Evacuation route signage shall be installed and updated on a regular basis as construction activity moves. The identification of alternate routes and the wording and placement of signage shall be based on each jurisdiction's identified evacuation routes and will be determined in coordination with the applicable jurisdiction. ~~This signage would identify "critical" and "non-critical" evacuation routes.~~

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		~~Critical evacuation routes are defined as evacuation routes that, if partially or entirely closed, would lead to an increase in evacuation times or blockage (dead-end). Non-critical evacuation routes are defined as short (less than 0.25 miles) evacuation routes that, if partially or entirely closed, would not affect evacuation times or road capacity.~~ ▪ Identification of all roads that will support any type of construction activity (including definition of construction vehicle access routes to all work areas). Maps and descriptions shall define the activity that would occur on each affected road (e.g., access only, parking, crane set-up, guard structure installation) and map the specific extent of each activity at an appropriate level of detail, including identification of all residential driveways. ▪ ~~For each location where a road would be blocked or impaired for any length of time, define an alternate route to be used for emergency egress. Detours shall be signed in the field.~~ ▪ Provide for CPUC review of draft notification letters, which, pursuant to MM N-1b, will be provided to all affected residents a least one month prior to the start of construction, including all residents, emergency service responders, and other affected local agencies that would use affected roads in an evacuation situation. Notification shall include information on detours and schedule of road closures and shall be coordinated with requirements of other mitigation measures (including MM N-1b). ▪ PG&E shall provide information of closures to the City of Oakland and the City of Piedmont to connect with Genasys Protect to provide real-time information on Project-related road closures to the public.
3.18-39	**MM WF-1b. Limit Construction Requiring Full Road Closures**	PG&E requests the following revisions to MM WF-1b, as discussed in further detail in PG&E's comment letter. **MM WF-1b. Limit Construction Requiring Full Road Closures.** In work areas requiring full road closures on ~~critical~~ jurisdiction-identified evacuation routes (identified in the construction coordination emergency evacuation plan prepared under MM WF-1a) of any length of time, ~~construction activities and~~ full closures shall occur between December 1~~15~~ and May 31~~February 28~~, when the risk of fire is generally the lowest. During National Weather Service Red-Flag Warnings, Fire Weather Watch events, and PG&E Fire Potential Ratings of R4, R5, or R5-Plus, full road closures of designated evacuation routes shall be prohibited until the warning or event has been lifted or expires.

Page	DEIR Language	Comments
		When construction is occurring on designated ~~critical~~ evacuation routes and partial road closures are required, at least one lane shall always remain open. ~~The lane(s) to remain open shall be the shortest route to the closest evacuation route, arterial road, or other major roadway.~~ Work is permitted year round on partial road closure segments. ~~On non-critical evacuation routes~~ Work is permitted year-round on roads that are not designated evacuation routes (identified in the emergency evacuation plan prepared under MM WF-1a) with full closures~~, work is permitted year round~~. Detours for these road closures shall have signage, and first responders shall be notified, in accordance with the emergency evacuation plan.
3.18-40 and 7-70	**MM WF-1c. School Session Construction Timing Restriction**	**Revisions to MM WF-1c School Session Construction Timing Restriction.** The schools in the vicinity of the project have widely varying operating hours. In addition, it is not standard to have measures specific to an alternative included in a project mitigation measure. Instead, the analysis of the alternative's impacts should discuss how the project mitigation measure could be applied. *Therefore, the following edits are recommended*. At least 30 days prior to planned construction of the underground rebuild segment of the Project, PG&E shall coordinate with all schools within 0.25 miles of underground power line installation to determine restricted hours of construction to avoid peak school traffic hours on weekday school days during the school year. Restricted hours shall generally avoid the one-hour period for morning drop-off and one hour period for afternoon pick-up ~~be between 7:30 a.m. and 8:30 a.m. and between 3:30 p.m. and 4:30 p.m.~~ or as otherwise determined by each school. ~~If Alternative 4 (Skyline-Ascot Underground Alternative) is selected, the construction of the underground segment along Ascot Drive between Scout Road and Mountain Boulevard shall not be constructed while school is in session at either Montera Middle School or Joaquin Miller Elementary School.~~
Chapter 4 – Alternatives		
4-9	This alternative cannot be installed entirely underground, because the easternmost segment of PG&E's Alternative C in Shepherd Canyon Drive is expected to be too steep, narrow, and sharply winding to allow installation of an underground line. This alternative would retain about 0.4 miles of overhead double-circuit line, in lieu of the 0.9 miles of PG&E's Alternative C potential undergrounding along Shepherd Canyon Drive east of Saroni Drive.	This statement does not accurately describe PG&E's Alternative C; that alternative does not extend east of Saroni Drive. Perhaps this discussion is meant to reference DEIR Shepherd Canyon Underground East of Saroni Drive Alternative (see DEIR Section 4.4.3.3). *If so, the following clarifying edits are suggested*: This alternative cannot be installed entirely underground, because the easternmost segment of ~~PG&E's Alternative C in~~ Shepherd Canyon ~~Drive~~ Road is expected to be too steep, narrow, and sharply winding to allow installation of an underground line. This alternative would retain about 0.4 miles of overhead double-circuit line, in lieu of the 0.9 miles of DEIR Shepherd Canyon Underground East of Saroni

Page	DEIR Language	Comments
		Drive Alternative ~~PG&E's Alternative C potential undergrounding~~ along Shepherd Canyon Drive east of Saroni Drive.
4-10	From the transition station on Manzanita Drive, the conductors would be installed underground in Manzanita Drive for approximately 0.25 miles southeast to the Shepherd Saddle. From the Shepherd Saddle, the underground alignment alternative would turn south and follow Skyline Boulevard for approximately 1.3 miles, where it would turn southwest into Ascot Drive.	Consider using a term other than "Shepherd Saddle" to describe road intersection of Shepherd Canyon Road, Skyline Boulevard, Manzanita Drive, and Pinehurst Road. *Please consider this clarifying edit*: From the transition station on Manzanita Drive, the conductors would be installed underground in Manzanita Drive for approximately 0.25 miles southeast to its intersection with Skyline Boulevard, Shepherd Canyon Road, and Pinehurst Road ~~the Shepherd Saddle~~. From this intersection ~~the Shepherd Saddle~~, the underground alignment alternative would turn south and follow Skyline Boulevard for approximately 1.3 miles, where it would turn southwest into Ascot Drive.
4-13	PG&E defined this alternative as differing from the proposed Project by removing one of the four existing circuits and taking that circuit to the Claremont Substation.	PG&E proposes clarifying edits on the scope of the PG&E alternative as follows: PG&E defined this alternative as differing from the proposed Project by removing one of the four existing circuits and also reconductoring the approximately 3-mile Moraga–Claremont Circuits 1 and 2 115 kV lines ~~taking that circuit~~ to ~~the~~ Claremont Substation.
4-28	**Alternative 4: Skyline-Colton-Snake Underground Alternative** would require the Manzanita Transition Station and *either* the Scout or Ascot Transition Poles.	The alternative name contains a minor error. *Suggested correction*: **Alternative 4: Skyline-~~Colton-Snake~~ Ascot Underground Alternative** would require the Manzanita Transition Station and *either* the Scout or Ascot Transition Poles.
4-37	PG&E has committed to implementation of APM GEO-3 (Site Specific Landslide Assessment). With this APM, PG&E would identify and implement appropriate design measures if specific the underground power line routes were found to result in the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	The Site Specific Landslide Assessment is APM GEO-2, not APM GEO-3. In addition, APM GEO-2 applies only to two overhead alignment poles. It would not address issues with slope stability and underground power line routes. As discussed in the DEIR (page 4-27), exploratory data from geotechnical investigations, including extensive boring samples, would be needed from each landslide along the alternative routes. This is far beyond the scope of APM GEO-2. PG&E requests that this paragraph is deleted.
4-44	While Skyline Boulevard north of the Skyline Transition Pole does show evidence of slope movement both above (northeast of) and below (southwest of) the roadway, the roadway itself is in good condition, showing little evidence of slope movement. There are 15-20 homes on the downslope side of the road. Geotechnical studies would be required, but with the trench installed on the upslope (northeast) side of the road, the road is considered to be safe for an underground system. Based on this	Visual inspection is not sufficient data to determine potential for slope movement and design needed to meet safety requirements. Soil boring data and additional design could show that underground installation is not feasible in this location without retaining walls or other structural support. In addition, existing utilities and soil conditions may preclude installation in a specific part of the road. Without data from geotechnical studies the conclusion that "the road is considered to be safe for an underground system" is not supported. PG&E requests that the three sentences quoted here are deleted.

Page	DEIR Language	Comments
	assessment, the operation of this alternative would have a less than significant impact.	
4-48	The Skyline Gates Staging Area,[49,50] also called the Sibley Volcanic Regional Preserve Staging Area, is a large parking lot adjacent to Skyline Boulevard at about 8490 Skyline Boulevard in Oakland. This popular staging area provides access to a number of well-used trails in the East Bay Regional Parks (EBRP) system via the East Bay Skyline National Recreation Trail (Wildcat to Lake Chabot).	*Suggested clarification on EBRPD names and locations*: The Redwood Regional Park Skyline Gate~~s~~ Staging Area,[49,50] ~~also called the Sibley Volcanic Regional Preserve Staging Area,~~ is a large parking lot adjacent to Skyline Boulevard at ~~about~~ 8490 Skyline Boulevard in Oakland. This popular staging area provides access to a number of well-used trails in the East Bay Regional Park~~s~~ District (EBRPD) system via the East Bay Skyline National Recreation Trail (Wildcat to Lake Chabot).
4-62	As illustrated in Figures 4.3-5 and 4.3-6, Alternatives 2 and 3 would replace proposed Project Structures RS13/RN13 through RS19/RN19.	*Suggested revision*: As illustrated in Figure~~s~~ 4.3-5 ~~and 4.3-6~~, Alternative~~s~~ 2 ~~and 3~~ would replace proposed Project Structures ~~RS13/RN13~~ RS11/RN11 through RS19/RN19, with new transition poles at Fire Station Transition Station connecting with the underground alternative segment. As illustrated in Figure~~s 4.3-5 and~~ 4.3-6, Alternative~~s 2 and~~ 3 would replace proposed Project Structures RS13/RN13 through RS19/RN19, with new transition poles at Fire Station Transition Station connecting with the underground alternative segment.
Chapter 7 – Mitigation Monitoring and Reporting Plan		
7-5	Procedures to be followed by construction companies engaged to do the work would be written into their contracts with PG&E. Procedures to be followed by construction crews would be written into a separate agreement that all construction personnel would be asked to sign, denoting consent to the procedures.	Individual affirmation of procedures by all involved in the project construction is infeasible to implement. *Suggested revisions*: Procedures to be followed by construction companies engaged to do the work would be written into their contracts with PG&E. ~~Procedures to be followed by construction crews would be written into a separate agreement that all construction personnel would be asked to sign, denoting consent to the procedures.~~
7-5	These monitors provide daily reports/surveys that are entered into PG&E's field record environmental database (FRED) system. It is assumed that FRED or a similar database would be employed on this project.	FRED is SCE's system. *Suggested revision*: These monitors provide daily reports/surveys that are entered into PG&E's field record environmental database ~~(FRED)~~ system. ~~It is assumed that FRED or a similar database would be employed on this project.~~
7-22	Monitoring/Reporting Action: PG&E to stop construction activity upon discovery of AWS until relocation	Stopping construction activity should be limited to the work area with the AWS. *Suggested revision*: Monitoring/Reporting Action: PG&E to stop construction activity in work area upon discovery of AWS until relocation from work area

Page	DEIR Language	Comments
7-58	APM PAL-1 Effectiveness Criteria: Paleontological Principal Investigator is present during construction activities	Modify the Effectiveness Criteria to align with the APM. *Suggested revision*: Paleontological Principal Investigator is ~~present~~ retained during construction activities
7-59	APM PAL-4 Monitoring/Reporting Action: PG&E to implement discovery produces	Correct typo in Monitoring/Reporting Action: PG&E to implement discovery ~~produces~~ procedures
7-62	MM T-1a Location: All construction and O&M areas requiring heavy vehicle and equipment traffic on public roadways	The mitigation measure is a construction Traffic Management Plan and does not include O&M. *Suggested revision*: Location: All construction ~~and O&M~~ areas requiring heavy vehicle and equipment traffic on public roadways.
7-64	MM TCR-2a Location	*Suggested revision:* All ground disturbing construction activity within 100 ~~500~~ feet of a current or historic creek channel.
7-64	MM TCR-2a Effectiveness Criteria	*Suggested revision*: CVLN monitor onsite at their discretion
7-64	MM TCR-2a Timing	*Suggested revision*: Prior to and during construction ground disturbing activities
7-70	MM WF-1c, Alternative 4 implementation. If Alternative 4 (Skyline-Ascot Underground Alternative) is selected, the construction of the underground segment along Ascot Drive between Scout Road and Mountain Boulevard shall not be constructed while school is in session at either Montera Middle School or Joaquin Miller Elementary School.	Restricting construction to times when the schools are not in session would effectively limit construction in this area to weekends or school breaks. This restriction would likely increase the overall length of intermittent construction in this length of roadway. PG&E requests this sentence is deleted.

Attachment 2
InfraTerra Landslide Study (PEA Appendix E4)

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Attachment 2 is 680 MB and provided separately.

Attachment is available publically at https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/pea/Appx_E4_PEA_MOX_Landslide_Report.pdf

Appendix E4. Landslide Evaluation

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MORAGA-OAKLAND X

Landslide Hazard Evaluation

InfraTerra, Inc

July 22, 2024

EXECUTIVE SUMMARY

This report summarizes results of mapping of landslide and associated erosion hazards for existing and proposed replacement structures along existing electrical power lines that connect Moraga Substation with Oakland X Substation. The corridor evaluated for this study extends northeast approximately 5 miles from Oakland to Moraga, Alameda and Contra Costa Counties.

Results of this desktop study include a digital inventory of landslides and potentially related surface erosion features for evaluation of proposed alignments and related structures for the underground and aboveground portions. Desktop interpretation of lidar and aerial imagery for this project, validated by field reconnaissance, confirms the presence of numerous landslides along the central and eastern sections of the project corridor. Field reconnaissance documented the absence of active slope failure extending beneath existing and proposed aboveground structure locations.

No active or potentially landslides are identified extending beneath the existing or proposed towers. The towers are located on intact ground with no evidence of recent undercutting or encroachment from slides lower on the slope. However, several proposed tower locations are located uphill of active or pre-historic/older slides. These locations are not considered to be exposed to significant long-term hazard from uphill migration of these slides towards the towers but additional characterization may be warranted.

The proposed underground portion along Park Boulevard southwest of Leimert Boulevard does not cross any mapped slides. A landslide inferred by CGS at the intersection of Park Boulevard with Estates Drive, near proposed transition structure for Circuit 1 and crossed by the underground portion of the northern line, appears to either not be expressed in the current topography or have been repaired as part of construction of the Park Boulevard roadway. Additional site-specific evaluation may be necessary to confirm the absence of a long-term hazard.

Thirty-six (36) erosion sites in the vicinity of the towers and along the proposed underground portion were identified and mapped based on interpretation of available lidar and aerial imagery, confirmed where accessible during the field reconnaissance. These potential erosion sites generally consist of hillside gullies, incised slope erosion, and creek or drainage crossings. These generally have minimal potential for immediate impact to the existing or proposed towers.

Tables

Photos:

Figures:

1.0 INTRODUCTION

This report presents maps of landslide and erosion hazards for existing and proposed structures along existing electrical power lines and proposed replacement that connect Moraga Substation with Oakland X Substation (Figure 1). The corridor evaluated for this study extends northeast approximately 5 miles from Oakland to Moraga in Alameda and Contra Costa Counties. The proposed project traverses complex bedrock geology within rugged terrain of the Oakland hills including faulted bedrock along the Hayward fault located adjacent to Highway 13 (Figure 1).

1.1. *Purpose*

The purpose of this desktop study is to evaluate landslide hazards along existing electrical power lines and proposed replacement connecting Moraga Substation with Oakland X Substation. Results of this desktop study identify landslide and potentially surface erosion features to help in the evaluation the hazards for both the underground and aboveground replacement portions.

1.2. *Scope of Work*

This evaluation performed by Christopher Hitchcock, Certified Engineering Geologist (C.E.G. 2017), supported by Brian Kessler (InfraTerra Staff Geologist), is based on a review of pertinent geologic and seismologic literature, soil survey maps, and aerial imagery. Our reconnaissance-level assessment included driving or walking each existing and proposed project to verify mapped landslide and erosion features and document recent slope failures not captured on available aerial and lidar imagery. Specifically, this study included the following tasks:

- Compilation of available geologic information;
- Preparation of GIS-based derivative slope, hillshade, and contour maps from lidar datasets;
- Desktop mapping of landslide and erosion features;
- Field reconnaissance; and,
- Preparation of this report.

1.3. *Data Sources*

Documented below are the data sources used to evaluate landslide hazards for the power line corridor. Geographic information systems (GIS) technology enables numerical- based mapping of natural hazards, including landslide susceptibility. Available digital geologic and soils data have been evaluated using ESRI ArcGIS® software (version 10.8.2) with the 3D Analyst™ and ArcGIS® Spatial Analyst™ extensions. We have incorporated various geologic and geohazards layers through the integration of existing regional geologic mapping (50,000 scale) combined with available digital hazard data and performing analysis of available satellite imagery (Table 1-1).

Lidar data downloaded, processed, and reviewed for this study was obtained from the online USGS National Map and consisted of lidar point cloud data collected and processed in 2006, 2007 and 2018 (Table 1-1). The 'Hillshade' tool within ArcGIS® Spatial Analyst was used for different illumination source angles to create shaded relief maps from the lidar-derived bare-earth surface raster. Slope generally is the dominant factor controlling whether a slope failure can occur regardless of the susceptibility to failure (e.g. consolidation, saturation or direction of bedding planes) of the geologic unit. The 'Slope' tool within ArcGIS® 3D Analyst™ was used to calculate and depict slope

(gradient, or rate of maximum change in z-value) from each cell of the lidar rasters.

Assessment of conditions and potential geologic hazards included desktop compilation and analyses of available geologic and soil data, and satellite imagery in Google Earth. For this study, initial screening of slope stability was based on landslide inventories developed by the California Geological Survey (2003a, 2003b) and statewide landslide susceptibility hazard maps (Wills et al., 2011).

Compiled bedrock geologic mapping by Graymer (2000) of the corridor was incorporated in the landslide mapping (Figure 1). Non-digital geologic mapping by Radbruch (1957; 1969) also provide useful information on engineering properties of bedrock along the project extent. Soils reviewed for this study, published by the Natural Resources Conservation Service of the U.S. Department of Agriculture (USDA), were obtained digitally from the Soil Survey Geographic (SSURGO) database. The landslide hazard maps accompanying this report incorporate mapped landslides and erosion features within GIS layers (ESRI shapefile format) in UTM Zone 10 North on the North American Datum of 1983 (NAD83) coordinate system.

Table 1-1: Data Sources Used in Landslide Mapping

Digital and Non-Digital Data	Data Source
Lidar-derived Digital Elevation Models from point cloud datasets	USGS Seamless: USGS Lidar Point Cloud CA_ALAMEDACO_2006 USGS Lidar Point Cloud CA_CONTRACOSTACO_2007 USGS Lidar Point Cloud CA_NoCAL_3DEP_Supp_Funding_2018_D18 Various PG&E lidar datasets (2007 through 2022)
50,000 scale geologic mapping	Compilation by USGS (Graymer, 2000): Radbruch (1957; 1969)
Landslide inventory	Statewide California Geological Survey database compiled from CGS (2003a, 2003b)
Landslide susceptibility hazard (Map Sheet 58)	California Geological Survey (Wills et al., 2011)
Digital aerial imagery	USGS National Agriculture Imagery Program (NAIP) M_3712215_ne/nw/sw (10-25-2017)
Surficial soil data	Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database

Satellite imagery of the area from Google Earth was compared against historic aerial photographs to detect areas of slope change over time. Digital scans of historic aerial photographs were obtained from the University of California Santa Barbara (UCSB) aerial photography library. Available relevant imagery ranging from 1939 through 1965 was interpreted for this study (Table 1-2). More recent digital NAIP Plus imagery (2016) overlain within GIS provided more recent information on slope conditions (Table 1-1).

Table 1-2: Aerial Photographs Interpreted for This Study

Flight	Date	Scale	Photo Numbers	Type
C-5750	8-2-1939	1:20,000	289-44, -45, -46	Black and White, vertical angle
BUU-1950	6-10-1940	1:20,000	344-63, -64	Black and White, vertical angle
GS-CP	10-28-1946	1:23,600	6-38, -39	Black and White, vertical angle
CAS-65-130	5-12-1965	1:12,000	7-27, -28, -29	Black and White, vertical angle

As part of geologic data compilation for seismic hazard zonation of the western project area, CGS (2003a; 2003b) prepared an inventory of existing landslides in Oakland based on review of previously published landslide mapping, analysis of stereo-paired aerial photographs, and limited field reconnaissance. Landslides were mapped at a scale of 1:24,000 with the completed mapping scanned, digitized, and attributes compiled in the statewide CGS landslide database. The CGS landslide inventory has been incorporated as part of this study and updated with more detailed (1:2,400-scale) landslide mapping using more recent aerial and lidar imagery.

For preparation of the CGS landslide inventory, previously published geologic mapping that included delineation of landslides was compiled and reviewed including mapping by Lawson (1914), Louderback (1951), Radbruch (1957, 1969), Taylor and Brabb (1972), Nilsen (1973a, 1973b, 1975), Blake and others (1974), Nilsen and others (1976), and Graymer and others (1996). Landslide features identified from these sources were reevaluated during the aerial photograph interpretation and limited field reconnaissance conducted by CGS (2003a; 2003b). The landslide inventory also included review of records of historical landslide occurrences that were in the files of the City of Oakland. For this study, the source geologic references cited above, and within the reference section of this report, were re-evaluated and incorporated along with the CGS landslide mapping. Landslides originally mapped by CGS (2003a, 2003b) are shown on detailed landslide maps prepared for this study (Figures 3 through 12).

2.0 CORRIDOR GEOLOGY

Bedrock and surficial deposits along the electrical corridor and proposed underground portion have been mapped by Case (1968), CGS (2003a), Dibblee and Minch (2005), Radbruch (1969), Graymer (2000), Graymer et al. (1994, 1997a/b, 1998), Helley et al. (1972), Helley and Graymer (1997a and b), Knudsen, et al. (1997 and 2000), Witter, et al. (2006), Wagner et al. (1991), and Ellen and Wentworth (1995). The bedrock geologic map prepared by Graymer (2000) provides the most comprehensive digital mapping covering the project area and is included as Figure 1.

2.1. *Geologic Units*

The susceptibility to slope failure along the corridor is controlled largely by the nature of the underlying bedrock and alluvial deposits, shown on Figure 1. Table 2-1 provides a general overview of the relative potential for landsliding (low to high) for bedrock and alluvial units along the project

corridor based on the density of existing mapped landslides within each unit and inferred shear strength from laboratory test data compiled by CGS (2003a, 2003b). CGS (2003a, 2003b) have classified bedrock formations along the corridor based on shear strength differences between coarse-grained (higher strength) and fine-grained (lower strength) lithologies. Formations which contain interbedded sandstone and shale were further subdivided based on the stratigraphic and material strength characteristics related to favorable and adverse bedding orientation, as determined from structural and terrain data. Generally coarse-grained material strength dominates where bedding dips into a slope (favorable bedding) while fine-grained material strength dominates where bedding dips out of a slope (adverse bedding).

Table 2-1: Description of geologic units and vulnerability to slope instability (from west to east)

Geologic Unit	Map Symbol	Description	Landslide Potential	Corridor Sections
Alluvial fan and fluvial deposits (Pleistocene)	Qpaf/Qpof	Brown, dense, gravely and clayey sand or clayey gravel that fines upward to sandy clay.	Low	Oakland X Substation; Western part of underground portion and western aboveground
Sandstone of the Novato Quarry terrane (Late Cretaceous)	Kfn	Distinctly bedded to massive, fine- to coarse-grained, mica-bearing, lithic wacke.	High	Eastern part of the underground portion and western aboveground
Franciscan complex mélange (Cretaceous and/or Late Jurassic)	KJfm/fs	Sheared argillite and graywacke with minor tuff, Includes blocks of meta-graywacke (unit fs), chert (fc), greenstone (fg) and serpentinite (sp)	High	Highway 13 corridor crossing
Undivided Franciscan complex rocks (Cretaceous and Jurassic)	Kjfm	Sheared and metamorphosed graywacke, shale, mafic volcanic rock, chert, ultramafic rock, limestone, and conglomerate.	High	Highway 13 corridor crossing
Coast Range ophiolite (Jurassic)	Jb	Massive basalt and diabase.	Moderate	East of Highway 13
Keratophyre and quartz keratophyre (Late Jurassic)	Jsv	Highly altered intermediate and silicic volcanic and hypabyssal rocks.	Moderate	East of Highway 13
Joaquin Miller Formation (Late Cretaceous)	Kjm	Thinly bedded shale with minor sandstone.	High	East of Highway 13

Geologic Unit	Map Symbol	Description	Landslide Potential	Corridor Sections
Oakland Conglomerate (Late Cretaceous)	Ko	Massive, medium- to coarse-grained, biotite and quartz-rich wacke and prominent interbedded lenses of pebble to cobble conglomerate.	Low	East of Highway 13
Shephard Creek Formation (Late Cretaceous)	Ksc	Distinctly bedded mudstone and shale, mica- rich siltstone, and thin beds of fine-grained, mica-rich wacke.	High	East of Highway 13
Redwood Canyon Formation (Late Cretaceous)	Kr	Distinctly bedded, cross-bedded to massive, thick beds of fine- to coarse-grained, biotite- and quartz-rich wacke and thin interbeds of mica-rich siltstone.	Moderate	Shepherd Canyon
Unnamed glauconitic sandstone (Paleocene)	Ta	Coarse-grained, green, glauconite-rich, lithic sandstone interbedded with mudstone.	Moderate	Shepherd Canyon
Unnamed mudstone (Eocene)	Tes	Green and maroon, foraminifer-rich mudstone, locally interbedded with hard, distinctly bedded, mica-bearing, quartz sandstone.	High	Shepherd Canyon
Unnamed glauconitic mudstone (Miocene and Oligocene(?))	Tsm	Brown mudstone interbedded with sandy mudstone containing prominent glauconite grains	Moderate	Shepherd Canyon
Claremont chert (late to middle Miocene)	Tcc	Laminated and bedded chert, minor brown shale, and white sandstone.	Low	San Leandro Creek crossing
Orinda Formation (late Miocene)	Tor	Distinctly to indistinctly bedded, nonmarine, pebble to boulder conglomerate, conglomeratic sandstone, coarse- to medium-grained lithic sandstone, and green and red siltstone and mudstone	High	Moraga Hills
Moraga Formation (late Miocene)	Tms	Interflow sedimentary rocks	High	Uphill of Moraga Substation
Siesta Formation (late Miocene)	Tst	Nonmarine siltstone, claystone, sandstone, and minor limestone	High	Moraga Substation

The western section of the Moraga-Oakland X power line corridor, starting at Oakland X Substation, is located on older alluvial fan deposits (geologic units Qpaf and Qpoaf; Figure 1). These deposits typically consist of clayey sand near the surface with clayey to sandy gravel at depth. Landslides are present on steeper slopes, but failures typically are infrequent and shallow consisting of debris flows and slumps (Figures 11 through 12). Hazards are greatest in areas of shallow groundwater or sources of uncontrolled surface drainage.

In the section of the corridor along Sausal Creek, west of Highway 13, bedrock of the Franciscan Complex (geologic units Kfh, KJf, KJfm, and fs) underlies the corridor. Both aboveground and underground portions cross bedded to massive fine- to coarse-grained sandstone (unit Kfh) that locally is prone to deep-seated slides. The steep banks of Sausal Creek are mantled by numerous older, potentially active slides that locally have been remobilized as shallower debris and earth flows (Figures 9 and 10).

Complex slivers of sheared and faulted bedrock (units Jb, fs, sp, Kjm and Ko) are present along the Hayward fault at the Highway 13 corridor crossing. These bedrock materials of the Oakland Conglomerate, Redwood Canyon, and Joaquin Miller Formations can have highly variable physical properties and susceptibility to landsliding (Table 2-1). Along Shepherd Canyon and east to San Leandro Creek, unnamed sandstone and mudstone units are highly prone to landslides with the exception of the more resistant Claremont Chert (unit Tcc; Figure 1). The eastern section of the corridor, including Moraga Substation, is underlain by sedimentary rocks of the Siesta, Moraga, and Orinda formations (Units Tst, Tms, and Tor; Figure 1), all of which are highly susceptible to slope failure.

3.0 LANDSLIDE HAZARDS

Geologic hazards with potential impact to the above and below-ground portions of the project, including along the corridor and underground replacement portion, consist primarily of slope failures which often are associated with areas of active slope erosion. Slope failures occur most frequently during and following the rainy season when high groundwater (elevated pore pressure) conditions persist. Landslides can also occur during or following during earthquakes, triggered by the strain induced in soil and rock by the ground shaking vibrations, or following significant rainfall events.

Earthquakes with magnitudes greater than about M_w4 can trigger landslides on susceptible slopes, and earthquakes greater than about M_w6 can generate widespread and large landslides (Jibson, 1993). The types of slope failure that are most commonly triggered by strong ground shaking include rock falls and topples in jointed hard rock, debris and rockslides in weathered bedrock, and translational/rotational slumping and sliding of hillslopes and stream banks.

The susceptibility of hillslopes to landslides is based on the field-verified observation that slope failures are rare on flat-lying areas, even in weak materials, and that landslide susceptibility increases with steeper slope and in weaker rocks. Landslide inventory mapping performed for this study provides a basis for determining the most likely locations for future shallow and deep-seated slope failure based on identification of past and current slope movement.

3.1. *Mapping Procedures*

Available lidar data and aerial imagery along the corridor were interpreted for this study with detailed landslide mapping conducted at 1:2,400-scale. Processing of available corridor lidar was first completed to create Digital Elevation Model (DEM) datasets. Mapping included assessment of the current conditions and evaluation of existing landslides centered along the existing power line corridor, as well as the underground portion. Figure 2 provides an index map of the detailed maps sheets along the project corridor. Maps of identified potentially active landslides identified on lidar for this study include Figures 3 through 12.

For this project, landslide features were mapped based on morphologic expression in lidar-derived topographic maps (e.g., crown scarps, evacuated drainages); tonal contrasts and appearance observed in aerial imagery; and review of available maps and publications of historic landslides. Mapping of landslides included identification of associated topographic features, such as concave slope (closed) depressions, steep or vertical scarps, shear zones located along the flanks of a landslide, and transverse ridges, snouts, and toes (Turner and Schuster, 1996). Recognizing these topographic features allows identification of landslides with a high level of certainty.

Mapped slope failures within the geodatabase include evaluation of:

(1) Slide activity (active, historic to pre-historic, older (potentially active));

(2) Interpretation certainty (definite, probable, questionable);

(3) Slope movement process (e.g., slump, earthflow, translational slide, rock fall); and,

(4) Estimated slide thickness.

The landslide inventory mapping performed for this study includes development of tabular GIS data that records the location, type, inferred activity, confidence in identification, and inferred depth of

each slope failure identified along the electrical power line corridors. This information is provided in numerical form for individual slope failure polygons, as shown on the inventory map legend for each map sheet (e.g., Figures 3 through 12).

The first number in the landslide inventory database provides the state of activity for the slope failure. Activity of the landslide is classified as active, historic to pre-historic, or older and potentially active (likely Quaternary age) based on the freshness of landslide features and amount of erosion. Recency of failure typically is estimated based on erosion of the headscarp and failure margins and the degree of vegetation within the failure. Potentially active describes landslides with no obvious historic movement but evidence of a landslide mass that could be reactivated under the right conditions.

The second landslide inventory number provides the certainty of identification (e.g., definite, probable, or questionable). The third number refers to the inferred thickness of landslide deposits. These estimated thicknesses are based on evaluation of the type of landslide, height of the slide headscarp, and field observations. For example, soil slumps and earth flows along the power line corridor and underground portion are typically shallow (less than five feet thick), while slumps and translational slides typically are more than ten feet thick, and deeper-seated slides over 15 feet thick.

The fourth number denotes the dominant type of movement of the slope failure. Classification of the types of slope failures mapped along the power line corridor is based on the scheme developed by Varnes (1978), which encompass a range of mass movements including rock falls, debris flows, earth slides, and other mass movements. The dominant type of movement for each slide is assigned to the following:

(1) Soil slip/earth flow

(2) Debris slide, including rock and talus fall

(3) Debris flow

(4) Slump/rotational slide

(5) Translational slide

Desktop interpretation of lidar and aerial imagery for this project, validated by field reconnaissance conducted in September and October of 2023, confirms the presence of numerous landslides along the central and eastern sections of the project corridor (Figures 3 through 10). Recent slope failures identified in the field, but not captured on available aerial photography and lidar imagery, were added to the landslide inventory database developed for this project. For example, a recent soil slip along Trestle Glen Road located along the overhead corridor was identified and mapped (Photo 1).

Relatively few slides are mapped in the vicinity of the underground portion and existing towers that connect Oakland X Substation to the proposed transition structure for Circuit 1 at the intersection of Park Boulevard and Estates Drive.

Photo 1: View southwest of recent shallow soil slip along overhead corridor on south side of Trestle Glen Road (See Figure 10 for location).

3.2. *Landslide Hazards to Above Ground Structures*

No landslides are identified extending beneath proposed aboveground structures. Several proposed locations are located near active or pre-historic/older slides, with the structures typically located uphill from mapped landslides. Locations with nearby slides that could potentially extend uphill toward structures include existing northern (EN) line structure EN8 and proposed replacement northern (RN) line structure RN8 (Figure 4), ES10 and proposed RS9 (Figure 5), ES19 and RS16 (Figure 7), and ES22 (Figure 8). Although considered low risk, additional site-specific evaluation may be prudent to confirm the absence of a long-term hazard. However the locations mentioned above are on intact ground with no evidence of recent undercutting or active encroachment from the slides lower on the slope.

CGS (2003a) mapped a large landslide extending beneath Park Boulevard just east of the intersection with Estates Drive (see Figure 10). This slide appears to have been identified based on interpretation of historic aerial imagery and was not confirmed as part of our review of lidar and aerial imagery. The mapped eastern margin of the slide mapped by CGS is located adjacent to, but not extending under, RN26 and RS26. The existing and proposed structures are located east of the slide margin and therefore not considered at risk from the slide, if present.

3.3. *Landslide Hazards to Underground Portion*

Relatively few, generally shallow slides are mapped in the vicinity of the underground portion. Along Park Boulevard southwest of Leimert Boulevard do not cross any mapped slides (Figures 10 through 12). A landslide inferred by CGS at the intersection of Park Boulevard with Estates Drive, near proposed transition northern line structure TN27A for Circuit 1 (Figure 10), crossed by the northern underground line appears to either not be expressed in the current topography or repaired as part of construction of the Park Boulevard roadway. Additional site-specific evaluation may be necessary to confirm the absence of a long-term hazard.

4.0 EROSION HAZARDS

Potential erosion hazards typically exist where undergrounds lines are located beneath ephemeral or perennial stream channels or topographic swales that may flood during rainstorms or near active gullies on hillslopes. Damage to tower foundations may occur from vertical channel incision (downcutting) from concentrated erosion or from lateral erosion, either during individual storms or as the result of gradual long-term channel scour or widening. Other less common erosion-related features include sinkholes or collapse features that can occur from subsurface piping or soil compaction/dissolution.

4.1. *Mapping Procedure*

The susceptibility of a channel bed or hillside gully to erosion depends on the frequency and magnitude of storm runoff, stream channel or hillside gradient and dimensions, watershed area, geologic materials, and presence of features that may focus concentrated channel or overland flow with high velocities, and land-use practices. Hazards from erosion typically are a function of both hillslope and fluvial processes, and therefore slope stability (landslide) and stream scour hazards may overlap and be interrelated.

The first number in the erosion database provides the state of activity for the slope failure. Activity of each erosion site is classified as ongoing (active), during major rainfall/flood events only, or dormant or repaired based on the freshness of erosion features. The second erosion inventory number provides the certainty of identification (e.g., definite, probable, or questionable).

The third number refers to the inferred hazard to the alignment including high (potential for immediate impact), moderate (no immediate impact), or low (minimal potential for impact).

The fourth number denotes the type of erosion hazard. The dominant types of erosion include:

(1) Fluvial erosion

(2) Scour

(3) Undercutting

(4) Hillslope erosion

(5) Gullying/headward erosion

4.2. *Erosion Hazards*

Thirty-six (36) erosion sites were identified and mapped based on interpretation of available lidar and aerial imagery, confirmed where accessible via field reconnaissance (Figures 3 to 12). These potential erosion sites generally consist of hillside gullies, incised slope erosion, and creek or drainage crossings with generally minimal potential for immediate impact to aboveground structures. The main concern is headward erosion within gullies located downslope of towers and erosion or undercutting, with associated slope failure, of roadways proposed for underground portion.

Several locations along the proposed aboveground and underground portions have an elevated level of impact of moderate erosion hazard. Of these locations, none significantly impact proposed aboveground structure locations. Location #4 located downslope of ES3 and RS3 consists of gullying and is related to incipient slope instability (Location #3; Figure 3). Location #31 consists of gullying extending uphill near EN23 and RN21, west of Mountain Blvd and may be related to incipient slope instability (Location #31; Figure 8).

Slope erosion (Erosion Site #28) identified downhill of the intersection of Park Boulevard with Estates Drive, near proposed TN27A for Circuit 1 (Figure 10), is a potential minor hazard to northern underground line if the inferred slide mapped by CGS is present.

5.0 SUMMARY AND RECOMMENDATIONS

Desktop interpretation of lidar and aerial imagery for this project, validated by field reconnaissance, confirms the presence of numerous landslides along the central and eastern sections of the project corridor. Field reconnaissance conducted in September and October, 2023, confirmed the absence of active slope failure extending beneath existing and proposed surface tower locations.

Overhead Replacement Portion

No landslides are identified extending beneath proposed aboveground replacement towers with the structures located on intact ground with no evidence of recent undercutting or encroachment from the slides lower on the slope. Several proposed aboveground tower locations are located uphill of active or pre-historic/older slides. These locations with nearby slides that could potentially extend uphill toward towers include EN8 and RN8 (Figure 4), RN9 and RS9 (Figure 5), ES19 and RS16 (Figure 7), and ES22 (Figure 8). Additional site-specific evaluation may be necessary to confirm the absence of a long- term hazard.

CGS (2003a) mapped two large landslides extending beneath Park Boulevard just east of the intersection with Estates Drive (Figure 10). Although the presence of these features was not confirmed as part of our review of lidar and aerial imagery the existing and proposed aboveground replacement towers are relocated east of the inferred slides and therefore not considered at risk.

Several locations along the proposed aboveground and underground portions have an elevated level of impact of moderate erosion hazard, including Location #3 near structure ES3 and RS3 (Figure 3) and location #31 (Figure 8) near structure EN23 and RN21, east of Mountain Blvd.

Underground Replacement Portion

The northern underground alignment crosses a landslide inferred by CGS at the intersection of Park Boulevard with Estates Drive, near proposed TN27A for Circuit 1. This slide does not appear to be expressed in the current topography and may have been repaired as part of construction of the Park Boulevard roadway. Slope erosion was identified downhill of the intersection (Erosion Site #28). Additional site-specific evaluation may be necessary to confirm the absence of a long-term slope hazard. Evidence of ongoing localized slope instability includes road cracking and patches along Park Boulevard. No major erosion features or associated incipient landsliding are mapped along the underground portion.

5.1. *Limitations*

The information provided in this report is based on desktop interpretation of publicly available data largely derived from regional mapping studies. Although inferred conditions at each structure location have been evaluated based on review of recent topographic and aerial imagery, only limited field reconnaissance of the structures has been performed with no subsurface data collection. Site conditions and associated slope hazards may vary from that inferred from regional datasets and desktop evaluation alone.

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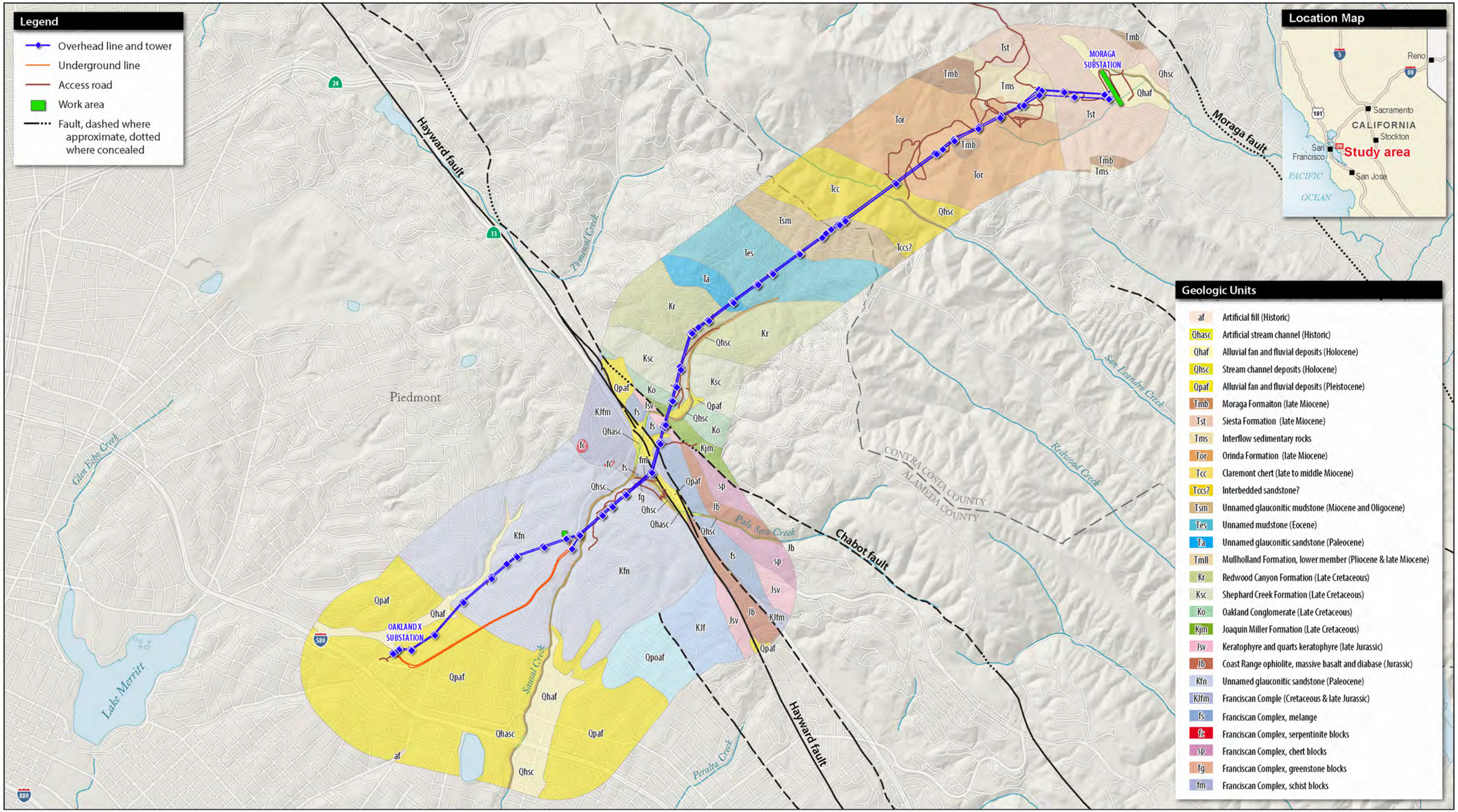


Map Projection: NAD 1983 UTM Zone 10N

Geology: Graymer, 2000. Faults: PG&E Geosciences Fault Database v16

N

0 0.5 1 mile

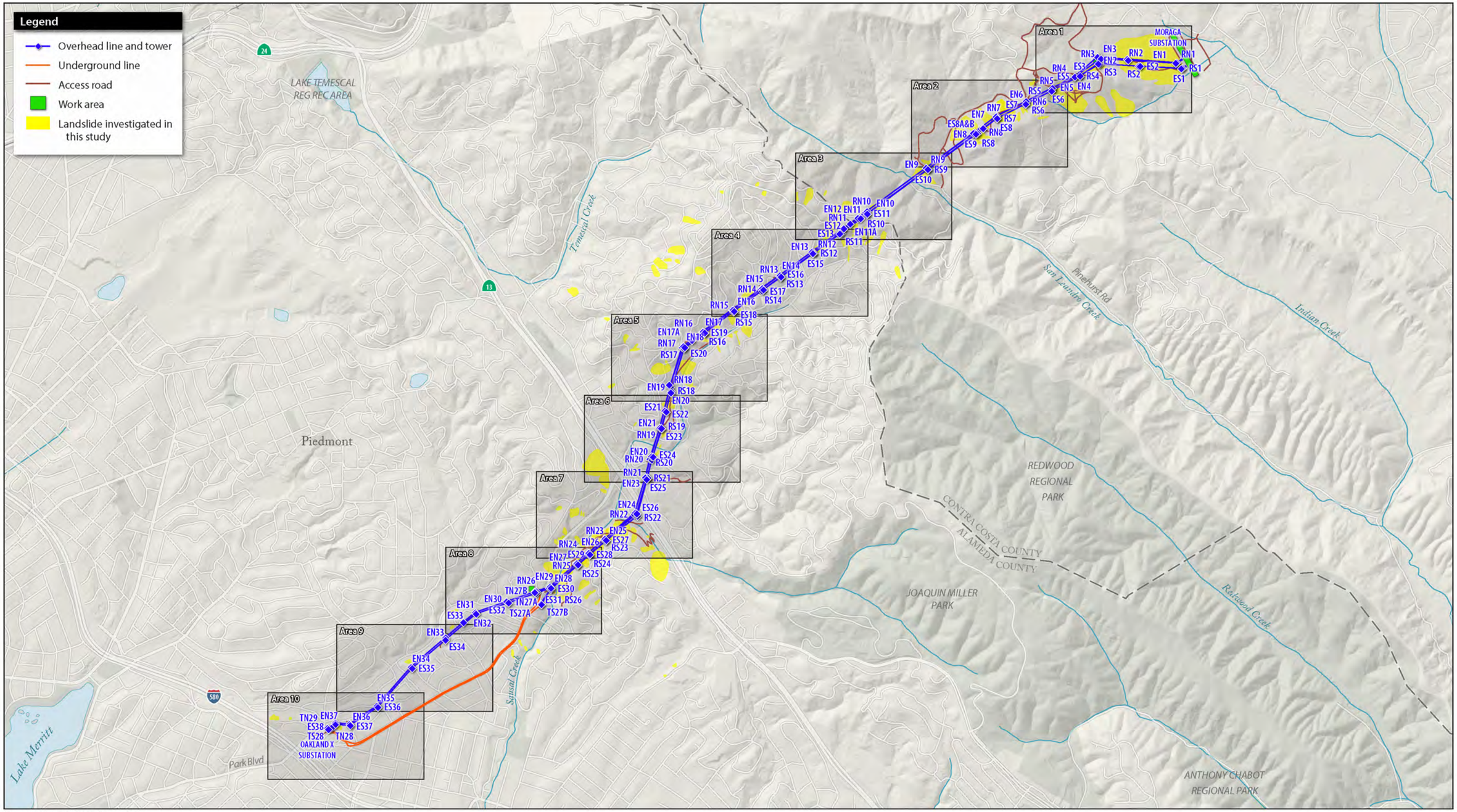
1:31,000

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 1. Bedrock Geologic Map

JUL 2024



Map Projection: NAD 1983 UTM Zone 10N

N

0 0.4 0.8 miles

1:26,000

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 2. Index Map of Detailed Slope Hazard Maps Along Project Route

JUL 2024

122°10'15"W 122°10'0"W 122°9'45"W

37°50'45"N

Legend

Overhead line and tower

Landslides

- Landslide headscarp
- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

Active erosion channel

Erosion location — Location number; #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Area of emplaced road fill

Lost Valley Dr
San Pablo Creek
Dolores Way
West Branch Creek

N

0 200 400 feet
1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 3. Landslide Area 1

JUL 2024

122°11'0"W 122°10'45"W 122°10'30"W 37°50'45"N 37°50'30"N

Legend

- Overhead line and tower

Landslides

- Landslide headscarp
- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

- Active erosion channel

Erosion location — Location number; State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

Example: #2 3213

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

EN5 RN5 RS5 ES6 EN6 RN6 ES7 RS6 RN7 EN7 RS7 ES8 ES8A&B EN8 RN8 RS8 ES9

#5 2235 #6 2135

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 4. Landslide Area 2

JUL 2024

122°11'30"W 122°11'15"W 122°11'0"W 37°50'30"N 37°50'15"N

Legend

Overhead line and tower

Erosion Hazard

Active erosion channel

Erosion location

Location number — #2 3213 — State of activity / Certainty of identification / Dominant erosion hazard / Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Landslides

Landslide headscarp
Previously mapped landslide boundary (CGS)
Active landslide
Historic to pre-historic landslide
Older, potentially active landslide

Landslide Designations

1233 — State of activity / Certainty of identification / Dominant type of movement / Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

San Leandro Creek
CONTRA COSTA COUNTY
ALAMEDA COUNTY
Manzanita Dr
Arrowhead Dr

1331 3312 1232 3342 #22 1122 1231 #7 1222 1131 2331 1231 2331 1232 2232 2212 2243 2323 1242 2313 2343 2242 EN9 RN9 RS9 ES10 EN10 RN10 ES11 RS10 EN11 ES12 EN11A EN12 RN11 RS11 ES13

N

0 200 400 feet
1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 5. Landslide Area 3

JUL 2024

122°11'45"W 122°11'30"W 122°11'15"W

37°50'0"N

Legend

Overhead line and tower

Erosion Hazard

Active erosion channel

Erosion location

Location number — #2 3213 — State of activity / Certainty of identification / Dominant erosion hazard / Hazard to alignment

State of Activity
- 1 = Ongoing
- 2 = During major rainfall/flood events only
- 3 = Dormant or repaired

Certainty of ID
- 1 = Definite
- 2 = Probable
- 3 = Questionable

Dominant Erosion Hazard
- 1 =Fluvial erosion
- 2 = Scour
- 3 = Undercutting
- 4 = Hillslope erosion
- 5 = Gullying/headward erosion

Hazard to Alignment
- 1 = High (potential for immediate impact)
- 2 = Moderate (no immediate impact)
- 3 = Low (minimal potential for impact)

Landslides

Landslide headscarp

Previously mapped landslide boundary (CGS)

Active landslide

Historic to pre-historic landslide

Landslide Designations

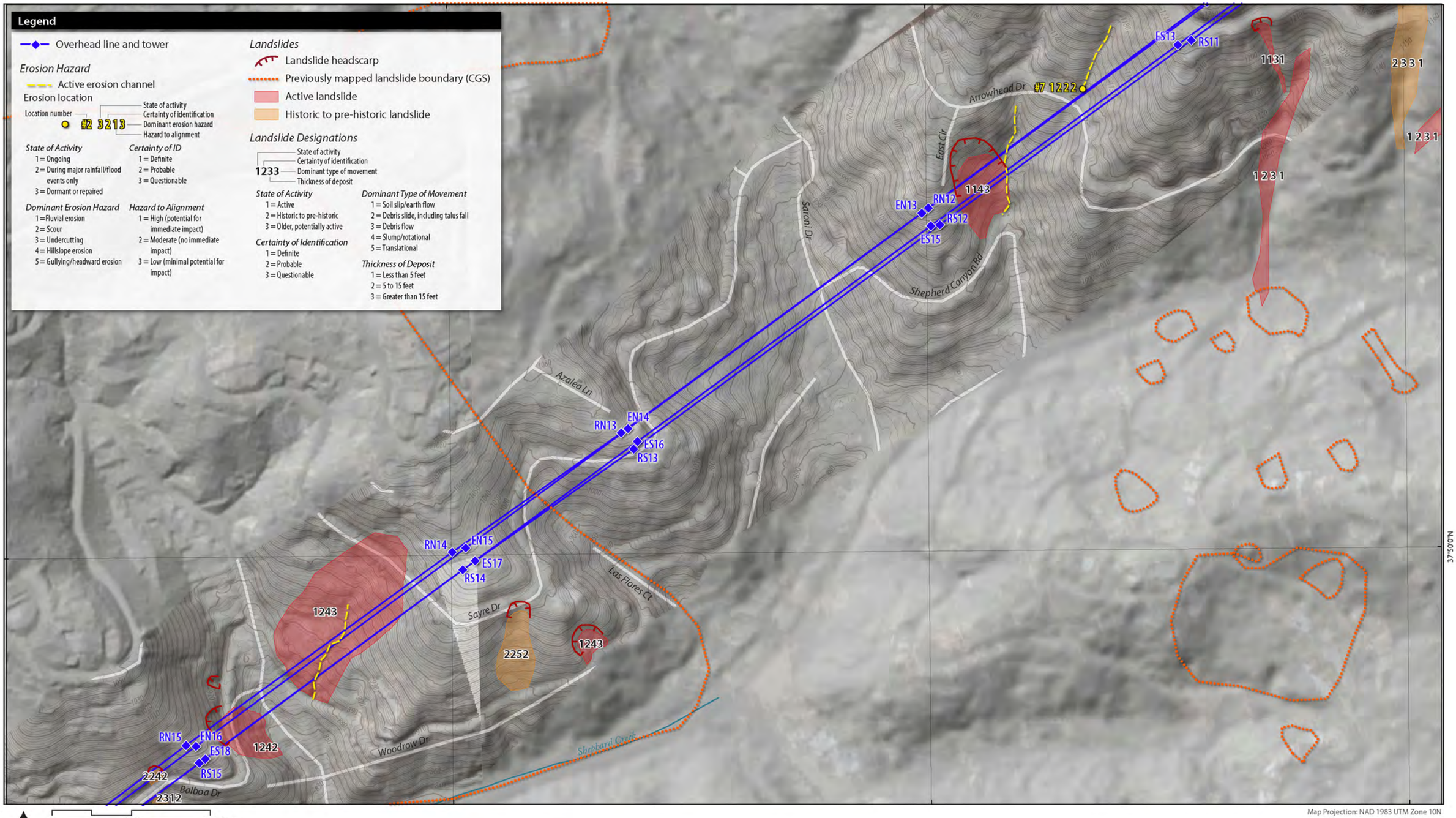
1233 — State of activity / Certainty of identification / Dominant type of movement / Thickness of deposit

State of Activity
- 1 = Active
- 2 = Historic to pre-historic
- 3 = Older, potentially active

Certainty of Identification
- 1 = Definite
- 2 = Probable
- 3 = Questionable

Dominant Type of Movement
- 1 = Soil slip/earth flow
- 2 = Debris slide, including talus fall
- 3 = Debris flow
- 4 = Slump/rotational
- 5 = Translational

Thickness of Deposit
- 1 = Less than 5 feet
- 2 = 5 to 15 feet
- 3 = Greater than 15 feet



N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 6. Landslide Area 4

JUL 2024

122°12'15"W

122°12'0"W

122°11'45"W

37°49'45"N

Balboa Dr

Cortez Ct

West Cir

Paso Robles Dr

Montclair Railroad Trail

Shephard Creek

Drake Dr

Zinn Dr

Rincon Dr

Shepherd Canyon Rd

#8 2235

#9 1135

#10 1132

#11 1233

#162335

#142323

RN16 EN17 ES19 RS16

EN17A

EN18 RN17 ES20 RS17

RN18 EN19 RS18 ES21

1332 1142 2312 2253 3343 1131 2242 2332 2231 2232 1243 2342 2341 3342 1132 1242

Legend

Overhead line and tower

Erosion Hazard

Active erosion channel

Erosion location

Location number — #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Landslides

Landslide headscarp

Previously mapped landslide boundary (CGS)

Active landslide

Historic to pre-historic landslide

Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 7. Landslide Area 5

JUL 2024

122°12'30"W 122°12'15"W 122°12'0"W 37°49'30"N

Legend

Overhead line and tower

Landslides

- Landslide headscarp
- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

Active erosion channel

Erosion location — Location number; State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

#14 2323 · 2242 · 1243 · Previously mitigated landslide · 2353 · 2252 · Drake Dr · Shephard Creek · 1212 · EN20 · ES22

#13 1221 · 1231 · EN21 · RN19 · ES23 · RS19

#12 1122 · 2342 · 1231 · 2242 · 2243 · Shepherd Canyon Rd

1241 · 1242 · 1232 · #14 2225 · 2342 · 1332 · Shephard Creek · 2342

EN20 · ES24 · RN20 · RS20 · Scout Rd

3343 · #361135 · 1143 · 2243 · 1142 · 1242 · 1242 · 2343 · #32 2333

1242 · RN21 · #311225 · EN23 · RS21 · ES25 · Mountain Blvd

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 8. Landslide Area 6

JUL 2024

122°12'45"W 122°12'30"W 122°12'15"W

37°49'15"N

37°49'N

Pershing Dr
Liggett Dr
Sims Dr
Somerset Dr
Somerset Rd
Estates Dr
Park Blvd
Hampton Rd
Trafalgar Pl
Sherbbird Creek
Moraga Ave
Monterey Blvd
Scout Rd
Mountain Blvd
Leimert Blvd
Palos Sage Creek

1143
2243
#35 2225
2342
3342
2242
1232
1142
1232
2342
#26 1225
#25 1235
1242
2343
#31 1225
RN21
EN23
RS21
ES25
#32 2333
#23 2132
EN24
RN22
ES26
RS22
#24 1135
1131
2242
1232
2242
1242
2343
1342
2343
1242
1242
2243
2342
1242
2343
2243
2242
1102
2342
EN25
RN23
ES27
RS23
1232
2232
1142
3353
1232
EN26
RN24
ES28
RS24
2342
1142
3353
2353
1231
1242
1242
1242

Legend

- Overhead line and tower
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

- Active erosion channel

Erosion location: Location number — #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 9. Landslide Area 7

JUL 2024

122°13'15"W 122°13'W 122°12'45"W 37°49'N 37°48'45"N

Legend

- Overhead line and tower
- Underground line
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
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2 = Historic to pre-historic
3 = Older, potentially active

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2 = Probable
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2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

- Active erosion channel

Erosion location — #2 3213 — Location number; State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Selborne Dr
Estates Dr
Sandringham Rd
Wyngaard Ave
Saint James Dr
Park Blvd
Natural Creek
Leimert Blvd
Trestle Glen Rd
Glendome Cir
Hollywood Ave
Cavendish Ln
El Centro Ave
Elsinore Ave
San Sebastian Ave
Arden Pl
Bridgeview Dr
Clemens Rd
Oakview Dr

1142 1232 2232 1232 1142 1231 1141 2353 1231 2343 2243 1342 1142 1242 2212 2342 1232 1241 1231 1252 1212 2252 1232 2342 2242 3342 1111 (2023 slide located during field verification)

EN26 RN24 ES28 RS24 EN27 RN25 ES29 RS25 EN28 RN26 ES30 RS26 TN27A EN29 TN27B ES31 EN30 ES32 TS27A TS27B EN31 ES33 EN32

#28 1235 #29 2235

N

0 200 400 feet
1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 10. Landslide Area 8

JUL 2024

122°13'45"W 122°13'30"W 122°13'15"W

37°48'30"N

Legend

- Overhead line and tower
- Underground line
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233 — State of activity; Certainty of identification; Dominant type of movement; Thickness of deposit

State of Activity
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2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
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2 = Probable
3 = Questionable

Dominant Type of Movement
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2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Erosion Hazard

- Active erosion channel

Erosion location — Location number: #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 =Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

3342
#30 2331
EN33
ES34
2311
2332
3343
EN34
ES35
EN35
ES36

Clarendon Cres
Van Sicklen Pl
Midcrest Rd
Sunnyhills Rd
Trestle Glen Rd
Creed Rd
Barrows Rd
Holman Rd
Fleet Rd
Norwood Ave
Hampel St
Greenwood Ave
Leach Ave
Wellington St
Park Blvd
Glendora Ave
Elbert St
Galvin St
Everett Ave
Edgewood Ave
Elsmore Ave
El Centro Ave
San Sebastian Ave
Evans Ave
Glenfield Ave
Townsend Ave
Id Crest Ave

N
0 200 400 feet
1:2,800
2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 11. Landslide Area 9

JUL 2024

122°14'W

122°13'45"W

122°13'30"W

37°48'15"N

Sunnyhills Rd
Trestle Glen Rd
Brookwood Rd
Chatham Rd
Alma Pl
Grosvenor Pl
Holman Rd
Bates Rd
Barrows Rd
Hampel St
Greenwood Ave
Brighton Ave
Randolph Ave
Glen Park Rd
Beaumont Ave
Park Blvd
Park Boulevard Way
Kingsley St
Emerson St
Chatham Rd
13th Ave
Macarthur Blvd
E 34th St
Elliot St
E 38th St
Allman St
Excelsior Ave
Bruce St
E 36th St

2342
2342
2331
3343

EN35
ES36
EN36
ES37
EN37
ES38
TN29
TN28
TS28

OAKLAND X SUBSTATION

580

Legend

- Overhead line and tower
- Underground line
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1233
- State of activity
- Certainty of identification
- Dominant type of movement
- Thickness of deposit

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

N

0 200 400 feet

1:2,800

2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 12. Landslide Area 10

JUL 2024

Figure Set Revised on March 31, 2025

Figure legends revised to clarify the Landslide Designations numbering.

Legend

- Overhead line and tower
- Underground line
- Access road
- Work area
- Fault, dashed where approximate, dotted where concealed

Location Map

Geologic Units

af	Artificial fill (Historic)
Qhasc	Artificial stream channel (Historic)
Qhaf	Alluvial fan and fluvial deposits (Holocene)
Qhsc	Stream channel deposits (Holocene)
Qpaf	Alluvial fan and fluvial deposits (Pleistocene)
Tmb	Moraga Formaiton (late Miocene)
Tst	Siesta Formation (late Miocene)
Tms	Interflow sedimentary rocks
Tor	Orinda Formation (late Miocene)
Tcc	Claremont chert (late to middle Miocene)
Tccs?	Interbedded sandstone?
Tsm	Unnamed glauconitic mudstone (Miocene and Oligocene)
Tes	Unnamed mudstone (Eocene)
Ta	Unnamed glauconitic sandstone (Paleocene)
Tmll	Mullholland Formation, lower member (Pliocene & late Miocene)
Kr	Redwood Canyon Formation (Late Cretaceous)
Ksc	Shephard Creek Formation (Late Cretaceous)
Ko	Oakland Conglomerate (Late Cretaceous)
Kjm	Joaquin Miller Formation (Late Cretaceous)
Jsv	Keratophyre and quarts keratophyre (late Jurassic)
Jb	Coast Range ophiolite, massive basalt and diabase (Jurassic)
Kfn	Unnamed glauconitic sandstone (Paleocene)
KJfm	Franciscan Comple (Cretaceous & late Jurassic)
fs	Franciscan Complex, melange
fc	Franciscan Complex, serpentinite blocks
sp	Franciscan Complex, chert blocks
fg	Franciscan Complex, greenstone blocks
fm	Franciscan Complex, schist blocks

Map Projection: NAD 1983 UTM Zone 10N

Geology: Graymer, 2000. Faults: PG&E Geosciences Fault Database v16

N

0 0.5 1 mile

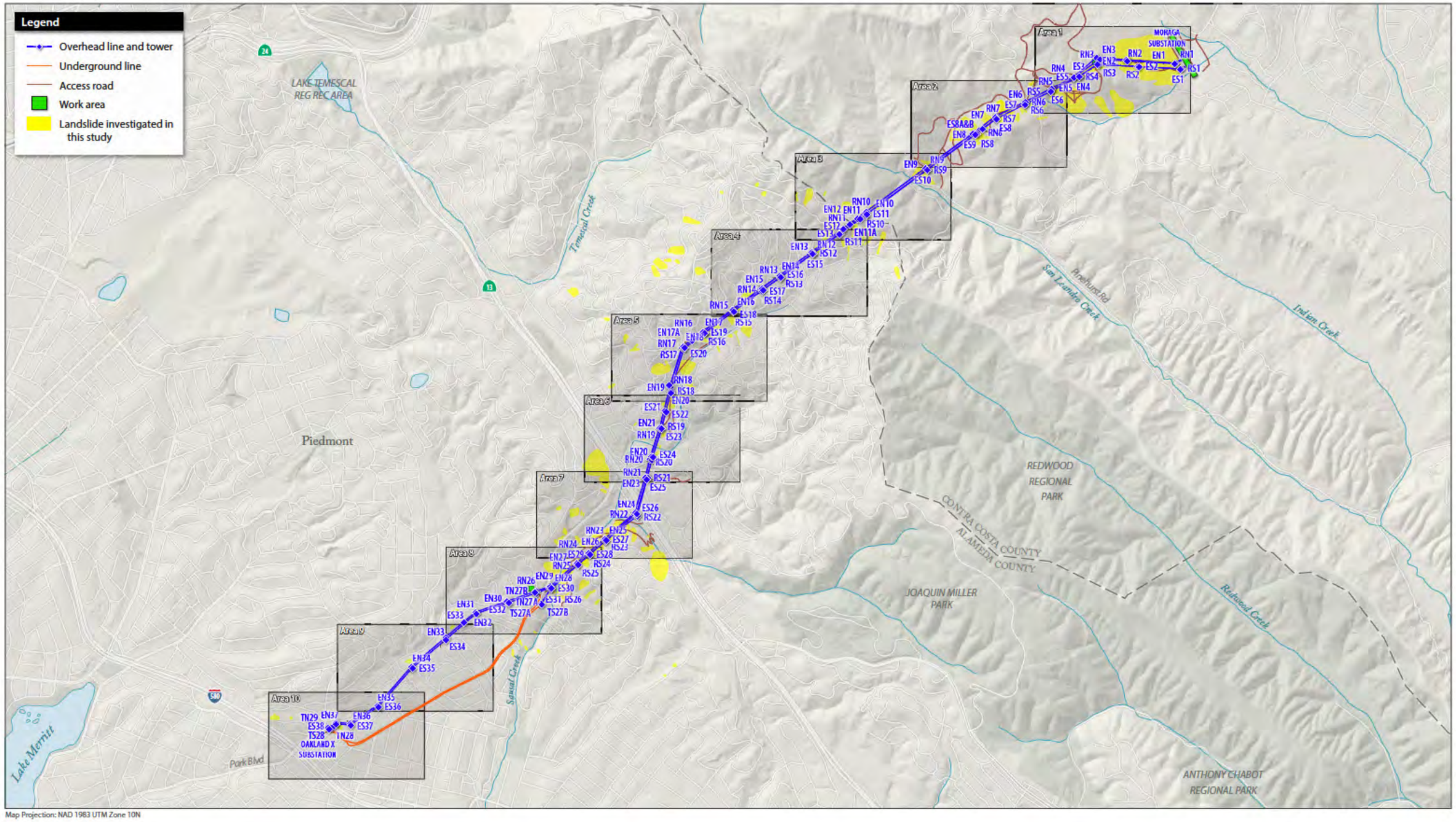
1:31,000

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 1. Bedrock Geologic Map

MAR 2025



Map Projection: NAD 1983 UTM Zone 10N

N

0 0.4 0.8 miles

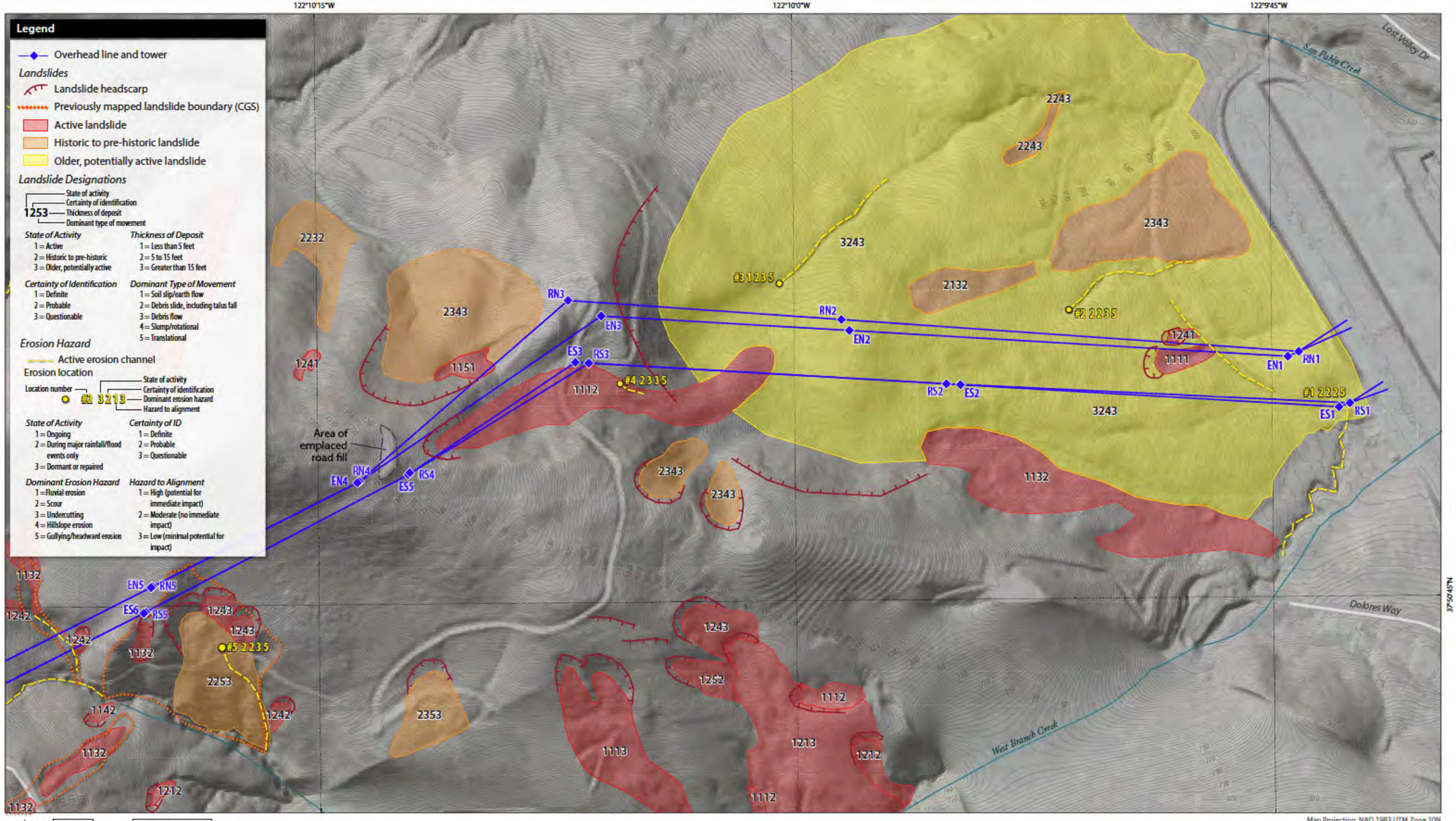
1:26,000

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 2. Index Map of Detailed Slope Hazard Maps Along Project Route

MAR 2025



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MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 3. Landslide Area 1

MAR 2025

122°11'0"W 122°10'45"W 122°10'30"W 37°50'45"N 37°50'30"N

Legend

- Overhead line and tower

Landslides

- Landslide headscarp
- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide

Landslide Designations

1253 — State of activity; Certainty of identification; Thickness of deposit; Dominant type of movement

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Erosion Hazard

- Active erosion channel

Erosion location

Location number #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

EN5 RN5 RS5 ES6 EN6 RN6 ES7 RS6 RN7 EN7 RS7 ES8 ES8A&B EN8 RN8 RS8 ES9

#5 2235 #6 2135

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 4. Landslide Area 2

MAR 2025

122°11'30"W 122°11'15"W 122°11'0"W 37°50'45"N 37°50'30"N

Legend

Overhead line and tower

Erosion Hazard

Active erosion channel

Erosion location

Location number — #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Landslides

Landslide headscarp
Previously mapped landslide boundary (CGS)
Active landslide
Historic to pre-historic landslide
Older, potentially active landslide

Landslide Designations

1253 — State of activity; Certainty of identification; Thickness of deposit; Dominant type of movement

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

San Leandro Creek
CONTRA COSTA COUNTY
ALAMEDA COUNTY
Manzanita Dr
Arrowhead Dr

1331 3312 1232 3342 1231 1131 2331 1231 2331 1231 2232 2212 2243 2323 1242 2313 2343 2242 1242

#22 1122 #7 1222

EN9 RN9 RS9 ES10 EN10 RN10 ES11 RS10 EN11 ES12 EN11A EN12 RN11 RS11 ES13

N

0 200 400 feet
1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 5. Landslide Area 3

MAR 2025

122°11'45"W 122°11'30"W 122°11'15"W

37°5'0"N

Legend

Overhead line and tower

Erosion Hazard

Active erosion channel

Erosion location

Location number — #2 3 2 1 3 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Landslides

Landslide headscarp
Previously mapped landslide boundary (CGS)
Active landslide
Historic to pre-historic landslide

Landslide Designations

1253 — State of activity; Certainty of identification; Thickness of deposit; Dominant type of movement

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

ES13 RS11 RN12 EN13 RS12 ES15 RN13 EN14 ES16 RS13 RN14 EN15 ES17 RS14 RN15 EN16 ES18 RS15

#7 1222 1143 1131 2331 1231 1231 1243 2252 1243 1242 2242 2312

Arrowhead Dr East Cir Sanoni Dr Shepherd Canyon Rd Azalea Ln Sayre Dr Los Flores Ct Woodrow Dr Shepherd Creek Balboa Dr

N 0 200 400 feet
1:2,800 2-foot elevation contour interval

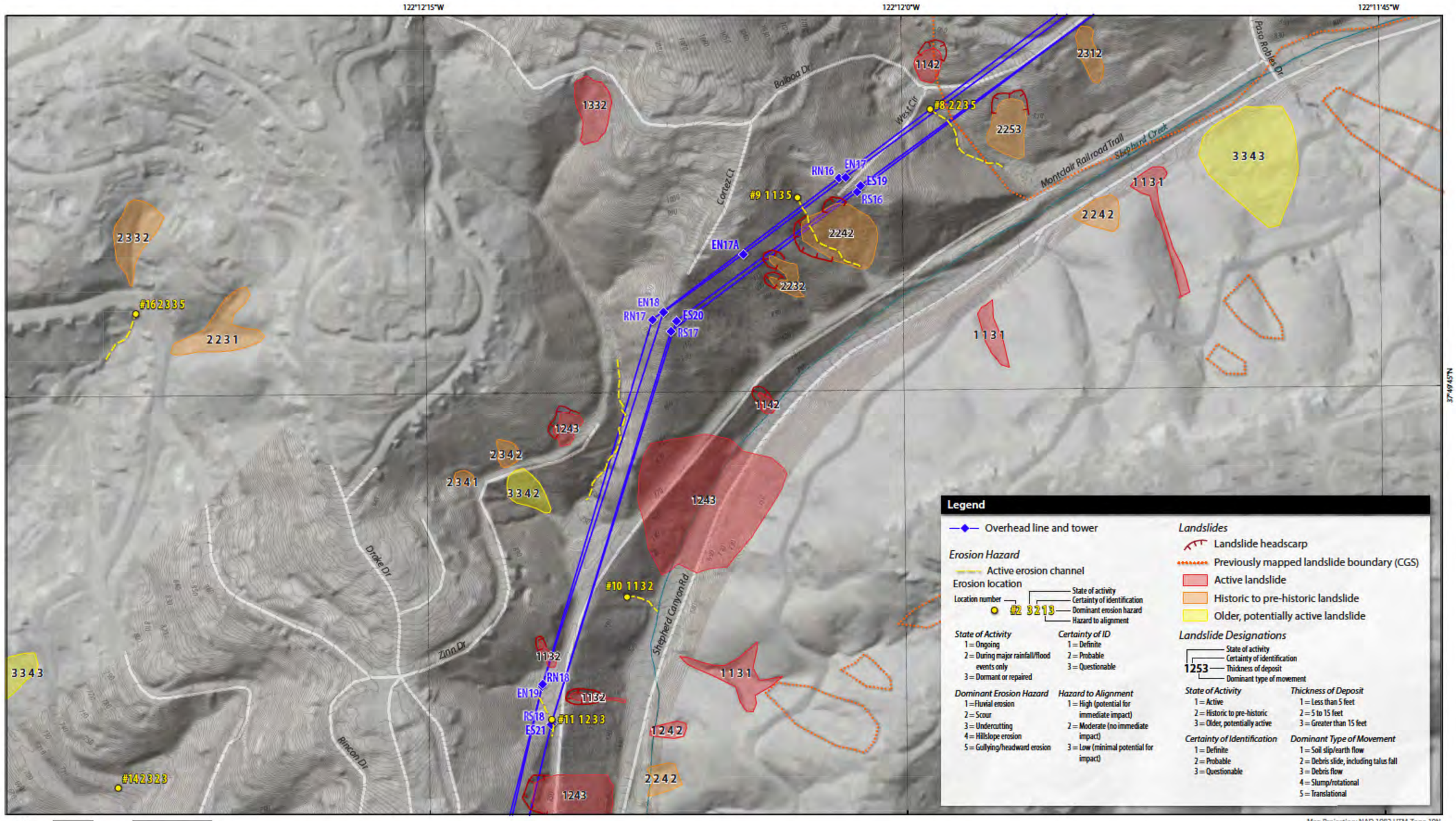
Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 6. Landslide Area 4

MAR 2025



InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 7. Landslide Area 5

MAR 2025

122°12'30"W 122°12'15"W 122°12'0"W

37°49'30"N

Legend

Overhead line and tower

Landslides

Landslide headscarp

Previously mapped landslide boundary (CGS)

Active landslide

Historic to pre-historic landslide

Older, potentially active landslide

Landslide Designations

1253 — State of activity / Certainty of identification / Thickness of deposit / Dominant type of movement

State of Activity
1 = Active
2 = Historic to pre-historic
3 = Older, potentially active

Thickness of Deposit
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

Certainty of Identification
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Erosion Hazard

Active erosion channel

Erosion location — Location number #2 3213 — State of activity / Certainty of identification / Dominant erosion hazard / Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

#14 2323 · 2242 · 1243 · Previously mitigated landslide · 2353 · 2252 · Drake Dr · Shepherd Creek · 1212 · EN20 · ES22

#13 1221 · 1231 · EN21 · RN19 · ES23 · RS19

#12 1122 · 2342 · 1231 · 2242 · 2243 · Shepherd Canyon Rd

1241 · 1242 · 1232 · #14 2225 · 2342 · 1332 · Shepherd Creek · 2342 · EN20 · ES24 · RN20 · RS20 · Scout Rd

3343 · #36 1135 · 1143 · 2243 · 1142 · 1242 · 1242 · 1242 · 2343 · #32 2333 · RN21 · #31 1225 · EN23 · RS21 · ES25 · Mountain Blvd

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

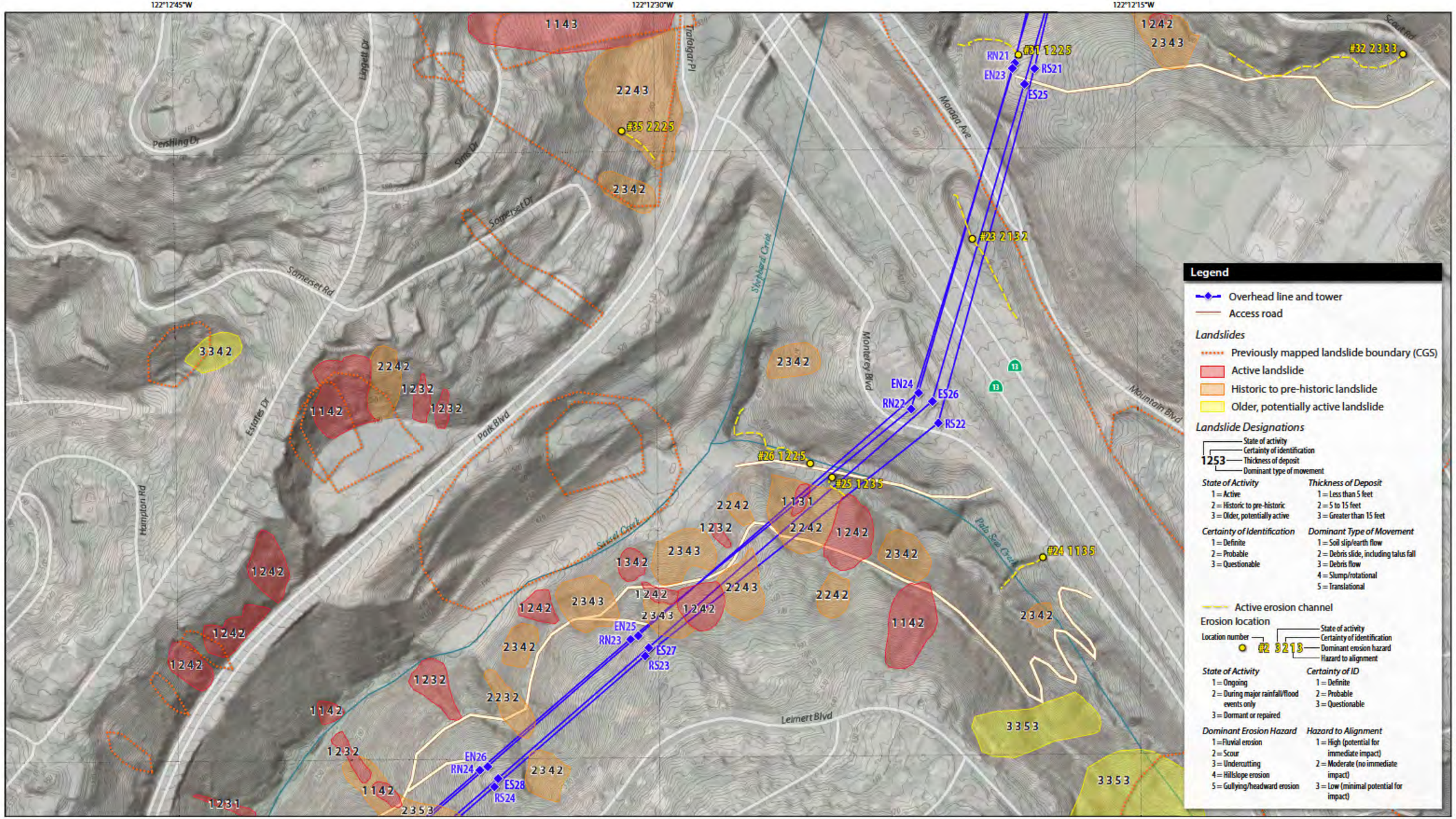
Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 8. Landslide Area 6

MAR 2025



Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 9. Landslide Area 7

MAR 2025

122°13'15"W 122°13'W 122°12'45"W 37°49'N 37°48'45"N

Legend

- Overhead line and tower
- Underground line
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Active landslide
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1253 — State of activity; Certainty of identification; Thickness of deposit; Dominant type of movement

State of Activity
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3 = Older, potentially active

Thickness of Deposit
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2 = 5 to 15 feet
3 = Greater than 15 feet

Certainty of Identification
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2 = Probable
3 = Questionable

Dominant Type of Movement
1 = Soil slip/earth flow
2 = Debris slide, including talus fall
3 = Debris flow
4 = Slump/rotational
5 = Translational

Erosion Hazard

- Active erosion channel

Erosion location — Location number #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

Selborne Dr
Estates Dr
Sandringham Rd
Wyngaard Ave
Saint James Dr
Trestle Glen Rd
Glendome Cir
El Centro Ave
Elsinore Ave
San Sebastian Ave
Hollywood Ave
Cavendish Ln
Park Blvd
Stanley Creek
Leimert Blvd
Clemens Rd
Arden Pl
Bridgeview Dr
Oakview Dr

1142 1232 2232 2342 1142 1231 1141 2353 1231 2343 2243 1342 1142 1242 2212 2342 1232 1241 1231 1212 1252 #28 1235 2252 1111 (2023 slide located during field verification) 2342 2242 3342 #29 2235 1232

EN26 RN24 ES28 RS24 EN27 RN25 ES29 RS25 EN28 RN26 ES30 RS26 TN27A EN29 TN27B ES31 EN30 ES32 TS27A TS27B EN31 ES33 EN32

N

0 200 400 feet
1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 10. Landslide Area 8

MAR 2025

122°13'45"W 122°13'30"W 122°13'15"W

37°48'30"N

Legend

- Overhead line and tower
- Underground line
- Access road

Landslides

- Previously mapped landslide boundary (CGS)
- Historic to pre-historic landslide
- Older, potentially active landslide

Landslide Designations

1253 — State of activity; Certainty of identification; Thickness of deposit; Dominant type of movement

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1 = Soil slip/earth flow
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3 = Debris flow
4 = Slump/rotational
5 = Translational

Erosion Hazard

- Active erosion channel

Erosion location — Location number #2 3213 — State of activity; Certainty of identification; Dominant erosion hazard; Hazard to alignment

State of Activity
1 = Ongoing
2 = During major rainfall/flood events only
3 = Dormant or repaired

Certainty of ID
1 = Definite
2 = Probable
3 = Questionable

Dominant Erosion Hazard
1 = Fluvial erosion
2 = Scour
3 = Undercutting
4 = Hillslope erosion
5 = Gullying/headward erosion

Hazard to Alignment
1 = High (potential for immediate impact)
2 = Moderate (no immediate impact)
3 = Low (minimal potential for impact)

N

0 200 400 feet

1:2,800 2-foot elevation contour interval

Map Projection: NAD 1983 UTM Zone 10N
Imagery: ESRI

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 11. Landslide Area 9

MAR 2025

InfraTerra

MOX-E MORAGA ORINDA LANDSLIDE MAPPING

Figure 12. Landslide Area 10

MAR 2025

Attachment 3
PG&E Response to CPUC Data Request 6, Part B

Pacific Gas and Electric Company

Brandon Liddell
PRINCIPAL LAND PLANNER
ENVIRONMENTAL MANAGEMENT

PG&E GENERAL OFFICE
300 LAKESIDE DRIVE
OAKLAND, CA 94612

May 13, 2025

Tharon Wright
Public Utilities Regulatory Analyst III
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
VIA EMAIL

RE: CPUC Data Request #6 for PG&E's Moraga to Oakland X 115 Kilovolt Rebuild Project (A.24-11-005) – Part B Response

Dear Ms. Wright,

This letter is in reply to your March 17, 2025, letter in which you request certain additional information regarding Pacific Gas and Electric Company's (PG&E's) application (A.24-11-005) for a Permit to Construct (PTC) and Proponent's Environmental Assessment (PEA) for the Moraga-Oakland X 115 kilovolt (kV) Rebuild Project (project). The original text for each data request item from the California Public Utilities Commission (CPUC) is included, followed by PG&E's response.

This letter provides the response to item ALT-1. Please refer to the Data Request #6 Part A response provided on April 21, 2025 for the other Data Request #6 items.

There is one attachment to this letter to support PG&E's response.

- Attachment 1 – ALT-1a Duct Bank Bend Radius Exhibit

PEA Chapter 4, Description of Alternatives

ALT-1 Some of the alternatives defined in PEA Chapter 4 would require that segments be installed underground in narrow and winding roadways, including some with "hairpin" turns. In addition, the feasibility of these 6 underground alternatives would depend on the presence and location of other buried utilities (water, sewer, distribution-level electricity, fiber, gas). The following additional information is required.

a. Please define the maximum bending angle for underground conduit or duct banks that could be constructed where all 4 circuits and are installed underground in one road, as well as for 2 circuits.

The maximum bending angle value of a duct bank can change depending on the radius of the bend in the road. Smaller bend radii would allow smaller bend angles and larger bend radii would allow larger bend angles. Therefore, the maximum bending angle is not a reliable value to consider when determining whether one or more duct banks can be installed in one road. Numerous engineering design criteria in addition to a single bend radius are required for a qualified, professional engineer to design an underground double-circuit duct bank. As such, the measurement unit of the bending radius – which is generally assumed to be approximately 40 feet for this project's cable type and double-circuit duct bank configuration (refer to Attachment 1, Duct Bank Bend Radius Exhibit) – is not useful on its own. Also, this bend radius of approximately 40 feet is reasonably feasible only when considered in the horizontal plane. Road geometry (including slope and grade) must be considered as well during design. Road geometry may not accommodate adequate lateral and longitudinal space for a double-circuit duct bank or its separation from an adjacent duct bank to maintain the required ampacity. The distance between the outside duct bank to the inside duct bank would need to maintain a minimum of 15 feet of separation.

Additionally, curvature in a duct bank is limited by cable installation criteria. Pulling tension in the cable increases exponentially through curves and sidewall pressure (a function of pulling tension) with inverse proportionality to curve radii. When a cable is pulled through a conduit, the cable brushes against the sidewall of the conduit as it is pulled into place. When the conduit is not straight, the cable will push against the sidewall as it moves around a bend. Tighter bends create more sidewall pressure. It becomes increasing difficult to pull the cable with the collective sidewall pressure resulting from the cumulative horizontal curvature (series of bends in the road).

The cumulative horizontal curvature between power line vaults determines the distance between adjacent vaults. Assuming the calculations allow, a cable might be able to be pulled through a single hairpin turn but the cable may not be able to be pulled through the next turn. The pulling calculations look at the entire run of the cable between vaults and not just individual turns. The more bends in the duct bank, the closer together the vaults need to be. Instead of the typical spacing of 1,000 to 1,200 feet, the vaults may need to be closer together to splice the line more frequently. However, lines with a greater number of splices, which would occur with more closely spaced vaults, often are less reliable during operation.

b. Please define the maximum bending angle for underground conduit or duct banks that could be constructed where only 2 circuits are installed underground in one road.

Refer to the response to ALT-1a and Attachment 1, Duct Bank Bend Radius Exhibit. The discussion on the maximum bending angle for underground conduit or duct banks that could be constructed where only 2 circuits (in a single double-circuit duct bank) are installed underground in one road does not differ from the maximum bending angle for two double-circuit duct banks installed in one road. However, in this scenario, road geometry only would need to accommodate adequate lateral and longitudinal space for one double-circuit duct bank instead of considering its separation from an adjacent duct bank to maintain the required ampacity.

c. Please define the minimum road width in which the 4 circuits could be installed underground. Would the minimum width be defined by the size and width of vaults, or by the space required for duct bank installation?

The minimum width is defined both by the size and width of vaults, the space required for duct bank installation and the minimum 15-foot separation between the closest circuit of each double-circuit duct bank. Refer to PEA at page 4-15 for the minimum road width definition of two double-circuit duct banks (4 circuits) not considering vaults or construction work areas and access:

> *Therefore, a minimum road width of at least 22 feet is needed to fit both double-circuit duct banks, not inclusive of other utility obstructions. However, utilities, including sewer and water, natural gas distribution, and telecommunication lines, are expected to be present in the roadways in unknown locations and may present additional constraints if they cannot be relocated to provide enough room for the duct banks.*

This minimum road width of at least 22 feet is required for the as-built completion and is applicable to straight sections of a road with no grade or slope. This minimum road width does not include design conditions resulting from connecting or adjacent infrastructure including connecting power line vaults, or geotechnical conditions of the road and the surrounding area. In the central portion of the project, other than the portion of Shepherd Canyon Road identified in PEA Alternative C, geotechnical conditions would likely preclude installation of two double-circuit duct banks in a single road. The risk of duct bank and road failure from a common landslide would be reduced if each double-circuit duct bank was placed in roads not within the same landslide potential. Refer to the response to Data Request #6 PD-10c, Construction in Park Boulevard Way, for additional discussion including the minimum work area width of 24 feet for installing a double-circuit duct bank between vaults.

Locations where vaults are required will necessitate more roadway width to accommodate two double-circuit duct banks (4 circuits). A minimum road width of 32 feet is needed for these locations when considering two double-circuit duct banks and the associated power line vaults, assuming that two vaults are not installed side by side and in a staggered position with a vault adjacent to a duct bank. This width is primarily defined by the size and width of the vaults as well as the required separation distance (15 feet) between cables in adjacent double-circuit duct banks. For the width of an installed power line vault connecting to a double-circuit duct bank, refer to PEA at page 3-16:

> *Vaults (approximately 22 feet by 12 feet and 10 feet tall) are located where sections of the underground cable line lengths are pulled through the duct banks and spliced together during construction. The 12-foot dimension is the vault width when installed which is less than the minimum road width of at least 22 feet is needed to fit both double-circuit duct banks.*

Construction work areas are expected to be wider than 22 feet for some construction equipment operation. From PEA page 4-16:

> *In addition, temporary construction areas wider than 22 feet would be needed for some construction activities. For example, a typical crane truck for installing precast power line vaults*

would require a work area of approximately 32 feet by 40 feet and additional space above that to rotate. Conservatively, a typical hydraulic excavator, while only approximately 16 feet wide, requires an approximately 53-foot-wide space to rotate.

d. Please define the process for determining the types, sizes, and locations of existing utilities buried in city or county roadways.

For utility surveying and locating, standard practice is to use the Utility Quality Levels based on American Society of Civil Engineers (ASCE) standard 33. The Quality Levels range from A to D. Quality Level A is the most accurate and complete and Quality Level D is a desktop study.

Quality Level D is based on documentation (historical records, utility construction and As-Built drawings, permits, locate markups, etc.).

Quality Level C builds on top of Quality Level D and requires the surveyor to go to the site and record accessible information. The surveyor will open covers and lids to utilities, mark the size of the enclosure as well as the size and direction of the utility.

Quality Level B further builds on Quality Level C by requiring the surveyor to perform a geophysical review of the site to look for all underground utilities. Data gathered during the geophysical study is added to the information recorded in the Quality Level C data.

Quality Level A is the most accurate level of utility locating by using the information from Quality Level B and visually inspecting the locations of the underground utilities. This includes going to the site and excavating each utility and providing data on the exact location of the utility and its depth.

Please refer to PEA Section 3.5.4.2 Utilities for the timing of utility surveys and the activities that will follow a utility survey:

Prior to any excavation, PG&E will notify utility companies (via the Underground Service Alert [USA]) to locate and mark existing underground structures along the power line rebuild locations and any other area of ground disturbance. Additionally, PG&E will conduct exploratory excavations (potholing) to prove the locations for proposed facilities as needed. A final determination on the need to relocate utilities will be made during final engineering. Localized underground utilities will be identified during final design and will be either avoided or relocated in coordination with the facility owner. If buried utilities are identified during construction and it is not reasonably feasible to avoid the line, PG&E will coordinate with the utility owner to relocate the facility. Construction methods will be adjusted as necessary to assure that the integrity of existing utility lines is not compromised. If any utility requires relocation, PG&E will provide adequate operational and safety buffering.

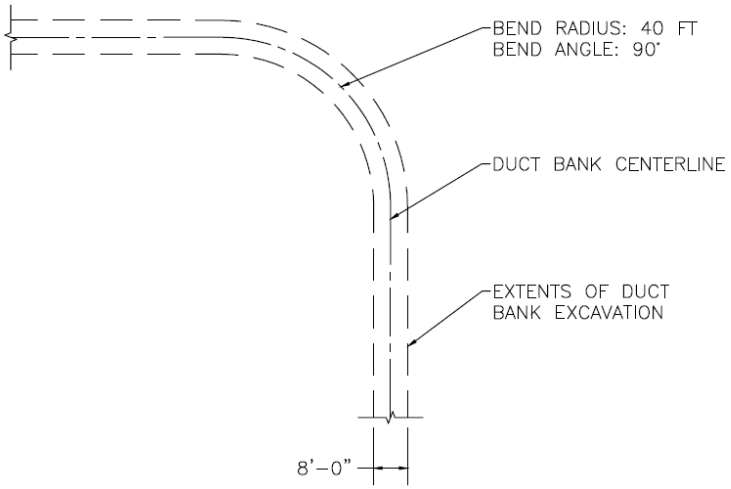
We trust the information provided herein is fully responsive to your requests. However, should you have any further requests, please contact me at **415-990-6001** or **BXLG@pge.com**.

Sincerely,

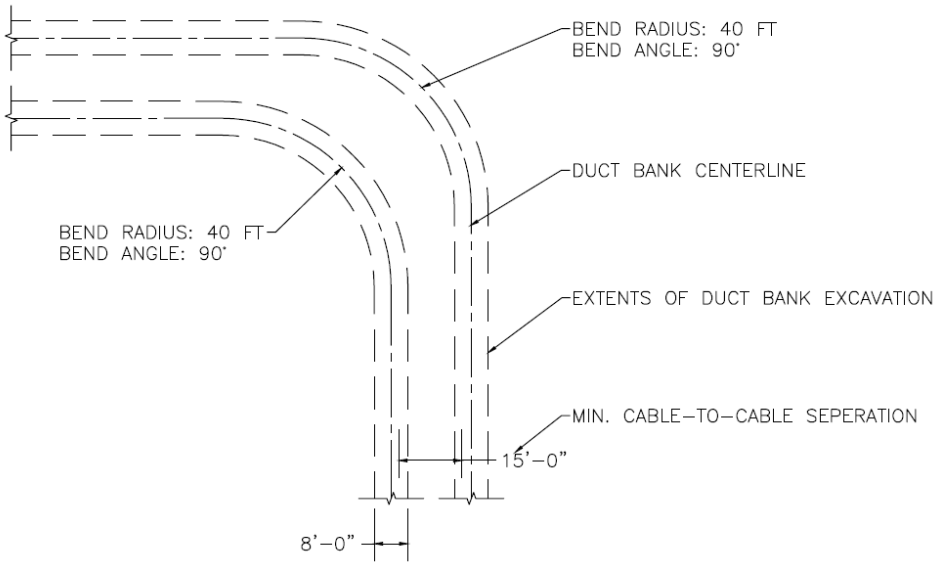
Brandon Liddell
Principal Land Planner

Attachment:
Attachment 1 – ALT-1a Duct Bank Bend Radius Exhibit

cc:
Michelle Wilson, CPUC CEQA Unit
Erica Schlemer, PG&E Law Department
Colleen Taylor, Jacobs
Hedy Koczwara, Aspen Environmental Group



PLAN VIEW
ONE (1) DOUBLE CIRCUIT DUCT BANK
BEND RADIUS EXAMPLE



PLAN VIEW
TWO (2) DOUBLE CIRCUIT DUCT BANK
BEND RADIUS EXAMPLE

Exact duct bank type, configuration, and dimensions will be determined by CPUC requirements, final engineering, and other factors and are subject to change.

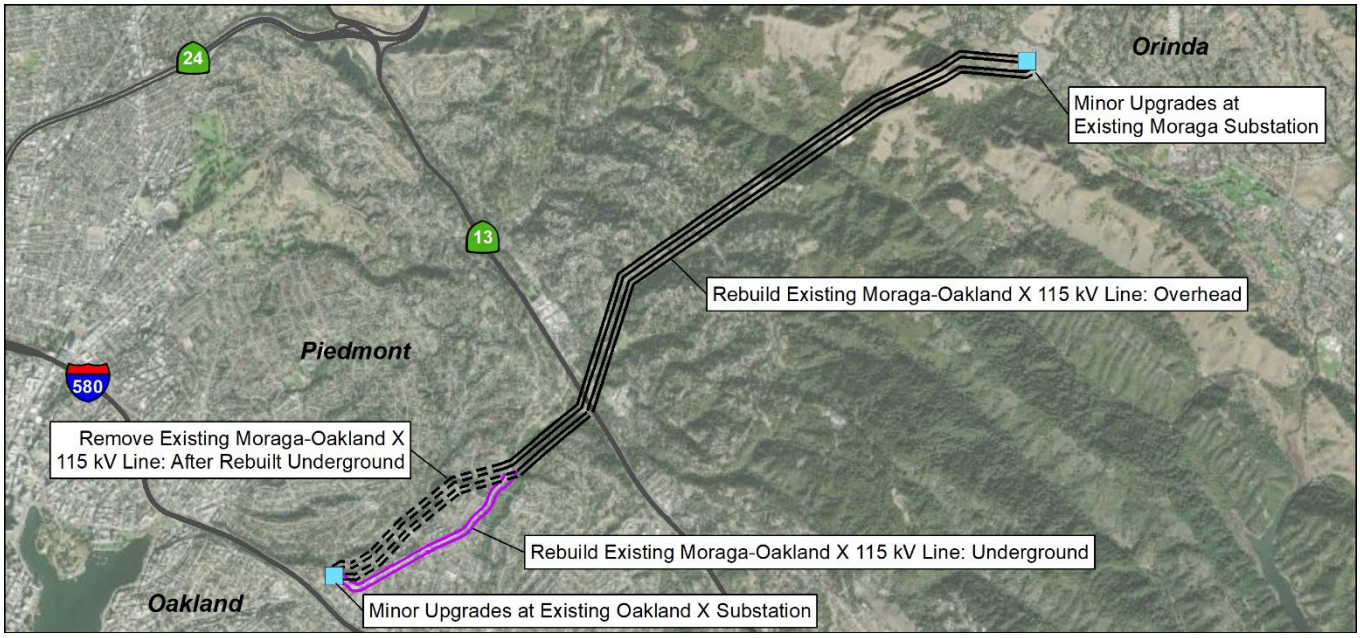
CPUC Energy Division Data Request 6 Item ALT-1a
Duct Bank Bend Radius Exhibit
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas and Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs

231219102507_0ff530e2

Attachment 4
PEA Chapters 4 and 6



Proponent's Environmental Assessment for Pacific Gas and Electric Company's Moraga–Oakland X 115 kV Rebuild Project

November 15, 2024

Pacific Gas and Electric Company (PG&E) is proposing to rebuild approximately 5 miles of four overhead 115 kilovolt (kV) power lines between Moraga and Oakland X substations. Work would include approximately 4 miles of overhead rebuild within the existing alignment as two double-circuit 115 kV power lines and approximately 1 mile would be undergrounded in city streets in two double-circuit duct banks. Minor upgrades would be required at the existing Moraga and Oakland X substations.

The project would be located within the unincorporated areas of Contra Costa County and the cities of Orinda, Oakland, and Piedmont, California.

Application A.24-11-XX to the California Public Utilities Commission

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4. Description of Alternatives

This chapter considers and discusses alternatives to the project, consistent with the California Environmental Quality Act (CEQA) Guidelines, Section 15126.6. It is prepared in accordance with the CPUC *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, which assumes an EIR will be prepared for the proposed project, unless CPUC CEQA unit staff make a preliminary determination during pre-filing consultation that a Mitigated Negative Declaration is likely. The description of alternatives is provided in this chapter of the Proponent's Environmental Assessment (PEA), and the comparison of each alternative to the proposed project is provided in Chapter 6, Comparison of Alternatives. The project is described in detail in Chapter 3, Project Description, of this PEA.

Because the CPUC anticipates that an EIR may be prepared for the state environmental document, this PEA section has been prepared consistent with CEQA requirements to support the CPUC action. CEQA Guidelines Section 15126.6 states that an "EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternative." The alternatives considered must represent a reasonable range of potentially feasible alternatives that foster informed decision-making and public participation. An EIR is not required to consider alternatives that are not feasible. The rationale for selecting the alternatives should be discussed.

Section 4.1 discusses the alternatives evaluation methodology. Section 4.2 lists alternatives considered and describes those carried forward for analysis. Section 4.3 provides a description of the No Project Alternative. Section 4.4 discusses alternatives that were rejected and the reasons for the rejection.

4.1 Alternatives Evaluation Methodology

As noted in the CEQA Guidelines Section 15126.6(a), 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, and must be potentially feasible. To comply with these requirements, PG&E screened potential alternatives based on three criteria:

1. *Does the alternative meet most basic project objectives?*

   Section 15124(b) of the CEQA Guidelines requires that an EIR contain a clearly written statement of objectives to help the lead agency develop a reasonable range of alternatives to the proposed project to evaluate in the EIR. Moreover, a project may not limit its objectives in such a way as to effectively confine the range of feasible alternatives that are available. The project objectives are discussed in Chapter 2.

   The purpose of this project is to replace power line equipment that has reached the end of its useful life, to ensure adequate line clearances between the ground or land use, and to reconductor existing project power lines to accommodate future energy needs in the north Oakland area. The project is needed for safe operation of the lines. Refer to Chapter 2 for additional discussion of the project purpose.

   PG&E has identified the following objectives for the project:

   - Provide lifecycle updates of the Moraga–Oakland X 115 kV four circuit power line path by removing and replacing four circuits to avoid future reliability issues while maintaining safe operations.
   - Replace four project power line circuits using a larger size conductor that will accommodate the region's reasonably foreseeable future energy demands.

- Ensure the project at completion meets power line reliability and safety requirements and industry standards.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

2. *Does the alternative avoid or substantially lessen any significant environmental effects of the proposed project (including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the proposed project)?*

   Per Section 15126.6(a) of the CEQA Guidelines, alternatives considered must "avoid or substantially lessen any of the significant effects of the project." Based on the analysis presented in Chapter 5, Environmental Analysis, the project is not expected to result in significant impacts. Nevertheless, PG&E evaluated alternatives based on their potential to reduce environmental impacts, including the following potential impacts:

   - Conflicts with existing land uses
   - Noise and air quality impacts from construction
   - Impacts to visual resources
   - Impacts associated with wildfire

3. *Is the alternative feasible?*

   As defined by Section 15364 of the CEQA Guidelines, "feasible" means capable of being accomplished in a successful manner within a reasonable time period, taking into consideration economic, environmental, legal, social, and technological factors. PG&E considered these factors in evaluating the overall list of potential alternatives. To evaluate the feasibility of different alternatives, PG&E considered the evaluation factors in Table 4.1-1.

Table 4.1-1. Evaluation Factors and Existing Setting

Evaluation Factors	Existing Setting
Constructability and Maintenance	▪ Site side slope ▪ Work area access and staging ▪ Use of typical construction equipment (cranes and helicopters) ▪ Geotechnical conditions, including crossing of known faults and landslide-prone regions ▪ Road width and road geometry
Compatibility with Land Use and Land Ownership	▪ Land ownership and jurisdiction, including need for new ROW ▪ Conservation easement ▪ Land use ▪ Removal of existing residential buildings ▪ Restrictions on use of properties (for replacement lines)
Compatibility with Infrastructure	▪ Existing utilities and facilities ▪ Other linear facilities
Protection of Resources	▪ Wetlands and waterways ▪ Historic landmarks and historic places ▪ Visually sensitive areas ▪ Wildfire risk ▪ Biological resources

4.2 Alternatives Considered

4.2.1 Process to Identify Potential Alternatives to the Project

PG&E obtained input on potential alternatives from CAISO, community and agency stakeholder information, and project planners and engineers. The public outreach process is described in Chapter 2. In developing alternatives for consideration in this PEA, PG&E considered the following factors:

- Alternatives to the proposed project that were proposed to CAISO. This includes feedback from CAISO on PG&E's proposed project that was included in CAISO's 2019-2020 Transmission Planning Process.
- Alternatives suggested during resource agency, local government, and public outreach. In particular, in 2023, community members expressed an interest in an alternative that would place the lines underground through the Montclair neighborhood area (Montclair) within the City of Oakland.
- Project phasing. No alternatives were identified for project phasing because the entire project must be built to meet basic objectives. Ongoing periodic replacement of small numbers of structures is incorporated in the No Project Alternative.
- Alternatives using the existing ROW. Primarily, this would be to place the lines underground within the existing ROW. This was deemed infeasible based on several issues, including steep and varying topography and lack of access to the ROW by construction and maintenance vehicles that would be required for underground lines. Undergrounding along the existing ROW also would result in major tree removal, ground disturbance to residential landscaping, and removal of existing residential structures. Therefore, underground in the existing ROW was not considered as an alternative.
- Alternative replacement locations outside the ROW. PG&E reviewed multiple alignment locations for overhead and underground alignments for different portions of the replacement.
- Engineering alternatives, including different overhead conductor type and different underground cable configurations. Alternatives with three or more overhead and underground segments along the same circuit would require a transition station at one end of an isolated underground segment instead of using transition structures. A transition station would be required to protect the conductor in the event of an electrical fault occurrence along the alignment. A transition station for four circuits would be approximately 0.5 acre in size and similar to a substation design with a level and rocked surface area and perimeter fence. Covered cable would further reduce wildfire risk compared to the project; however, it is too heavy and is not available for power lines at this voltage.
- Renewable energy, energy conservation, energy efficiency, demand response, distributed energy resources, and energy storage. The potential for alternatives of this type was limited. For example, feasible reductions in energy use from energy conservation/energy efficiency would not be sufficient to eliminate the need for the four Moraga–Oakland X 115 kV circuits. Distributed energy sources and energy storage alternatives have been included for completeness.
- Power lines paralleling or crossing the Hayward Fault underground would need to accommodate fault creep and coseismic displacement measured in feet, rather than in inches, which a typical underground power line can accommodate. An innovative, unprecedented design would be required to conceptually accommodate the movement of the lines expected from the maximum credible earthquake on the Hayward Fault. This degree of displacement likely would require construction of a tunnel (of approximately a 10-foot diameter or more) with tracks from which the cables would hang. The tracks would move to accommodate a potential range of displacement. Construction of such a tunnel would be extremely costly but would still leave residual risk. In the general area, either side of the Hayward Fault zone has topography and structures that are not compatible land use for the multi-acre construction work areas required at the ends of a potential tunnel. In addition, the cable that would be used is fragile and may not be able to withstand this degree of displacement. The length of the section under the fault would make locating and addressing faults more difficult, leading to longer outages. The resulting lines may not be sufficiently reliable. Because of these

geotechnical conditions and insufficient space for construction work areas, extending power lines under the Hayward Fault was considered imprudent and was not carried forward.

The project already incorporates design strategies to reduce its footprint, including the use of monopole tubular steel poles and lattice steel poles instead of traditional towers where feasible, some longer spans that eliminate a few structures, and use of existing ROW where feasible. All underground routes discussed in this section assumed the same double-circuit duct bank and triplex XLPE cable configuration as the proposed project underground route in Park Boulevard.

As a first step in developing some of the alternatives, PG&E considered possible route segments or alternatives outside of the existing alignment for each of the three main sections – eastern, central, and western. The different topography and land use in each section present different opportunities and constraints to be evaluated separately. The section routes then could be combined with each other or sections of the project to create complete alternatives. The following subsections describe the routes considered for each section. The routes are shown on Figures 4.2-1a through 4.2-1d.

4.2.1.1 Eastern Section

The eastern section extends from Moraga Substation to the border between Alameda and Contra Costa counties, which is approximately at Manzanita Drive for the project alignment. A new overhead ROW in the vicinity of the existing alignment was determined to be infeasible because it would require new CEs and extensive grading and vegetation removal, resulting in greater aesthetic and biological resource impacts than the proposed project. Use of the existing ROW is the most feasible overhead option in the eastern section and would have the fewest environmental impacts.

PG&E evaluated use of the existing roads in this section, including unpaved fire roads and a paved road, for an underground replacement. Routes considered for the eastern section are as follows (refer to Figure 4.2-1b):

- Watertank Underground Route. This route would follow the existing alignment on the PG&E substation parcel west from Moraga Substation. At the third set of power line structures west of the substation, the route would follow an existing fire road to the northwest across two CEs that are anticipated to transfer to EBMUD. The route continues through a gate where the existing fire road enters EBRPD Sibley Volcanic Regional Preserve and passes by an existing water tank (including portions of Round Top Loop Trail and Water Tank Road). At the intersection of Water Tank Road and Skyline Boulevard, it would continue southeast on Skyline Boulevard to the intersection with Manzanita Drive for a total of approximately 3.5 miles from the substation.
- Pinehurst Underground Route. This route would be the same as the Watertank Underground Route from Moraga Substation to the third set of power line structures west of the substation, where the route would continue to follow the alignment where it crosses a CE southwest toward the fourth set of structures. Near the fourth set of structures, the route turns westward and follows a fire road within the CE to the McCosker sub-area of EBRPD Sibley Volcanic Regional Preserve. At this point, the route would follow existing fire roads generally south and southwest along existing unpaved fire roads that include portions of the McCosker Loop Trail, the Gudde Ridge Trail, and the Ninebark Trail and go past the planned group campground before arriving at the Eastport Staging Area at Pinehurst Road. It would then follow Pinehurst Road to its intersection with Skyline Boulevard (both paved) for approximately 3.0 miles in total.

Both the Watertank Underground Route and Pinehurst Underground Route would require a new ROW through EBMUD and EBRPD lands, CE modifications, and use of franchise rights. In addition, substantial civil engineering would be required, including grading and improvements to existing fire roads and county roads, widening roads to approximately 25 feet or more, installing retaining walls, reinforcing duct banks, and other civil infrastructure work to address geological conditions such as landslides. Refer to Section 4.2.3.2 for additional details on constraints for constructing underground power lines in the hills in this part of the East Bay.

Although these underground routes would reduce wildfire risk and eliminate aesthetic impacts of aboveground structures, they likely would have significant impacts to biological resources, hydrology/water quality, and land use and introduce new aesthetic impacts from new grading, roadways, and retaining walls. EBRPD and EBMUD have provided input that an overhead replacement is more compatible with their land use and both districts have expressed concern about an underground option in their jurisdictions based on the extensive temporary and permanent road widening of existing fire roads necessary to accommodate construction of the lines and maintain them during the operations and maintenance phase of the project. In addition, modification to the Moraga Creek Open Space Area and Indian Valley Preserve Area Conservation Easement and Western Hills Open Space Area Conservation Easement would be a multiyear process and the schedule to replace the aging infrastructure would be extended significantly. After consulting with the California Department of Fish and Wildlife, United States Fish and Wildlife Service, and the CE administrator, Wildlife Heritage Foundation, PG&E received input that there is a plausible risk that a new easement through the CE could be denied by any of the responsible agencies that administer the CEs. As a result, PG&E determined that the Watertank and Pinehurst Underground Routes are not feasible and they were not considered as part of an alternative.

4.2.1.2 Central Section

The central section extends from approximately the Contra Costa County-Alameda County border near Manzanita Drive to SR 13. A new overhead ROW in the vicinity of the existing alignment was determined to be infeasible because this section generally is built out with residential development. All routes are assumed to use an overhead crossing of the Hayward Fault if located adjacent to SR 13. As noted previously, having three or more overhead and underground portions of the line between substations would require transition stations instead of transition structures.

PG&E evaluated the existing roadways in the vicinity of the existing alignment for underground replacement. Routes considered for the central section are as follows (refer to Figure 4.2-1c):

- Manzanita Drive Underground. This roadway, approximately 1.0 mile between Pinehurst Road and Colton Boulevard, could serve as a portion of an underground route in the central section.
- Skyline Boulevard Underground. This roadway, approximately 0.8 mile between Pinehurst Road and Colton Boulevard, is an option instead of Manzanita Drive for a portion of an underground route in the central section.
- Colton Boulevard Underground. This underground route of approximately 2.0 miles would start at the intersection of Colton Boulevard with Manzanita Drive and Skyline Boulevard and follow Colton Boulevard south, with a brief diversion onto Heartwood Drive, then back onto Colton Boulevard and to Mountain Boulevard. It would head southeast on Mountain Boulevard to the northwest intersection of Mountain Boulevard and Scout Road. There, it would transition to an overhead route to cross SR 13 and the Hayward Fault. This route would be within the Hayward Fault zone along Mountain Boulevard. Therefore, this route would require an innovative, unprecedented design along Mountain Boulevard to conceptually accommodate the movement of the lines expected from the maximum credible earthquake on the Hayward Fault, as described previously in this section. Two approximately 10-foot wide tunnels conceptually would fit in the approximately 51-foot wide Mountain Boulevard.
- Snake Road Underground. Similarly to Colton Boulevard, this underground route would start at the intersection of Snake Road with Manzanita Drive and Skyline Boulevard and follow Snake Road south to Mountain Boulevard to the intersection with Scout Road for approximately 1.9 miles, where it would transition to overhead to cross SR 13 and the Hayward Fault.
- Shepherd Canyon Road Underground. This route would be overhead and transition to underground at approximately the intersection of Saroni Drive and Gunn Drive, and then go south in Saroni Drive for approximately 0.1 mile to Shepherd Canyon Road, then progress westbound for approximately 1.0 mile. The line would transition to aboveground in a transition station near the City of Oakland

Municipal Service Yard and connect to structures in the existing ROW. The total length of underground route would be approximately 1.1 miles.

- Redwood Peak Tunnel. Historically, the Sacramento Northern Railway used an approximately 3,700-foot-long tunnel under the Oakland Hills between Montclair (approximately at Saroni Drive and Shepherd Canyon Road) and Eastport on Pinehurst Road near EBRPD's Eastport Staging Area where the Pinehurst Underground Route transitions to Pinehurst Road.

Skyline Boulevard Underground was determined to have more severe landslide issues than Manzanita Drive Underground, so it was not considered further. Snake Road Underground is in proximity to Colton Boulevard Underground but, similarly, has issues with road width, curvature, and potential landslides, so it was not considered further. The Sacramento Northern Railway tunnel has been filled in, is of unknown structural condition and may have collapses, and does not have sufficient multi-acre work areas at either end of the tunnel for construction to rebuild for power line use, so it was not considered further.

Manzanita Drive Underground, Colton Boulevard Underground, and Shepherd Canyon Road Underground were considered for development of alternatives.

4.2.1.3 Western Section

The western section extends from SR 13 to Oakland X Substation. PG&E evaluated existing roadways in the vicinity of the existing alignment for underground replacement routes. In all cases, the routes would start overhead after crossing SR 13 and then would transition to underground; at Oakland X Substation, they would transition to aboveground. In addition, PG&E evaluated use of the existing power line ROW for an overhead alignment to Oakland X Substation. A new overhead ROW in the vicinity of the existing alignment in the western section was determined to be infeasible because the area is fully built out and removal of residences would be required.

Routes considered for the western section are as follows (refer to Figure 4.2-1d):

- Estates Drive Underground. This underground route would start from the existing ROW and extend northwest in Monterey Boulevard to the intersection of Park Boulevard. The route then would continue overland northwest up an undeveloped hillside to the west of the southbound SR 13 off-ramp north of the intersection of Trafalgar Place and Park Boulevard. The route then would split to have one double-circuit duct bank in each of Sims Drive and Somerset Road, then rejoin at Estates Drive to extend south to Park Boulevard. This route would be combined with the proposed project's underground segment from the intersection of Estates Drive and Park Boulevard to Oakland X Substation for a total of approximately 2.2 miles.
- Trestle Glen Road Underground. This underground route would follow Trestle Glen Road from Park Boulevard south to Grosvenor Place and then to Oakland X Substation. This route would be combined with the proposed project's underground segment from the intersection of Estates Drive and Park Boulevard that proceeds southwest along Park Boulevard to the intersection of Trestle Glen Road for a total of approximately 1.4 miles.
- Lincoln Avenue Underground. This underground route would start from the existing ROW and extend southeast on Monterey Boulevard. It would continue southwest on Lincoln Avenue; then northwest on MacArthur Boulevard, which turns into Excelsior Avenue; then north on Kingsley Street, which turns into Park Boulevard Way; and then transition aboveground on a transition structure at Oakland X Substation for a total of approximately 3.1 miles. This route would be within the Hayward Fault zone along Monterey Boulevard and across Lincoln Avenue. Therefore, this route would require an innovative, unprecedented design along Monterey Boulevard to conceptually accommodate the movement of the lines expected from the maximum credible earthquake on the Hayward Fault, as described in Section 4.2.1.2. An approximately 10-foot-wide tunnel would fit conceptually in the approximately 27-foot-wide Monterey Boulevard and in the 40-foot-wide Lincoln Avenue.
- Park Boulevard between SR 13 and Estates Drive Underground. Instead of transitioning to underground at Estates Drive and Park Boulevard, the lines would transition to underground just

west of SR 13 and continue underground northwest in Monterey Boulevard to Park Boulevard and southwest to Estates Drive. This route would be combined with the proposed project's underground segment from the intersection of Estates Drive and Park Boulevard that proceeds southwest along Park Boulevard toward Oakland X Substation for a total of approximately 2.0 miles.

- Western Overhead. This route would reuse the existing ROW between the Estates Drive/Park Boulevard intersection and Oakland X Substation by placing the lines overhead for approximately 1 mile.

The Trestle Glen Road Underground option was eliminated because it would connect the same points as the proposed project's underground route on Park Boulevard but would have greater constructability issues. Trestle Glen Road has a narrow street width and has several existing buried utilities. It is unlikely to accommodate one double-circuit duct bank. In addition, Trestle Glen Road is not as straight as Park Boulevard and may require more vaults. While the length of the underground portion would increase only by approximately 0.1 mile, the cost would be greater because of having to place the duct bank below the many existing utilities and potentially to add a greater number of vaults. The longer underground portion, the longer construction period, and the potential need for slope reinforcement would likely have greater impacts to adjacent properties than the Park Boulevard alternative route. Additionally, another route would be needed for the second double circuit.

The Park Boulevard between SR 13 and Estates Drive Underground route was not retained because it would pose too much risk to public safety and adjacent properties based on design issues, so it was eliminated. Park Boulevard north of Estates Drive is supported by three bridges (viaducts) under the roadway (refer to Figure 4.2-1d) that are located within approximately 1,600 feet of Park Boulevard north of Estates Drive. Underground construction in this portion of Park Boulevard would require avoidance and setback from the girders and other bridge structures. PG&E would be forced to excavate into the hillside along the northwest side of Park Boulevard to accommodate a ROW space for both duct banks. This excavation of steep uphill slopes poses a landslide risk to upslope residential structures along Estates Drive. If the route circumvented three bridge structures on the southeast side of Park Boulevard, PG&E would need to install retaining walls on the downslope side of the hill, which could pose a safety risk by undermining the bridge structures.

A variation of the Park Boulevard segment was considered where the overhead line would transition underground in Park Boulevard just west of SR 13 and then aboveground northeast of the bridge structures, a length of approximately 1,300 feet. Before transitioning to underground within Park Boulevard west of SR 13, a new overhead span at SR 13 and the Hayward Fault would be needed from the existing alignment (structures RN21 and RS21 on the northeast side of SR 13) to two new structures west of the intersection of Trafalgar Place and Park Boulevard. The area west of this intersection is approximately 60 feet lower than RN21 and RS21. The four circuits then would have short spans to connect to transition poles, either in the same general location or in Montclair Golf Course across Park Boulevard. After the underground length of approximately 1,300 feet with approximately two vaults, an approximately 0.5-acre transition station would be required at the southern end of the isolated underground segment, likely along the south side of Park Boulevard along or in Dimond Canyon Park. Retaining walls or reinforced duct banks may be needed in some locations based on landslide risk. From the transition station, new spans across Dimond Canyon Park would cross back to the existing alignment. Refer to Section 4.2.3.2 for a discussion of transition stations and landslide risk. Overall, this variation would result in the elimination of four to six structures in the existing alignment (possibly RN22, RS22, RN23, RS23, RN24, and/or RS24; refer to Figure 3.5-1), while adding two new structures, four transition poles, and a transition station with four transition poles to install an isolated underground segment. Because of the cost and impacts of the variation and the minimal benefit, this variation was not carried forward.

Estates Drive Underground, Lincoln Avenue Underground, and Western Overhead were considered for development of alternatives.

4.2.2 Identified Alternatives

PG&E evaluated the section routes that were not eliminated in combination with each other and with sections of the project to create alternatives for consideration, in addition to system-level and other alternatives. Based on the information presented in Section 4.2.1, PG&E identified eight alternatives to the project, as follows:

A. Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground (Figure 4.2-2)

B. Manzanita Drive-Colton Boulevard-Estates Drive Underground (Figure 4.2-3)

C. Shepherd Canyon Road Underground (Figure 4.2-4)

D. All Overhead Rebuild in Existing Alignment (Figure 4.2-5)

E. Proposed Project with Campground Overhead Option (Figure 4.2-6)

F. Conceptual South Overhead Alignment (Figure 4.2-7)

G. Distributed Energy Resources

H. Energy Storage

These alternatives were evaluated against the criteria discussed in Section 4.1. As discussed in Section 4.2.1, PG&E considered multiple alternatives, including both aboveground and underground configurations, and multiple locations. Nearly all the alternatives did not meet some project objectives, and most had significant technical and economic feasibility issues as well as greater impacts to some environmental resources. Ultimately, alternatives were identified that represented a range of locations and configurations to show the public why the proposed project is superior to other alternatives analyzed for technical and economic feasibility and impacts to some environmental resources. Two of the alternatives (Alternative A and Alternative E) also had been shared with stakeholders.

The alternatives are discussed in the following subsections. Figures 4.2-2 to 4.2-7 provide maps of the alternatives. Table 4.2-1 summarizes the alternatives evaluation. The alternatives are described in more detail following Table 4.2-1. Bold text in the first column indicates an alternative carried forward for consideration in this PEA.

4.2.3 Alternatives Carried Forward for PEA Evaluation

Four alternatives, Alternatives A, B, C, and E, in addition to the No Project Alternative, are carried forward for evaluation in this PEA. These alternatives are shown on Figures 4.2-2, 4.2-3, 4.2-4, and 4.2-6 and are described in the following subsections. These alternatives were selected because they meet the underlying purpose of the proposed project, meet some of the project objectives, incorporate feedback from stakeholders, and represent a reasonable range of alternatives to the project. As noted earlier in this chapter, the proposed project is not expected to result in potentially significant impacts.

4.2.3.1 Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground

Description

This alternative would replace three of the four existing Moraga–Oakland X circuits on two sets of structures in an overhead configuration (refer to Figure 4.2-2). Two circuits would be placed on a double-circuit structure and one circuit would be placed on the adjacent structure, similarly to the existing two sets of structures. The northern circuit and southern circuit would always remain on the northern and southern set of structures, respectively. The middle circuit between these two circuits would oscillate between the northern and southern set of structures, and the northern and southern

circuits would move from the outside position to the inside position when the middle circuit was on the other set of structures to minimize ROW modification. The three circuits would be built within the same ROW from Moraga Substation to the intersection with Monterey Boulevard.

From there, the northern and middle circuits would continue in an overhead configuration on one set of double-circuit structures to Estates Drive/Park Boulevard. The two circuits would transition to underground at the northwest corner of Estates Drive and continue down Park Boulevard (one single-circuit duct bank on each side of the roadway) to Park Boulevard Way and terminate at Oakland X Substation. Each circuit would be installed in a separate duct bank with a minimum 15 feet of separation. The other circuit would be installed underground in Monterey Boulevard and progress southeast toward Lincoln Avenue; then continue southwest on Lincoln Avenue before turning northwest on MacArthur Boulevard, which turns into Excelsior Avenue; then north on Kingsley Street, which turns into Park Boulevard Way; and then transition aboveground on a transition structure at Oakland X Substation for a total of approximately 3.1 miles. In addition, Alternative A would include reconductoring two portions of the Moraga–Claremont Circuits 1 and 2 115 kV lines (approximately 3 miles total), which would include installation of new structures and conductors and removal of existing structures and conductors, primarily in parks and open space. The eastern end of the reconductoring would be within the eastern extent of the Montanera Wilder Conservation Easement and adjacent to the western edge of the Lost Valley residential neighborhood in Orinda. The eastern half of the western end of the reconductoring would cross portions of EBMUD watershed and EBRPD Sibley Volcanic

Table 4.2-1. Summary of Alternatives Evaluation

Potential Alternative	Project Purpose and Objectives Criterion	Feasibility Criterion[a]	Environmental Criterion[b]
A. Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/ Lincoln Avenue Underground	Meets project purpose and most objectives.	Alternative would be more expensive because of Moraga–Claremont reconductoring and greater length of underground duct bank installation. Would require an innovative, unprecedented design along Monterey Boulevard and the eastern portion of Lincoln Avenue to accommodate movement expected from Hayward Fault.	Impacts likely greater than the project because of larger construction footprint, which would be nearly the same along the Moraga–Oakland X project alignment and would add impacts along an additional approximately 2 miles of Moraga–Claremont power line and construction impacts along the approximately 3.1 miles of the Lincoln Avenue Underground Route portion.
B. Manzanita Drive-Colton Boulevard-Estates Drive Underground	Meets project purpose and most objectives.	Extensive engineering and constructability issues that may make this alternative not economically or technically feasible. Would require significant road stabilization projects and may require demolition of homes and restrictions on use of adjacent properties. Would require an innovative, unprecedented design along Mountain Boulevard to accommodate movement expected from Hayward Fault.	Reduces permanent visual and wildfire impacts compared to the project. Construction impacts would be greater than the project for some resource areas such as traffic, safety, and air quality because of the scale of construction required for the additional underground portion. Significant and unavoidable impacts may occur to population and housing and land use based on loss of existing housing and restrictions on future uses of property.
C. Shepherd Canyon Road Underground	Meets project purpose and most objectives.	Extensive engineering and constructability issues that may make this alternative not economically or technically feasible. Would require extensive geotechnical stabilization of roadway and slopes and may require demolition of homes and restrictions on use of adjacent properties.	Reduces permanent visual and wildfire impacts compared to project. Construction impacts would be greater than the project for some resource areas such as biological resources, transportation, safety, and air quality because of the scale of construction required for the additional underground portion. Significant and unavoidable impacts may occur to population and housing and land use based on loss of existing housing and restrictions on future uses of property, and to transportation from extended closure of Shepherd Canyon Road.
D. All Overhead Rebuild in Existing Alignment	Meets project purpose and most objectives.	May not be technically feasible because of constructability issues in the western section.	Most impacts would likely be similar to the project. Land use impacts may be greater because of proximity to homes in the western section. Greater aesthetic impacts than the project because underground replacement would not occur.
E. Proposed Project with Campground Overhead Option	Meets project purpose and most objectives.	Alternative is feasible. Additional easement would be required. Introduces new angle in the power lines replacement, requiring larger structures.	Impacts would likely be similar to the project with greater impacts to biological resources from EBRPD tree removal for compliance with CPUC GO 95. Minor aesthetic impact reduction with two spans shifting slightly farther away from EBRPD campground.

Table 4.2-1. Summary of Alternatives Evaluation

Potential Alternative	Project Purpose and Objectives Criterion	Feasibility Criterion[a]	Environmental Criterion[b]
F. Conceptual South Overhead Alignment	Meets project purpose and most objectives.	Not legally or economically feasible. Would require extensive new ROW. Substantially greater cost because of the greater length and acquisition of new ROW.	Impacts would be substantially greater than the project because of the significantly increased length of the project and associated construction impacts. Existing CEs in the eastern section prohibits new development. Significant biological and aesthetic impacts from new alignment in parks and open space.
G. Distributed Energy Resources	Would not meet project purpose or objectives.	Not technically feasible to provide sufficient distributed resources to eliminate need for Moraga–Oakland X path.	Unable to determine because exact improvements are unknown.
H. Energy Storage	Would not meet project purpose or objectives.	Not technically feasible to provide sufficient energy storage to eliminate need for Moraga–Oakland X path.	Unable to determine because exact improvements are unknown.

[a] Considers economic, environmental, legal, social, and technological factors.

[b] Proposed project will not result in significant environmental impacts.

Bold = alternatives carried forward in the PEA.

Regional Preserve and most of the western half is adjacent to the southern edge of the City of Oakland's North Oakland Sports Center ball fields. The western half of the western portion would cross or parallel roads with adjacent residential use such as Grizzly Peak Boulevard, Skyline Boulevard, Balsam Way, Pine Needle Drive, Broadway Terrace, Gwin Road, Fairlane Drive, Swainland Road, Pali Court, Glenarms Drive, and the northern extent of Mountain Boulevard.

Construction activities for the overhead replacement of the Moraga–Oakland X lines would be similar to the project, including installation of new and removal of existing structures and conductors. Modifications to Moraga and Oakland X substations would be similar to the project with the addition of minor modifications to the Moraga–Claremont line terminals. Construction activities for this alternative would be more extensive than the project, given the additional construction activity to reconductor the Moraga–Claremont line, including additional pull sites and helicopter use and potential structure replacement, and construction activities for the Lincoln Avenue Underground route. As discussed previously, this route would require an innovative, unprecedented design along Monterey Boulevard and in the eastern portion of Lincoln Avenue to conceptually accommodate the movement of the underground line expected from the maximum credible earthquake on the Hayward Fault.

Rationale for Carrying Forward

Alternative A had been one of PG&E's Northern Oakland Area Reinforcement projects, and it represents a different engineering alternative with a different type of overhead conductor and underground cable configuration. This alternative would meet the project objectives.

Public and Agency Comments

Alternative A was shared with the CPUC and some local jurisdictions as part of earlier project development and was included as a potential alternative presented at the April 2024 open house. No specific negative comments were noted.

4.2.3.2 Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

Description

This alternative would incorporate the Manzanita Drive and Colton Boulevard underground routes described in Section 4.2.1.2 (refer to Figure 4.2-3). It would replace the existing Moraga–Oakland X 115 kV lines by replacing overhead lines in the existing ROW in the eastern section, in Contra Costa County, the same as the proposed project. From there, the route would transition belowground near Manzanita Drive and follow Manzanita Drive west to Colton Boulevard, with two double duct banks in the roadway. The underground alignment then would follow Colton Boulevard south, with a brief diversion onto Heartwood Drive, then back onto Colton Boulevard to Mountain Boulevard. It would head southeast on Mountain Boulevard to the northeast intersection of Scout Road, where it would transition to overhead to cross over SR 13 and the Hayward Fault. It would transition underground west of SR 13 within an undeveloped hillside northwest of the intersection of Trafalgar Place and Park Boulevard. From there, the alignment would go southwest with one double-circuit duct bank in Sims Drive and one double-circuit duct bank in Somerset Road. Both duct banks would rejoin within Estates Drive and continue to Park Boulevard, progress southwest within Park Boulevard to Park Boulevard Way and terminate at Oakland X Substation. This alternative would have approximately 1.6 miles of lines replaced overhead, approximately 4.2 miles of lines replaced underground, and multiple transitions between overhead and underground sections.

This alternative would have similar construction activities as the project for replacing the eastern section overhead; constructing the underground portion on Park Boulevard between Estates Drive and Oakland X Substation; removal of the existing overhead Moraga–Oakland X 115 kV lines in all the central and western sections after replacing underground; and modifications to Moraga and Oakland X substations.

Transition Station

To achieve reliable line operation, system protection equipment needs to be interset on a hybrid line with multiple section lines. Where neither end of an underground segment of a power line is connected to a substation, a transition station is required to provide system protection information indicating approximately where an electrical fault in the line has occurred. An electrical fault in this context means the flow of electricity is interrupted. An electrical fault can occur in both overhead and underground lines and can happen during several conditions, such as when a tree branch falls onto the line, there is an unanticipated dig into the duct bank, land movement impacts the duct bank, during power surges, or when the flow of electricity in the line is otherwise interrupted. Overhead power lines can have temporary, semi-temporary, and permanent fault conditions. Temporary faults include when a tree branch falls on a conductor long enough for a fault to occur, but then it falls off the conductor of its own accord. A semi-temporary fault is similar to a branch falling on a conductor but then the branch does not fall off by itself and instead requires removal by an electrical worker. Permanent faults such as damage to an underground cable or overhead conductor require replacement of the material before the system can be reenergized.

When a fault happens on a line, advanced safety technology can turn off the line within 0.1 second. Before restarting the line, protection equipment at a substation calculates the approximate distance from the substation to the electrical fault location on the circuit. This approximate distance is communicated to a field team who will inspect the potential electrical fault location to determine what occurred and perform any maintenance required before requesting the flow of power through the line be restarted. When a line has an isolated underground segment, the substation protection equipment is unable to determine if the fault occurred in the underground segment or the overhead segment. In consideration of the distinct operation characteristics of overhead and underground circuits, field crews are trained to conduct either overhead maintenance or underground maintenance. When an electric fault occurs on a hybrid line, potentially both types of field crews would be mobilized instead of a single field crew type for a nonhybrid circuit. Without a transition station, addressing faults and restoring power would take substantially longer because potentially the entire length of line would need to be inspected (beginning by inspecting vault by vault) before being able to identify the electrical fault location through a process of elimination. Without protection equipment at one end of an isolated underground segment, reliability may fall to unacceptable levels with the slow inspection process. A transition station at one end of an isolated underground segment will include protection equipment that can estimate the approximate fault location on the underground segment and thereby reduce the amount of time required to inspect and restore power.

A transition station needs to include adequate separation between cable vaults for the incoming underground lines, a riser structure for each circuit, a communication enclosure with protection equipment, and other related equipment within security fencing. A transition station needs to have a relatively flat yard area with safe vehicular access to all equipment for maintenance during varying weather and day or nighttime conditions.

A transition station for this project would occupy approximately 0.5 acre to accommodate the four 115 kV circuits and associated station equipment. An example transition station on two PG&E 230 kV lines is shown on Figure 4.2-8. For Alternative B, it is assumed that the transition station would be constructed at the west end of the underground segment because the area contains what appear to be more suitable locations than the eastern end (refer to Figure 4.2-3), including commercial parking lots with existing road access. Transition poles would be used at other transition locations, including the underground segment terminating at Oakland X Substation, which will have the requisite protection equipment within the substation.

Deflection and Landslides

The distance or angle measurement of how a pipe bends or deforms is called deflection. Deflection results when permanent ground displacement occurs. Buried utilities have a range of flexibility. Underground power line cables have a much lower deflection tolerance than other types of utility pipes

such as water or sewer. Structural design of buried utility pipes is informed by internal fluid pressure and external soil load. In general, buried utility pipes carrying water are generally considered "flexible pipes," and can tolerate more deflection than underground power cables (Watkins and Smith 1973; PPI 2008). The existing buried utility lines in roads provide local neighborhood service, unlike the power lines that provide power to the north Oakland area, including the Port of Oakland and the City of Alameda. An impact to the buried water or sewer lines would have a localized impact versus the broader impact resulting from a rupture of the project proposed power lines. Repair of water or sewer line typically is completed in a shorter time than repairing underground electric power lines. In an area with a risk of landslides, therefore, underground power lines would be subject to a greater risk of failure than other underground utilities, and the consequences of failure are greater for underground power lines than for other utility lines in terms of both impacts to service and repair time. In addition, there is no feasible option to place water, sewer, and some other utilities aboveground whereas power lines can be installed aboveground.

Based on the cable manufacture guidance (Alverez pers. comm. 2024), the maximum allowable elongation of the triplex XLPE cable bundle is estimated at no greater than 50 millimeters (approximately 2 inches) after installation. The allowable elongation accounts for tightening of the bundle through the approximate maximum 1,300-foot cable lengths between splice vault locations. The cable and the duct bank system would likely be damaged beyond use with any lateral deflection of the duct bank and conduits because of earth movement. Because the cable splices in the vault would be well supported, the more likely failure from displacement would be in the cable between vaults. This is a reliability risk for the electrical system during a seismic or landslide event, when it is important to have these circuits available to provide power to customers. Repair of the underground power lines at that point would require demolition of entire portions of the duct bank and cable, resulting in a long-term outage on the order of 6 months or greater, not including other ground stabilizing construction that would necessarily be performed to stabilize the slope and road prior to repair of the power line facilities.

Design and construction of this alternative's underground portion in the Montclair neighborhood hills of the City of Oakland would entail extensive engineering and constructability issues to address geotechnical conditions. Because of the local geology and soils, the Oakland Hills contain multiple existing landslides and areas of extremely elevated landslide susceptibility. These slides can continue to move for several reasons, including rainfall, earthquakes, and destabilization from construction activities. Movement of these slides is common, although unpredictable, and can be observed in the area; for example, where local roads are cracking. Refer to Figure 4.2-9 for photos of a slide in Novato, California, in an area with similar soils and geology. As can be seen in this image, deep-seated landslides may extend below a valley floor and may uplift soils near the base of the slope.

In addition, seismic activity can cause new slides in areas with steep slopes. This underground portion of Alternative B is near the active Hayward Fault (refer to Section 5.7) and is in an area with steep slopes; therefore, it also would be at risk for seismically induced slides. PG&E used a proprietary regional landslide model (PG&E 2023) and United States Geological Survey (USGS) deterministic seismic input of the Hayward Fault to identify locations with greater than 50 percent probability of exceeding the 2-inch threshold of deformation of a duct bank causing failure of the line from landslides. The spectrum of horizontal ground motion was derived using the USGS Unified Hazard Tool (USGS 2024) with a mean moment magnitude of approximately 7.0 for the design seismic event. Figure 4.2-3 shows these landslides mapped along this underground portion of Alternative B.

The central underground segment of this alternative is in an area with a risk of landslides that could impact the duct banks containing the underground power lines by several feet, which would exceed the displacement tolerance of the cable. A landslide such as this would require reconstruction of the underground line duct bank, as previously noted, which could affect power delivery to large portions of the East Bay for long periods of time. Some power could potentially be rerouted from other area substations for a portion of the distribution customers depending on the seasonal demand. In addition, a long-term temporary overhead line, or shoofly, could be installed to connect with adjacent overhead segments while the duct bank was being designed and replaced. A shoofly typically involves installing tall poles to support overhead conductors as a temporary solution to provide power. The prevalence of

landslides in the area presents an unacceptable risk to reliability without engineered protection and additional construction. One option to protect underground power lines is to build duct banks with much thicker reinforced concrete walls using rebar reinforcement; however, greater road width is required for this construction and, as described in the following text, the road widths for a typical duct bank width already represent a constraint. Additionally, there is a practical limit to the amount of reinforcement for a duct bank. Duct bank geometry, reinforcement detailing, and construction means and methods will impact the ability of a reinforced duct bank to be feasible. Geological conditions also can be addressed with retaining walls or other subgrade geotechnical improvements to remediate global slope stability hazards. In either case, substantial in-situ geotechnical information must be collected to evaluate the feasibility of using either reinforced duct bank or other geotechnical improvements to protect the proposed underground power lines.

Exploratory data from geotechnical investigations would be needed from each landslide shown on Figure 4.2-3 before detailed design could be completed. Extensive soil boring sampling would need to be done to collect the data. Typically, a track-mounted drill rig is used to move along a transect and collect soil samples. A boring sample would need to be taken every 50 to 100 feet along a transect from the duct bank location to the top of the landslide as well as one boring above the landslide. These sampling transects would need to be repeated approximately every 200 feet. Boring sampling would require bringing heavy construction equipment, including drilling rigs, onto residential properties. Because of the steep slopes along this alternative's alignment, grading may need to be performed to provide vehicle access to place the drilling rigs at the sampling locations. Trees and shrubs in the access and sampling areas would need to be removed, which could affect much of the existing vegetation on each property. After access and the work area are established, sampling at each location would take approximately 2 days. When working from the roadway, a single lane closure would be required during the geotechnical investigation activity. The exploratory data would confirm whether a retaining wall is needed at each slide location and, if so, the size of wall needed. Land use restrictions such as no changes to buildings or no new trees would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components that could impact the underground line installation.

Typically, retaining walls would be constructed in locations where the duct bank displacement from a landslide could exceed 2 inches. While the length of the wall typically extends along the width of the landslide, the wall design would depend on the depth of the landslide. Shallower landslides may only need a simple retaining wall and a duct bank itself could be designed to be a headwall to deflect soil movement. Moderate landslides may need a retaining wall in the range of 15 to 30 feet high, which would be visible to surrounding areas. Large landslides may require a much more robust wall, for example with tiebacks or rock anchors. Construction of each retaining wall would require removal of vegetation and excavation into the hillside. Installation of a retaining wall can vary from approximately 3 weeks to several months depending on the wall type which can include construction activities such as pile driving. Based on current data, it is assumed a retaining wall of unknown size would be needed along all landslides shown on Figure 4.2-3 to prevent displacement greater than 2 inches.

Road Width

The roadways in the Manzanita Drive and Colton Boulevard underground routes generally are narrow and present constraints to construction. Each of the two double duct banks (each duct bank would contain two circuits) is approximately 4 feet wide. In addition, 15 feet of separation must be maintained between the edges of the two duct banks to address mutual heat generated by each power line circuit and to maintain ampacity, which is the amount of current a conductor can safely carry without exceeding its temperature rating. The 15 feet of separation is a standard for separation of single circuits developed by PG&E through many years of project development. Separating the double duct banks by less than 15 feet would result in too great a loss of ampacity from co-heating and would not achieve the project objective to accommodate load demands in the Oakland area. Therefore, a minimum road width of at least 22 feet is needed to fit both duct banks, not inclusive of other utility obstructions. However, utilities, including sewer and water, natural gas distribution, and telecommunication lines, are expected to be present in the roadways in unknown locations and may present additional constraints if they cannot be relocated to provide enough room for the duct banks.

In addition, temporary construction areas wider than 22 feet would be needed for some construction activities. For example, a typical crane truck for installing precast power line vaults would require a work area of approximately 32 feet by 40 feet and additional space above that to rotate. Conservatively, a typical hydraulic excavator, while only approximately 16 feet wide, requires an approximately 53-foot-wide space to rotate. Required work areas for vaults, approximately 1,500 square feet, also may extend beyond existing road width to accommodate the typical excavation size of approximately 42 feet long by 18 feet wide by 13 feet deep. Typically, the workspace for open trenching operations to install the duct bank between the vaults may extend up to approximately 1,500 feet long by 24 feet wide. Manzanita Drive, Colton Boulevard, Heartwood Drive, Sims Drive, Somerset Road, and Estates Drive are narrow, often less than approximately 25 feet wide. It is likely that the road will need to be fully closed where and when construction is occurring, potentially for up to several weeks at some locations such as where vaults or retaining walls or other geotechnical improvements are constructed. Where road width is not sufficient, temporary or permanent widening of roads may be required. The route has roads that narrow to 20 feet in several locations, which will only accommodate one duct bank and will limit construction work areas and access for some roadway lengths. If roadway width, soil borings, and further design indicated that only one duct bank instead of two would fit in the roadways, construction of another alignment would be required for the second duct bank. That alignment would face similar, if not greater, constructability issues.

Vaults would be constructed along the alignment of similar dimensions (approximately 12 feet wide by 22 feet long by 10 feet tall) and materials as the proposed project. Delivering precast vaults, which would be done for the project, may not be feasible in some locations of the alternative because the large trucks delivering the vaults may not be able to access all locations based on the narrow and winding roads. Additionally, work area constraints would likely prevent cranes from lifting the vaults into place. While vaults can be cast in place, the roadway width feasibility issues would constrain cement trucks and other equipment. When a vault is cast in place, the excavation, installation, and concrete curing of the vault would likely require road closures of 3 to 4 weeks per vault.

Curves in a road create additional tension necessary to overcome friction of cable in the conduit when the duct bank bends around a curve. The splicing action relieves the tension developed by the series of bends by reducing the total degrees of bend the cable must be pulled through during installation. The curves in the roadway would reduce the spacing of the vaults for the alternative and further increase the number of vaults. Because of the much greater length of underground line and greater road curves compared to the project, Alternative B would have many more vaults than the proposed project given the underground portion is approximately 4.2 miles through curving roads versus the proposed project's approximately 1-mile of underground lines in roadway with few curves. The proposed project is anticipated to require approximately 5 to 10 vaults with an average spacing of approximately 1,300 feet per line. Alternative B would have up to approximately 25 to 30 vaults minimum with a maximum spacing at approximately 1,000 feet per line to address the friction created in the cable as it follows the curves of the road. However, numerous splices in an underground power line circuit introduce an increased risk of failure because the circuits are not a solid length of contiguous cable. Additionally, the triplex XLPE cable reels that hold at least 1,300 feet are large and heavy. These cable reels are transported on a semitruck lowboy trailer, which is unlikely to be able to transport the cable reels to installation location on narrower, curvy roadways with undulating or steep grades.

Rationale for Carrying Forward

Alternative B, the Manzanita Drive-Colton Boulevard-Estates Drive Underground Alternative, would meet the project purpose and some of the objectives, although it would not be economical and would not minimize environmental impacts. Exploratory borings and additional design may indicate that the alternative is not technically feasible. The alternative was carried forward because it appears to be one of the less technically constrained options for placing the lines underground through the central section.

Public and Agency Comments

Community members have expressed an interest in an alternative that would underground power lines in residential areas, particularly in the central section.

4.2.3.3 Alternative C: Shepherd Canyon Road Underground

Description

This alternative would replace the existing Moraga–Oakland X 115 kV lines by constructing new overhead lines in the existing ROW in the eastern section in Contra Costa County and part of the central section, the same as the proposed project (refer to Figure 4.2-4). From there, the route would transition underground at approximately the intersection of Saroni Drive and Gunn Drive, which was identified as the first potentially feasible transition location on PG&E-owned land from the eastern boundary of Alameda County. The two double duct banks would go south in Saroni Drive to Shepherd Canyon Road for approximately 0.8 mile. The lines would transition to aboveground near the City of Oakland Municipal Service Yard in a transition station before connecting overhead to structures in the existing ROW to cross SR 13 and the Hayward Fault. It would continue overhead in the existing ROW to the intersection of Estates Drive and Park Boulevard, where it would transition underground in Park Boulevard and Park Boulevard Way to Oakland X Substation. This alternative would have approximately 3 miles of lines replaced overhead and approximately 2 miles of lines replaced underground.

This alternative would have similar construction activities to the project, including replacing the eastern section overhead, removing the western section of the existing lines, building the underground portion on Park Boulevard from Estates Drive to Oakland X Substation, and modifying Moraga and Oakland X substations. This alternative also would remove approximately 1 mile of existing lines in the central section after approximately 1 mile of underground lines were built and in service.

Transition Station

The underground section along Shepherd Canyon Road is not connected to a substation and, therefore, as discussed for Alternative B, this alternative would require a transition station at one end of the Shepherd Canyon underground segment, with transition poles used at the other end of the underground segment transition location. The options for a 0.5-acre space are limited at the north end of this segment. The largest space identified, a small PG&E-owned vacant parcel at the intersection of Gunn Drive and Saroni Drive, is steeply sloped, has landslide potential, is irregularly shaped, and at approximately 0.25 acre, likely is too small. As a result, Alternative C would include the transition station at the southern end of the Shepherd Canyon underground segment in the City of Oakland Municipal Service Yard, which uses an area of approximately 0.9 acre. Use of approximately 0.5 acre in this location for a transition station would require the City of Oakland to sell the land to PG&E. It also likely would require relocation of the Municipal Service Yard to a new unidentified location. The Shepherd Canyon Park field on the east side of Shepherd Canyon Road, across from the Municipal Service Yard, also was considered. However, the loss of parkland is unlikely to be supported by the City of Oakland; Shephard Creek, which runs underground in the field, may constrain the transition station location; and the location would introduce a sharper bend to the underground lines than lines that connect to a transition station in the Municipal Service Yard location.

Two options were identified to connect the aboveground circuits from the Municipal Service Yard to the existing ROW. One option would have the four circuits connect directly from the transition poles south-southwest to the new overhead structures RN20 and RS20, which would result in the lines crossing over a private residence. The other option, which avoids passing over a private residence, would require two new structures in the existing alignment approximately 170 feet southwest of the Municipal Service Yard on the hillside north of Shephard Creek. Connecting the overhead lines to RS19 and RN19 is not reasonably feasible because it would require transition structures 130 feet tall or greater, clearing of vegetation between the transition structures and RS19/RN19, and the replacement of RS19/RN19 with structures 20 to 30 feet taller than the existing.

Deflection and Landslides

Construction of this alternative's underground segment along Saroni Drive and Shepherd Canyon Road would entail extensive engineering and constructability issues. As discussed for Alternative B, the Oakland Hills contain multiple existing landslides. Figure 4.2-4 shows the landslides that were mapped along Shepherd Canyon Road. As discussed in Section 4.2.3.2, these landslides can continue to move, seismic activity from the Hayward Fault can cause new landslides on steep slopes, and Shepherd Canyon Road is at risk from landslides that can be multiple feet deep and lift the roadway and/or move it laterally, causing deflection of the underground lines.

As with Alternative B, the prevalence of landslides in the area presents an unacceptable risk to reliability without engineered protection, which likely would be retaining walls based on road width constraints. Retaining walls would be constructed in locations where the displacement from a landslide could exceed 2 inches. This includes a large landslide area north of Alternative C along Shepherd Canyon Road, west of Paso Robles Drive (refer to Figure 4.2-4). PG&E Geosciences staff conducted a field visit in 2024 at this landslide location to gather observations. The field observations at the ground surface and road cuts included the type of rock, estimate of the strength of the blocks of rock, and how fractured and weathered the rock is. These field observations were evaluated in two strength models: Hoek-Brown (Hoek and Brown 2019) and Bay Area Coseismic Landslide Tool (Wade et al. 2023). Geological strength can be used to estimate the mechanical behavior of typical rock masses encountered in tunnels, slopes, and foundations. These models evaluate the probability of geotechnical conditions, including slope stability and landslide deformation. The deformation predicted for this landslide area using the Bay Area Coseismic Landslide Tool strength model is approximately 23 inches of deformation and the Hoek-Brown strength model is approximately 27 inches of deformation for the design seismic event (mean moment magnitude of approximately 7.0, USGS 2024). Based on these predictive landslide models, the Alternative C underground segment in Shepherd Canyon Road likely would be subject to deformation much greater than 2 inches. Retaining walls or other civil infrastructure would be needed along the north side of Shepherd Canyon Road and could result in removal of residences. Exploratory geotechnical data would be needed from each landslide shown on Figure 4.2-4 before detailed design could be completed. Extensive soil boring sampling would need to be done to collect the data using the same grid process described in Section 4.2.3.2. As described for Alternative B, boring sampling would require bringing heavy construction equipment, including drilling rigs, onto residential properties, grading to provide vehicle access to get the drilling rigs to the sampling locations, and extensive vegetation removal. The exploratory data would confirm whether a retaining wall is needed at each landslide location and, if so, the size of wall needed. Land use restrictions would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components of the underground line installation. Based on current data, it is assumed a retaining wall of unknown size would be needed along all landslides shown on Figure 4.2-4 to prevent displacement greater than 2 inches. Construction of each retaining wall would require removal of vegetation and, depending on location, excavation into the hillside.

Road Width

Saroni Drive and Shepherd Canyon Road generally are narrow roadways, which presents constraints to construction. As discussed for Alternative B, a minimum road width of 22 feet is needed to fit both double duct banks, and temporary construction areas wider than 22 feet would be needed for some construction activities.

Shepherd Canyon Road is known to contain utilities. Maps provided by the City of Oakland show that water and sewer are in the roadway; other utilities also may be present. However, utilities, including sewer and water, natural gas distribution, and telecommunication lines, are expected to be present in the roadways in unknown locations. The utilities may present additional constraints if they cannot be relocated to provide enough room for the duct banks. Where road width is not sufficient, temporary or permanent widening of the road may be required. The Montclair Railroad Trail, a paved recreational trail located along the northern side of a portion of Shepherd Canyon Road, could potentially be used if additional width were needed. The trail would require long-term closures for geotechnical investigation

and then construction. Saroni Drive likely would need to be fully closed during construction activities for several weeks and Shepherd Canyon Road between Escher Drive and Oakland Fire Station No. 24 would close for up to several months; work areas within roadways typically require the width of at least two lanes and most of the roadways do not have a road shoulder.

Rationale for Carrying Forward

The Shepherd Canyon Road Underground Alternative would meet the project purpose and some of the objectives, although it would not be economical and would not minimize most of the environmental impacts associated with the proposed project. Exploratory borings and additional design may indicate that the alternative is not technically feasible. It appears to be one of the less technically constrained options for placing the lines underground through the central section. It provides a contrast to Alternative B, which has narrower and more winding roads but generally fewer landslide issues than Alternative C.

Public and Agency Comments

Community members have expressed an interest in an alternative that would underground power lines in residential areas, particularly in the central section.

4.2.3.4 Alternative E: Proposed Project with Campground Overhead Option

Description

Design and construction of this alternative would be the same as the proposed project from Moraga Substation to the two structures northwest of the Eastport Staging Area entrance of EBRPD Sibley Volcanic Regional Preserve (refer to Figure 4.2-6). The two structures would be replaced approximately 325 feet northwest of the existing locations, introducing an angle to the lines and moving the back spans farther away from a planned campground near the Eastport Staging Area entrance of EBRPD Sibley Volcanic Regional Preserve. The length of this portion of the alignment with the angle would increase the overall total 5-mile line length by approximately 100 feet. New easements would need to be acquired and the front spans would move out of PG&E property owned in fee. To maintain CPUC GO 95 compliance, vegetation management – including removal of trees – would be required within EBRPD Sibley Volcanic Regional Preserve and EBRPD Huckleberry Botanical Regional Preserve. Continuing southwest from this location, this alternative would be the same as the proposed project to Oakland X Substation. Impacts of this alternative would be similar to the proposed project.

Rationale for Carrying Forward

This alternative would meet the project purpose and objectives and appears to be feasible.

Public and Agency Comments

EBRPD agreed to this PG&E proposed option because it could reduce the visibility of the overhead lines during stargazing from the planned campground.

4.3 No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that the No Project Alternative be considered to allow decision makers to compare the impacts of approving the proposed project against the impacts of not approving the proposed project. CEQA requires a discussion of what would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, the existing Moraga–Oakland X lines would not be replaced. Lifecycle updates of line structures would not be completed, leading to future reliability issues and potentially unsafe operations. Lifecycle updates would occur in a piecemeal fashion for years driven by ongoing

inspections that identify maintenance issues, including additional aging structure replacement. NERC recommendations to the industry for clearance and wildfire risk reduction would occur with each structure replacement over an indeterminate amount of time. In addition, forecasted load growth in the project area would not be accommodated and PG&E would be unable to meet future customer demands. The No Project Alternative would not meet project objectives in the intended timeframe.

4.4 Rejected Alternatives

This section discusses all alternatives considered by PG&E that were not selected for further analysis. For each alternative, this section provides a brief description of the alternative, a description of why the alternative was rejected, and comments from the public or agencies about the alternative. Table 4.2-1 provides a discussion of the extent to which each alternative would meet project purpose and objectives, its feasibility, its potential to reduce environmental impacts of the project, and any new impacts that could occur with its implementation.

4.4.1 Alternative D: All Overhead Rebuild in Existing Alignment

4.4.1.1 Description

This alternative would replace the power lines overhead in the existing ROW for the full length of the existing alignment (refer to Figure 4.2-5). Design and construction of this alternative would be the same as the project from Moraga Substation to approximately the intersection of Park Boulevard and Estates Drive. This alternative would have similar impacts to the proposed project in this portion of the alignment. Between the Park Boulevard/Estates Drive intersection and Oakland X Substation, new overhead structures would be replaced at or adjacent to the location of the existing structures. The new conductors would be installed on the new structures. Because approximately 80 residences are located immediately below the conductors and adjacent to structures, residents may need to be temporarily relocated during construction. New ROW may need to be acquired for new structure locations. This alternative would replace approximately 5 miles of lines overhead in the existing ROW.

4.4.1.2 Rationale for Rejection

This alternative would have extensive constructability issues for the replaced structures between Park Boulevard/Estates Drive and Oakland X Substation given the immediate proximity of residences. It would have severe impacts on land use from locating replacement structures mainly on residential property with limited PG&E property owned in fee in this portion of the lines. While it is likely that replaced structures would be monopoles or lattice steel poles that have a smaller footprint to the existing towers, land use is predominantly residential structures or roadways in the western section of the project. Insufficient space is available to install replacement structures within the existing ROW without extensive modification of private properties, including potentially removing residences or impacting adjacent property owner's limited backyard space to install replacement structures. Power demands of the project's lines create limited periods when one or two circuits can be taken out of service, or deenergized to replace towers without the conductor attached to tower arms. While it is feasible to take two circuits out of service for a few weeks in the winter months, those weeks may only allow removal and replacement of one or two existing structures during each outage. Replacing approximately 15 structures over potentially 5 to 10 years of annual seasonal planned outages does not meet the project's schedule. These issues make the alternative infeasible. Therefore, this alternative was rejected.

4.4.1.3 Public and Agency Comments

No public or agency comments were made on this alternative. It was identified internally during PG&E's alternatives development.

4.4.2 Alternative F: Conceptual South Overhead Alignment

4.4.2.1 Description

The South Overhead Alignment Alternative would include construction of two new double-circuit lines, primarily overhead in a new ROW (refer to Figure 4.2-7). The new ROW would extend southwest from Moraga Substation through open space owned by EBMUD (Indian Valley Preserve Conservation Easement), EBRPD (Reinhardt Redwood Regional Park), and the City of Oakland (Joaquin Miller Park) and cross over SR 13/Hayward Fault. The Hayward Fault crosses Lincoln Avenue southwest of its intersection with Monterey Boulevard. The lines would remain overhead until they cross the Hayward Fault and only then transition below ground at an undetermined location west of SR 13 near Lincoln Avenue outside of the fault zone. The underground portion would be within Lincoln Avenue southwest to MacArthur Boulevard before continuing northwest into Excelsior Avenue and, finally, turning northeast on Kingsley Street and Park Boulevard Way to Oakland X Substation. This alignment would be a minimum of approximately 6 miles long, with approximately 3.5 miles of the 6 miles being overhead lines.

The existing four circuits of the Moraga–Oakland X 115 kV Line would be removed, including conductors and structures, using similar construction activities as the project. Construction of the underground portion of the alternative would entail similar activities as the project, for a greater length. Modifications of Moraga and Oakland X substations for this alternative would be similar to the project.

Construction of the new overhead lines portion would require acquisition of at least approximately 3.5 miles of new approximately 150- to 200-foot-wide ROW. New temporary and permanent access roads would be required for construction and operation. Trees and shrubs would be removed from the ROW. New lattice steel towers, lattice steel poles, and tubular steel poles would be constructed using similar construction methods as the proposed project. Construction would likely be completed with the use of helicopters over open space and parkland. Construction staging areas, including helicopter landing sites and pull sites, were not identified, but likely would be located within open space areas.

4.4.2.2 Rationale for Rejection

This alternative likely would not be legally feasible based on the need to acquire new ROW through CEs. In addition, it likely would have significant impacts to biological resources and aesthetics resulting from construction of new lines and ROW in an undeveloped area. Therefore, this alternative was rejected.

4.4.2.3 Public and Agency Comments

No public or agency comments were made on this alternative. It was identified internally during PG&E's alternatives development.

4.4.3 Alternative G: Distribution Energy Resources

4.4.3.1 Description

This alternative would implement improvements to reduce electrical system demand through distributed energy generation to the degree that the Moraga–Oakland X power lines are not needed. As discussed in Chapter 2, the structures are aging and the entire Moraga–Oakland X path requires replacement for safe operation of the lines. If it is not rebuilt, the Moraga–Oakland X path would require removal. If this alternative were to be done in lieu of the proposed project, it would need to replace at a minimum the energy demand at Oakland X Substation provided by the four 115 kV circuits with distribution energy resources. As discussed in Chapter 2, the forecasted demand at Oakland X Substation is approximately 43.31 MW for 2024 and approximately 103.1 MW in 2039.

A high-level review of this alternative assumed that the new load would be served using a solar and battery solution over a 24-hour period without weather or seasonal variation and with worst case energy consumption. The new power generation (solar and battery) was assumed to be 100 percent

renewable to inform the solar photovoltaic (PV) direct current system size. The power generated by the solar PV system would be stored in a battery that would maintain service of the load when the solar PV system was not generating (lack of sunlight).

To replace the approximately 43.31 MW load, a round number of 50 MW is used for this discussion. To provide a 50 MW constant load, the battery plant size is calculated by multiplying the load (50 MW) times the hours per day (24 hours). A 1.2 gigawatt hour (GWh) battery plant would be required to deliver 50 MW of constant load 24 hours per day.

Battery design generally sizes a battery with an assumed 20 percent degradation over 10 years. Using that progressive degradation, the initial battery plant would be sized to yield a 1.5 GWh battery plant on day 1 (1.2 GWh divided by 80 percent). PG&E would build in additional battery capacity to account for weather events such as extended storms with a conservatively sized 2 GWh battery power plant. Each 250 MW, 1 GWh Tesla Megapack requires 3 acres, and to store energy for the 50 MW load, two Megapacks, or 6 acres, of total battery plant would be needed (The Tesla Team 2019). Assuming the battery can only be charged by solar, and it cannot be charged from an electrical grid or from onsite diesel generation, then the solar PV plant would need to be capable of charging that battery completely during the day. The worst-case scenario would be wintertime charging, which offers (conservatively) only 2 solar hours per day, which would mean the solar PV direct current plant would need to be approximately 750 MW to charge the 2 GWh batteries. Typically, PG&E has found that 1 MW of solar PV requires approximately 6.89 acres of flat land. The solar PV plant would require approximately 5,167 acres (approximately 8 square miles) of solar fields to replace the load provided by the existing project power lines. The 500 MW, 2 GWh battery power plant would be an additional 6 acres. In addition, battery power plants typically are connected to a nonrenewable fuel source such as natural gas or a diesel plant to support load delivery when solar panels are blocked from receiving the solar energy during weather events such as extended storms. If the system was designed for the 2039 load forecast estimated at 103.1 MW, then the values could be doubled for an approximate estimate. Refer to Section 4.4.4 for additional discussion on energy storage.

4.4.3.2 Rationale for Rejection

Load relief has to be instantaneous and dependable, and the required amount would depend on the operating condition. Solar generation is time and weather limited. The Moraga–Oakland X power lines delivers power to two utilities (Port of Oakland and City of Alameda) that are not subject to CPUC jurisdiction. Therefore, the replacement of an approximately 43.31 MW demand at Oakland X Substation by distribution energy resources primarily would need to happen in the City of Oakland. As previously noted, this would require approximately 5,173 acres of solar fields and battery storage primarily within the City of Oakland. Vacant land of this size likely does not exist in Oakland. For example, the Oakland Coliseum property, perhaps the largest undeveloped site in Oakland, is approximately 112 acres (City of Oakland 2024). If the entire site were converted to solar generation, it would provide approximately 2 percent of the area required. To replace the current demand, a solar PV and battery plant would require flat areas approximately 46 times the size of the Oakland Coliseum Complex. In addition, the needed area for solar fields would have to more than double to meet demand in 2039. Relying on rooftop solar to meet the 43.31 MW demand is not feasible either. Approximately 42 million kWh of power is generated each year in Oakland through rooftop solar (SunPower n.d.), a level that took years to achieve, occurs only when the sun is shining, and represents only a fraction of the existing demand. Providing an additional 43.31 MW of power would take many years to generate though rooftop solar, long after the existing lines would require replacement. For these reasons, this alternative is largely infeasible.

PG&E did not perform a detailed analysis of a distribution energy resources alternative because it was determined that it would not meet the project's basic purpose and objectives. It is not technically feasible to reduce electrical system demand sufficiently to eliminate the need for the Moraga–Oakland X path. The existing facilities cannot be retained because the structures are aging, and the entire path requires replacement for safe operation of the lines.

4.4.3.3 Public and Agency Comments

No public or agency comments were made on this alternative. It was included for consistency with CPUC *Guidelines for Energy Project Applications Requiring CEQA Compliance*.

4.4.4 Alternative H: Energy Storage

4.4.4.1 Description

This alternative would implement improvements to provide sufficient energy storage in the project area that the Moraga–Oakland X path would not be needed. As discussed in Chapter 2, the structures are aging and the entire Moraga–Oakland X path requires replacement for safe operation of the lines. If it is not rebuilt, the Moraga–Oakland X path would require removal. If this alternative were to be done in lieu of the proposed project, it would need to store energy within the East Bay to accommodate the increasing forecast demand of approximately 103.1 MW at Oakland X Substation in 2039. To supply approximately 100 MW, the load is multiplied by 24 hours and calculates the need for a 2.4 GWh battery plant. This would require approximately 9 acres for battery energy storage facilities, assuming Tesla Megapack technology of 3 GWh at 250 MW is required. The battery storage facility would need to be connected to a power source that could replenish the battery on a continual basis.

4.4.4.2 Rationale for Rejection

The Moraga–Oakland X path delivers power to two utilities (Port of Oakland and City of Alameda) that are not subject to CPUC jurisdiction. The energy storage would, therefore, need to happen in the City of Oakland. As discussed in Section 4.4.3, the City of Oakland may have sufficient vacant land to accommodate 9 acres of Tesla Megapack battery energy storage power plant and generation facilities, but it requires a source of energy to charge the batteries. Energy would have to be delivered to the energy storage through new power lines if not generated, which could have impacts at least comparable to the proposed project, or through distribution energy resources, for which sufficient vacant land likely is not available (refer to Section 4.4.3).

PG&E did not perform a detailed analysis of an energy storage alternative because it was determined that it would not meet the project's basic purpose and objectives. It is not technically feasible to provide sufficient energy storage in a densely developed urban area to eliminate the need for the Moraga–Oakland X path. The existing lines would require replacement long before the needed level of energy storage and supporting energy delivery could be constructed.

4.4.4.3 Public and Agency Comments

No public or agency comments were made on this alternative. It was included for consistency with CPUC *Guidelines for Energy Project Applications Requiring CEQA Compliance*.

9. References

9.1 Chapter 1. Executive Summary

None.

9.2 Chapter 2. Introduction

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9.3 Chapter 3. Proposed Project Description

None.

9.4 Chapter 4. Description of Alternatives

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9.5 Chapter 5. Environmental Analysis

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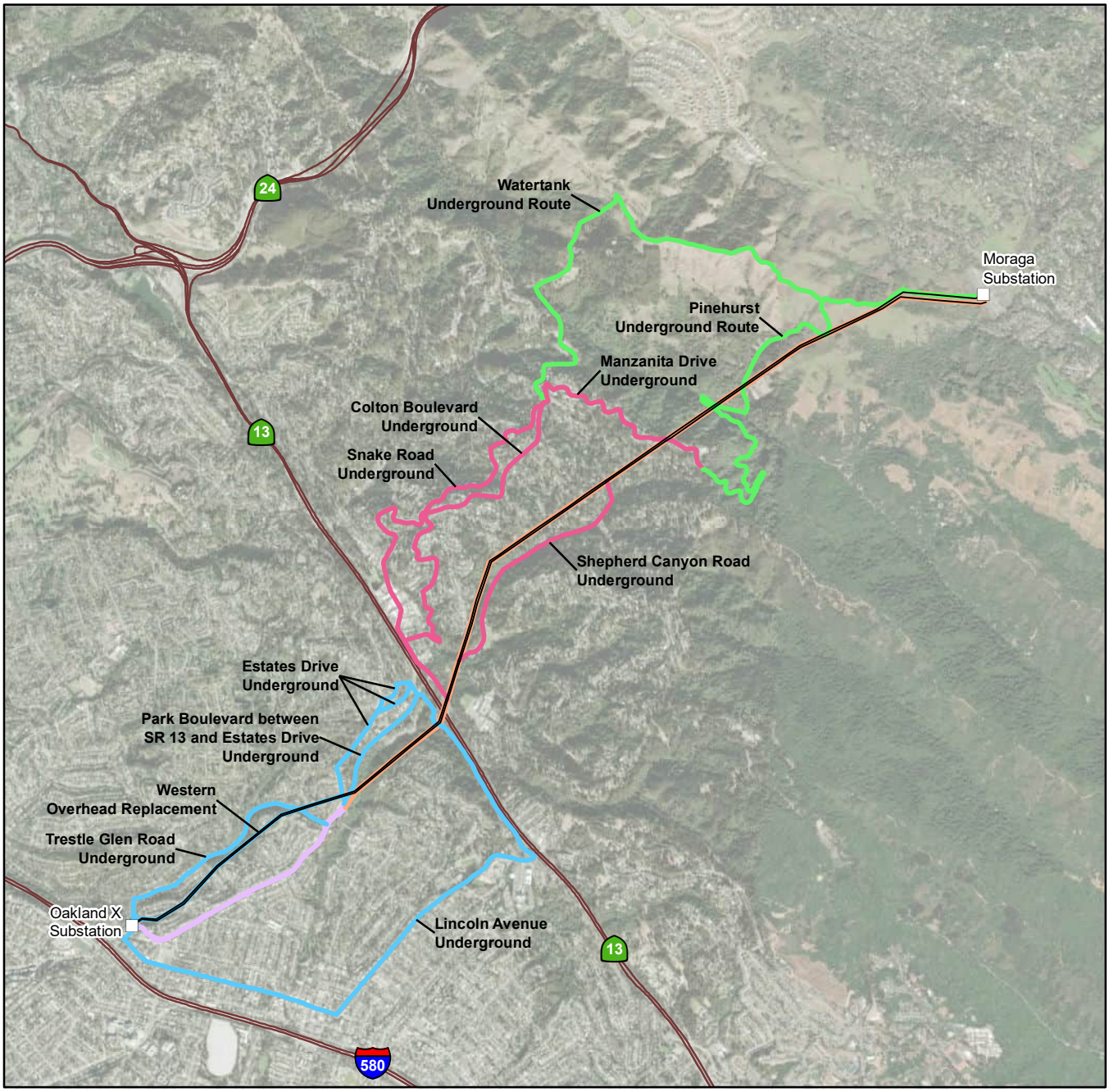
Figures



Version: 10/24/2024

Legend

- Substation
- Existing Overhead Route

Proposed Project

- Proposed Overhead
- Proposed Underground

Replacement Route (Overhead and Underground) Options

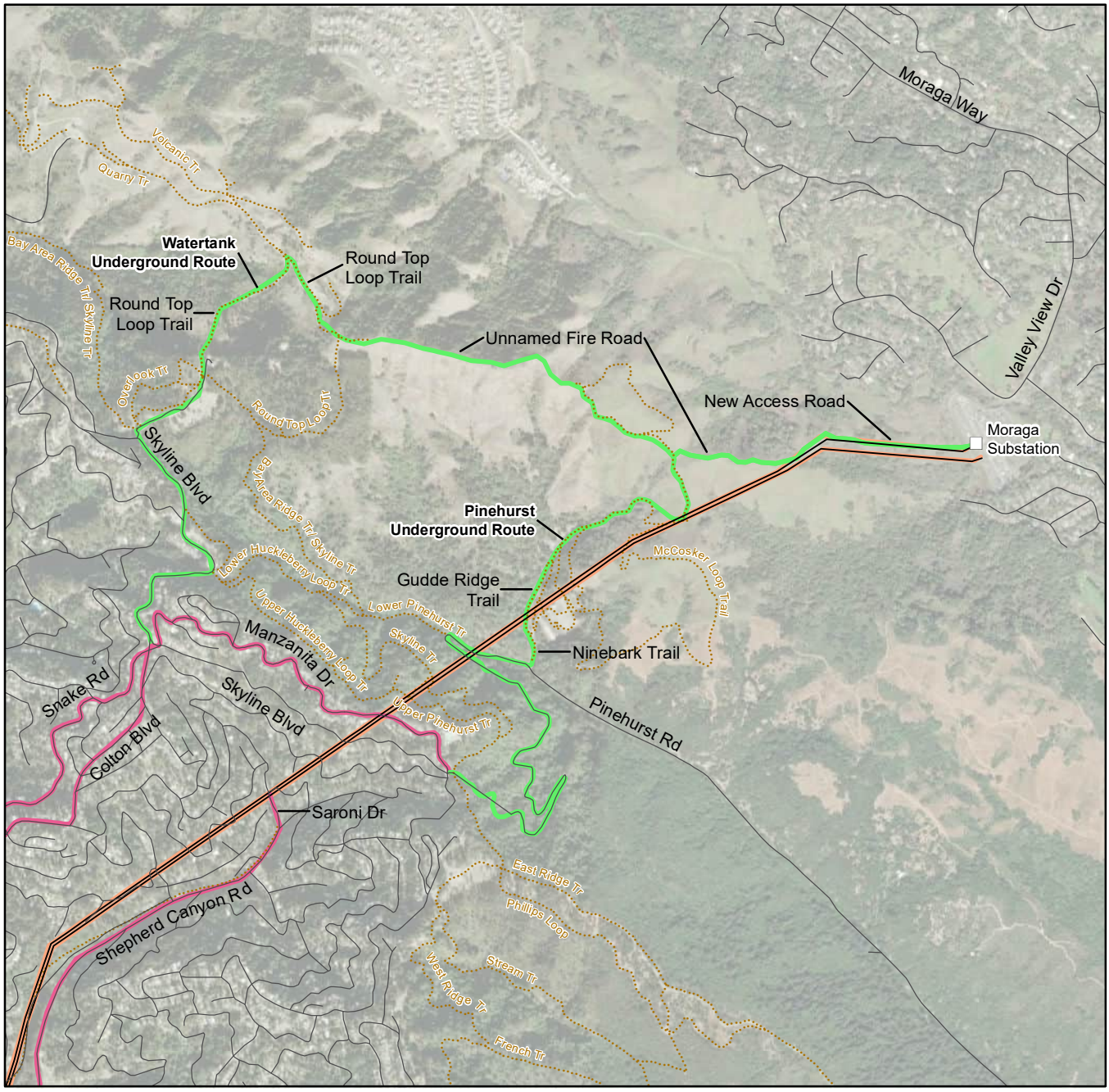
- Eastern Section
- Central Section
- Western Section

N

0 0.5 1

Miles

Figure 4.2-1a
Replacement Route (Overhead and Underground) Options
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company



Version: 10/24/2024

Legend

- Substation
- Trail
- Existing Overhead Route

Proposed Project

- Proposed Overhead

Replacement Route (Overhead and Underground) Options

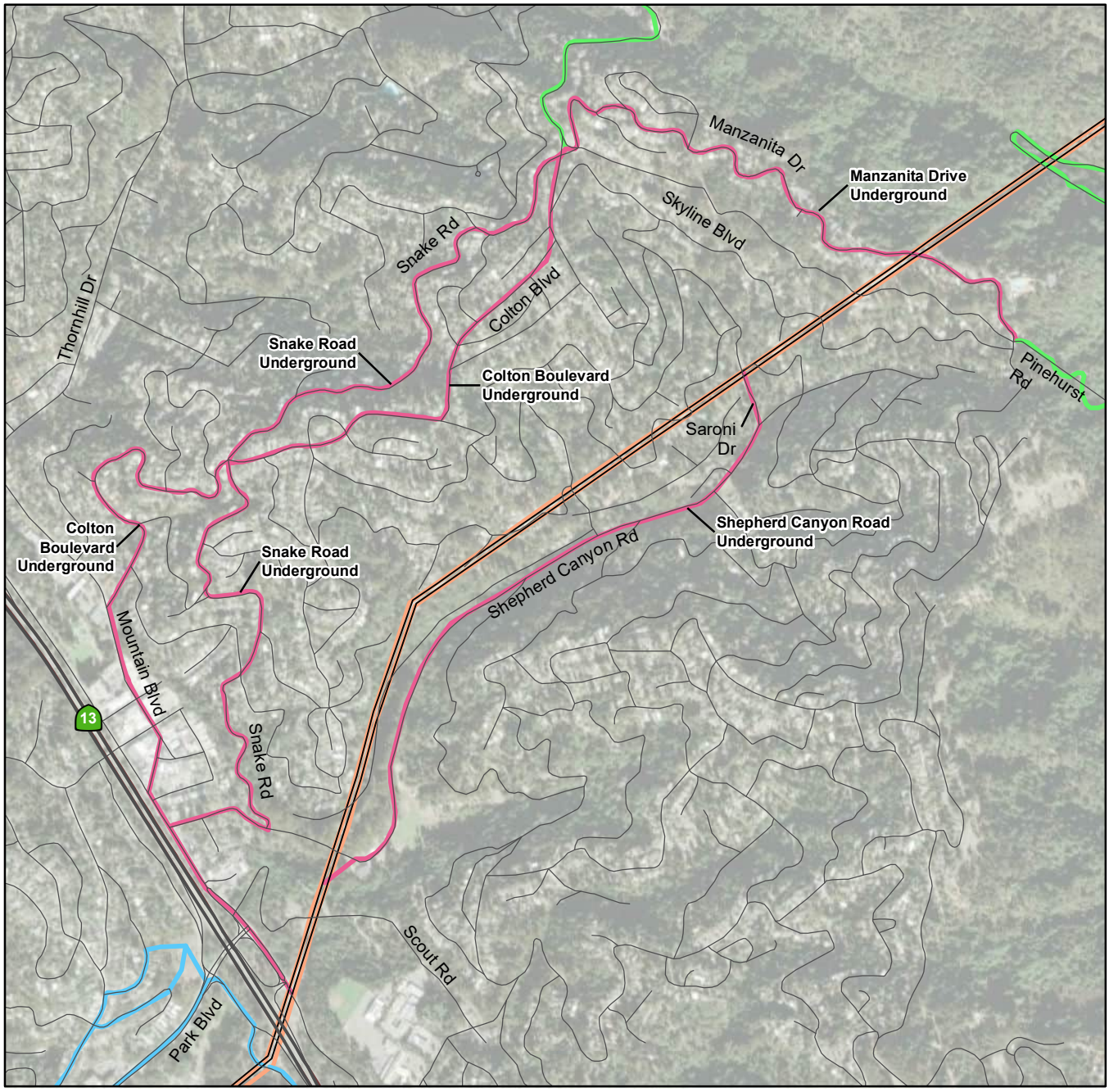
- Eastern Section
- Central Section

N

0 0.25 0.5

Miles

Figure 4.2-1b
Replacement Route (Overhead and Underground) Options
Eastern Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company



Version: 10/24/2024

Legend

- Substation
- Existing Overhead Route

Proposed Project

- Proposed Overhead

Replacement Route (Overhead and Underground) Options

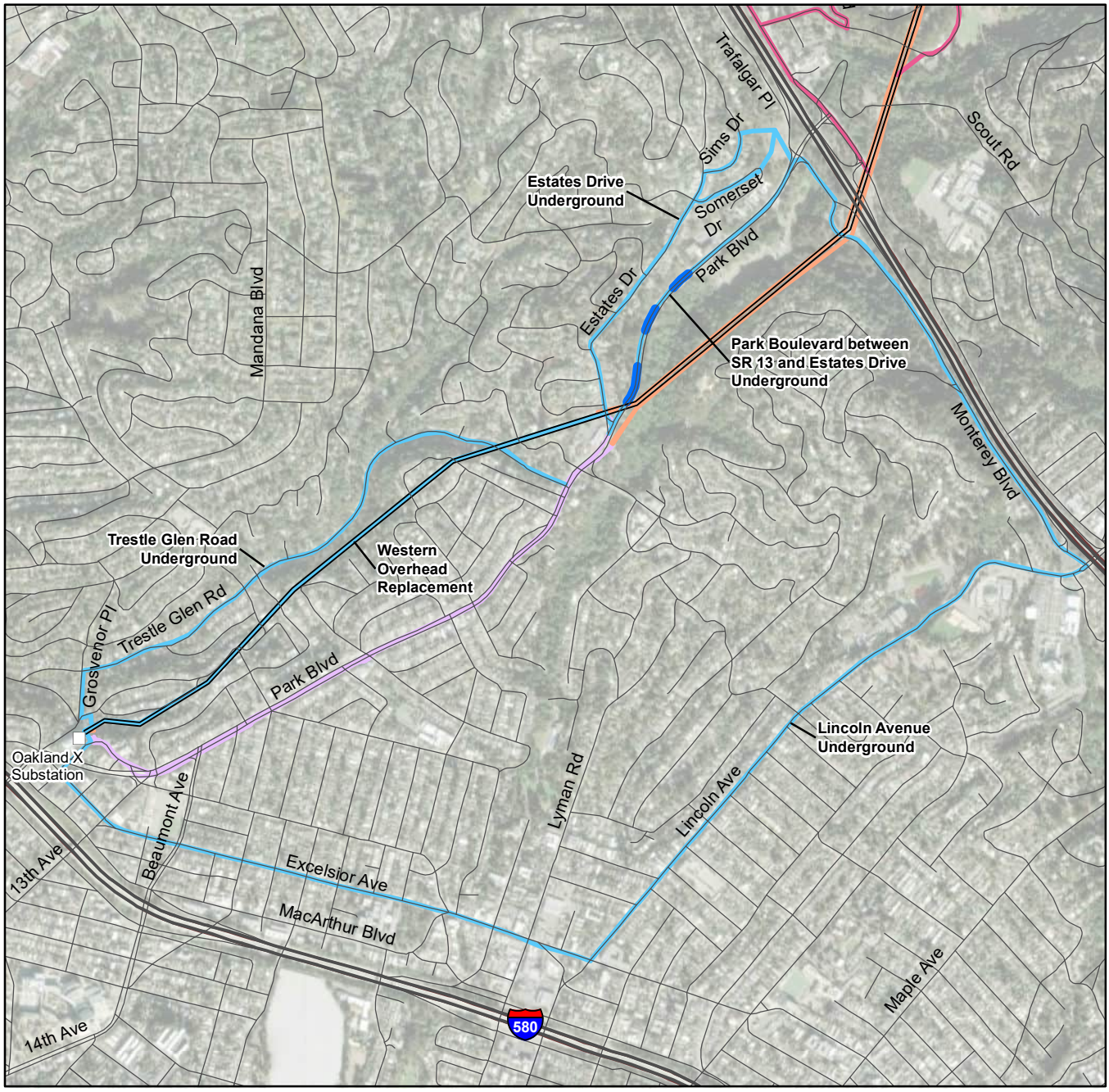
- Eastern Section
- Central Section
- Western Section

N

0 0.25 0.5

Miles

Figure 4.2-1c
Replacement Route (Overhead and Underground) Options
Central Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company



Version: 10/24/2024

Legend

- Substation
- Existing Overhead Route

Proposed Project

- Proposed Overhead
- Proposed Underground

Replacement Route (Overhead and Underground) Options

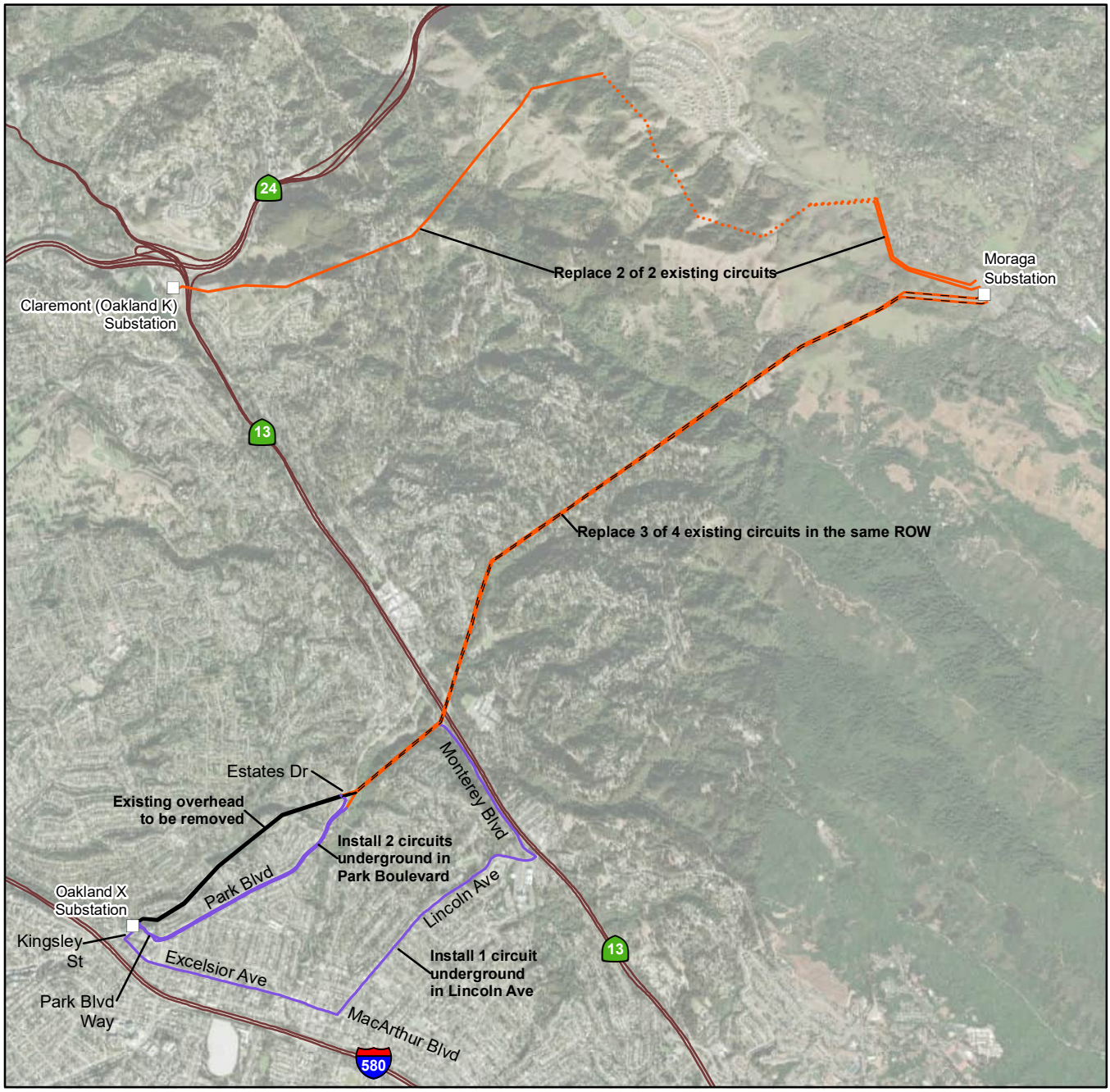
- Central Section
- Western Section
- Park Boulevard Viaduct

N

0 0.25 0.5

Miles

Figure 4.2-1d
Replacement Route (Overhead and Underground) Options
Western Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company



Version: 6/11/2024

Legend

- Substation
- Existing Overhead Route

Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground

- Overhead Reconductor
- Existing Overhead to be Removed
- Underground
- Overhead (no work)

N

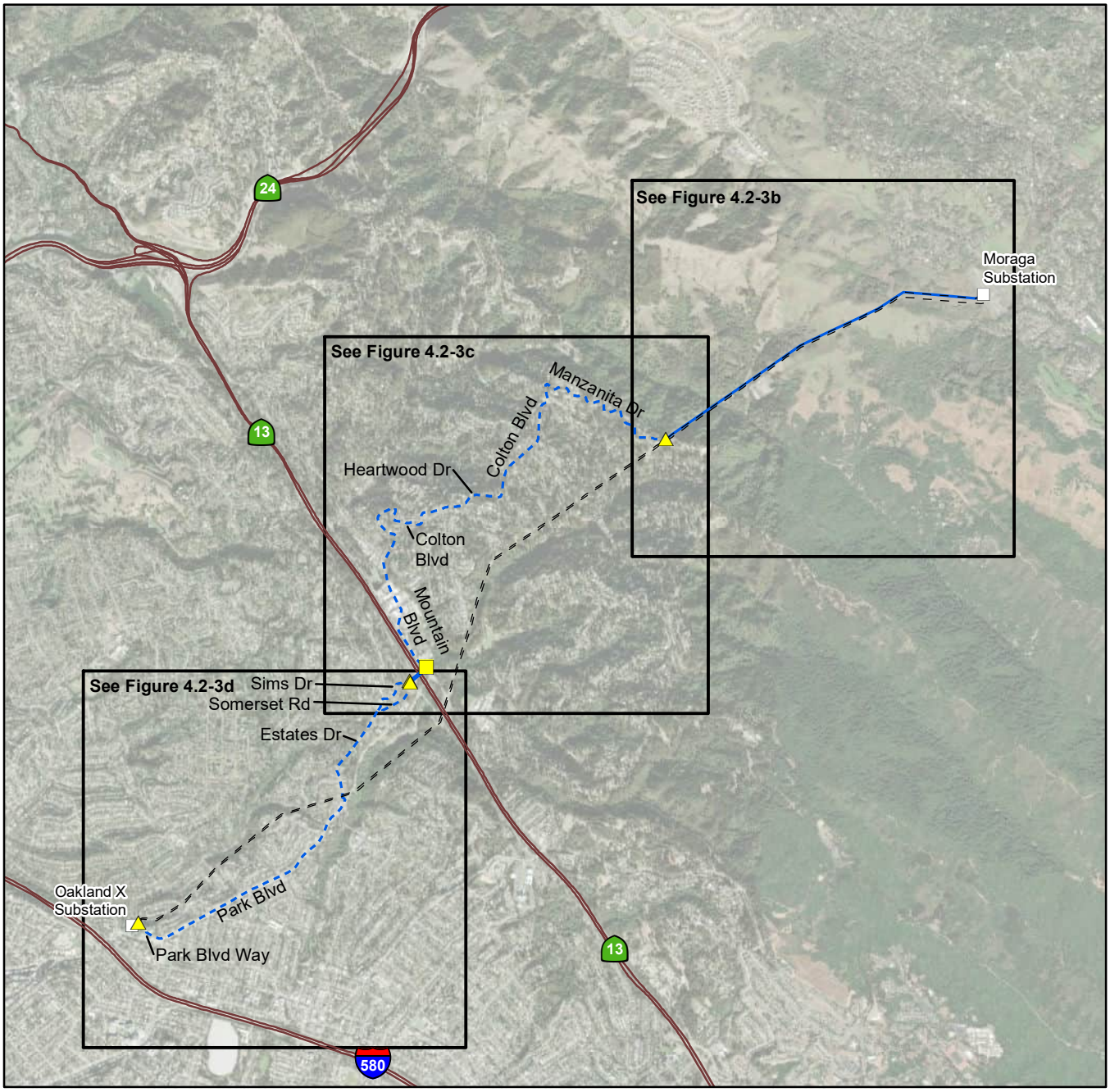
0 0.5 1

Miles

Figure 4.2-2
Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/7/2024

Legend

- Detail Map Sheet
- Substation
- Existing Overhead Route

Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

- Overhead
- Underground
- Transition Station
- Transition Poles

N

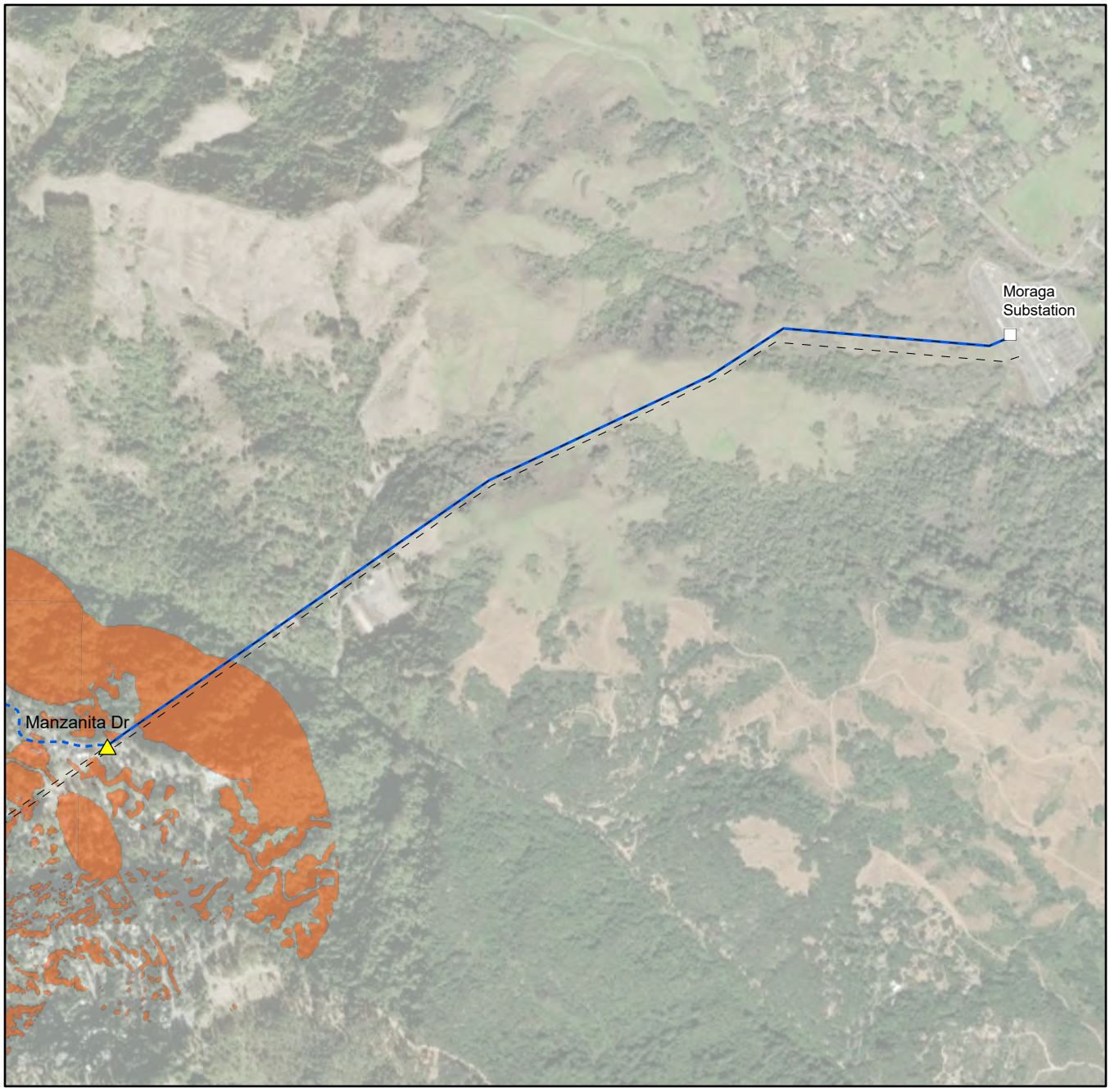
0 0.5 1

Miles

Figure 4.2-3a
Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

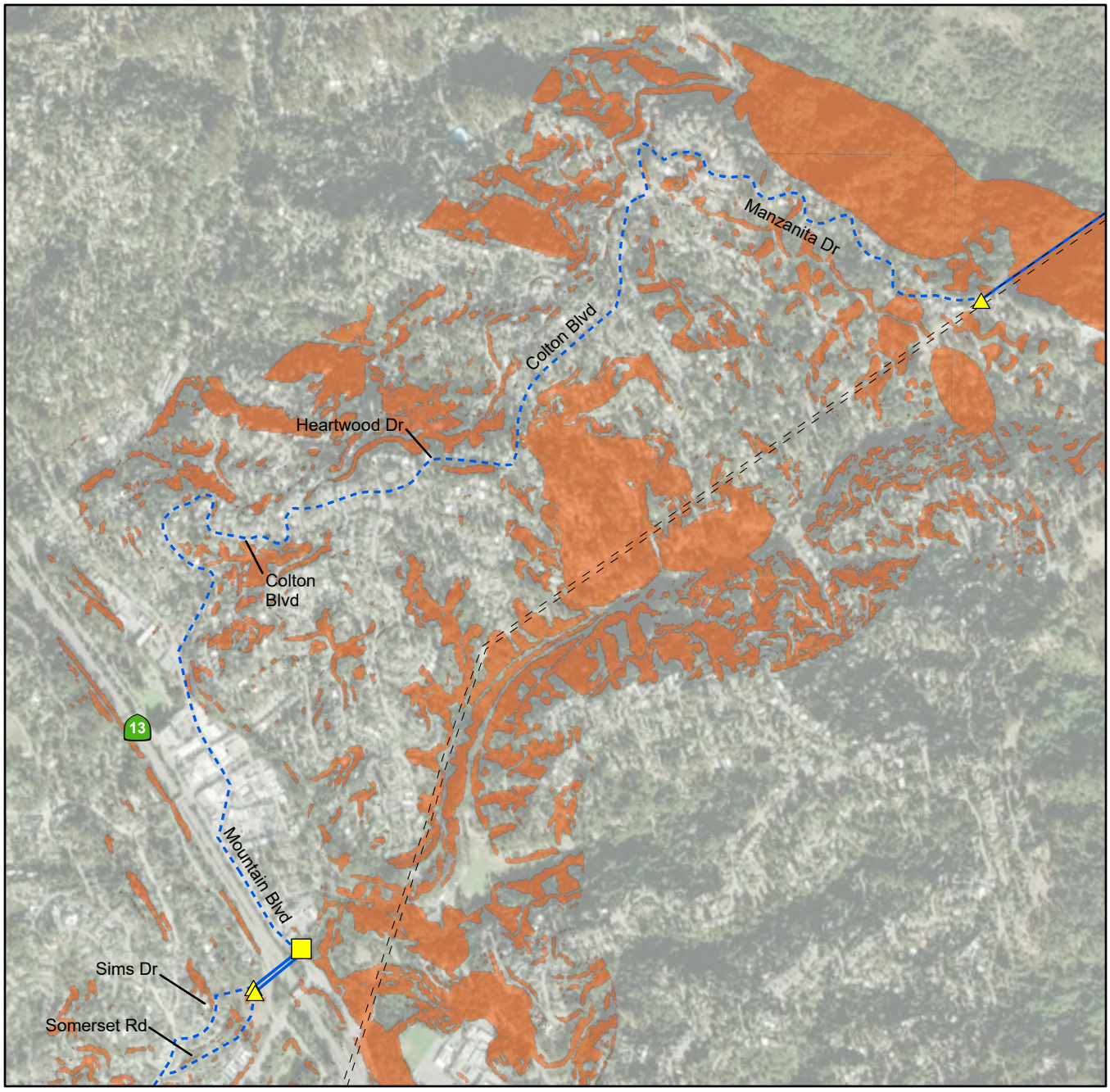
- Overhead
- Underground
- Transition Poles

N

0 0.25 0.5

Miles

Figure 4.2-3b
Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground - Eastern Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company



Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

- Overhead
- Underground
- Transition Station (approximate location)
- Transition Poles

N

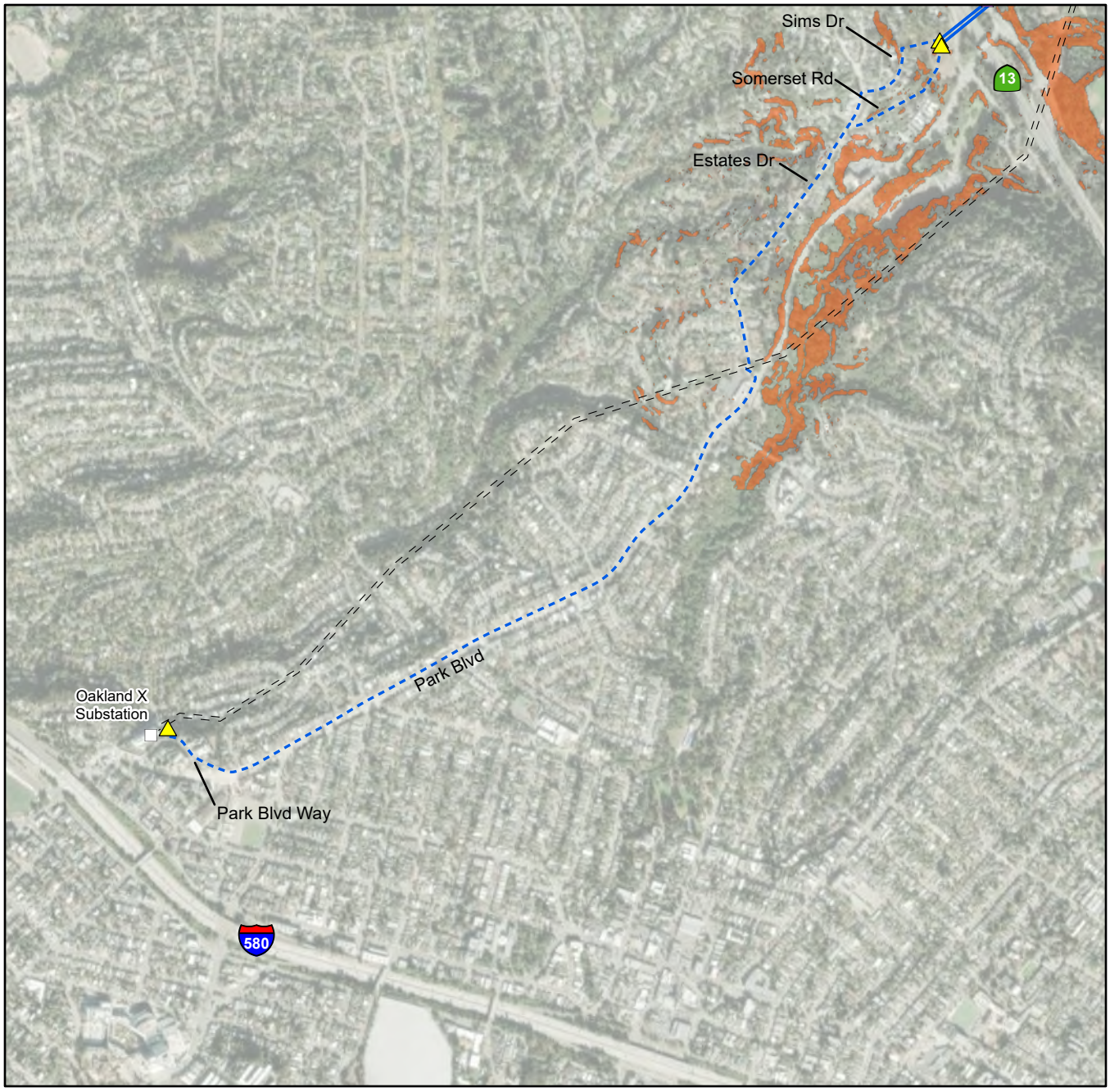
0 0.25 0.5

Miles

Figure 4.2-3c
Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground - Central Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

- Overhead
- Underground
- Transition Poles

N

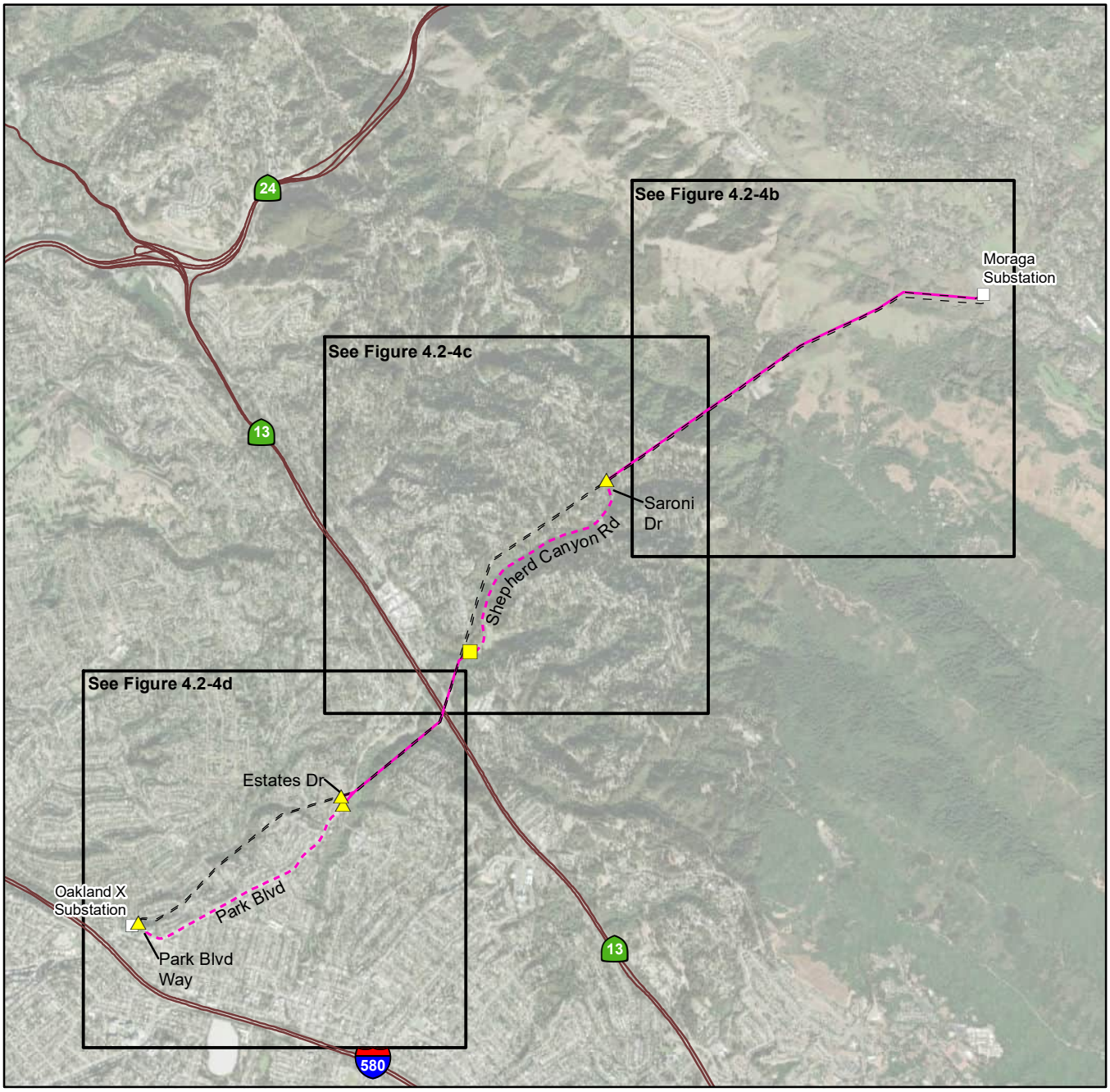
0 0.25 0.5

Miles

Figure 4.2-3d
Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground - Western Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/7/2024

Legend

- Detail Map Sheet
- Substation
- Existing Overhead Route

Alternative C: Shepherd Canyon Road Underground

- Overhead
- Underground
- Transition Station
- Transition Poles

N

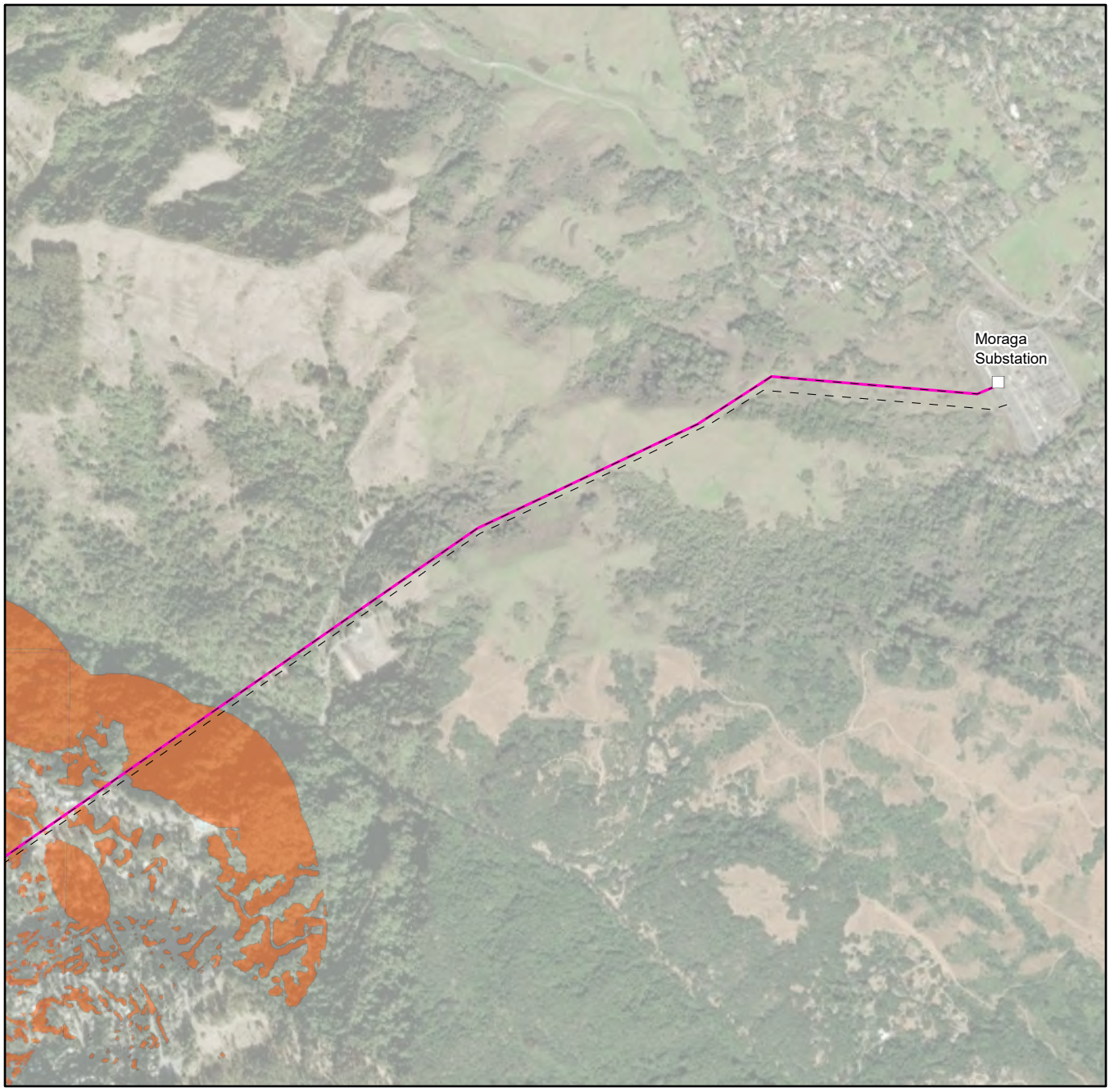
0 0.5 1

Miles

Figure 4.2-4a
Alternative C: Shepherd Canyon Road Underground
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative C: Shepherd Canyon Road Underground

- Overhead
- Underground

N

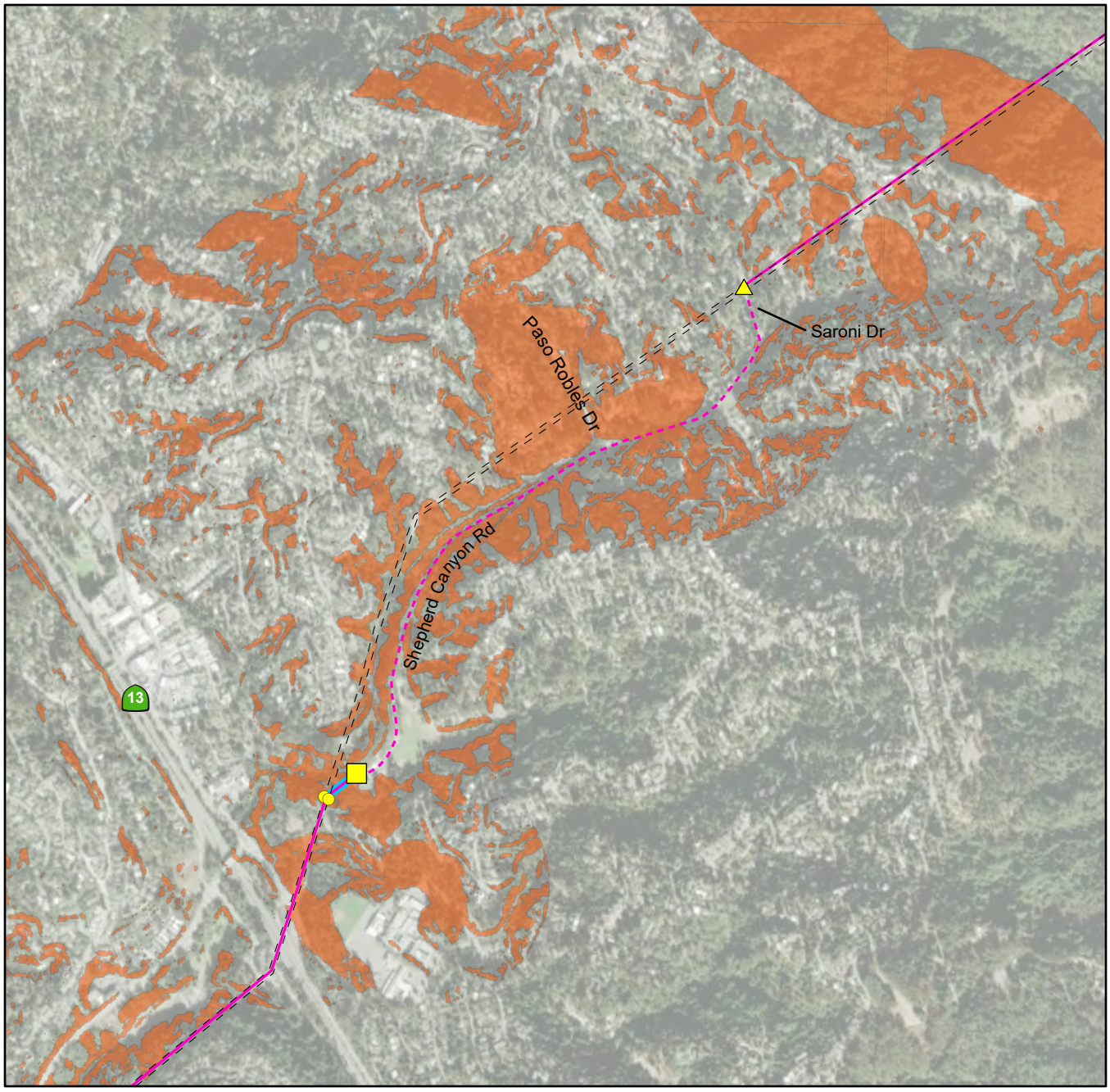
0 0.25 0.5

Miles

Figure 4.2-4b
Alternative C: Shepherd Canyon Road Underground - Eastern Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative C: Shepherd Canyon Road Underground

- Overhead
- Underground
- Transition Station (approximate location)
- New Alternative C Structure
- New Alternative C Overhead Span
- Transition Poles

N

0 0.25 0.5

Miles

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Figure 4.2-4c
Alternative C: Shepherd Canyon Road Underground - Central Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Jacobs

Version: 11/14/2024

Legend

- Substation
- Existing Overhead Route
- Locations with greater than 50% probability of underground duct bank failure due to landslide potential (PG&E 2024)

Alternative C: Shepherd Canyon Road Underground

- Overhead
- Underground
- Transition Poles

N

0 0.25 0.5

Miles

Figure 4.2-4d
Alternative C: Shepherd Canyon Road Underground - Western Section
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs

Version: 6/11/2024

Legend

- Substation
- Existing Overhead Route

Alternative D: All Overhead Replacement in Existing Alignment

- Overhead

N

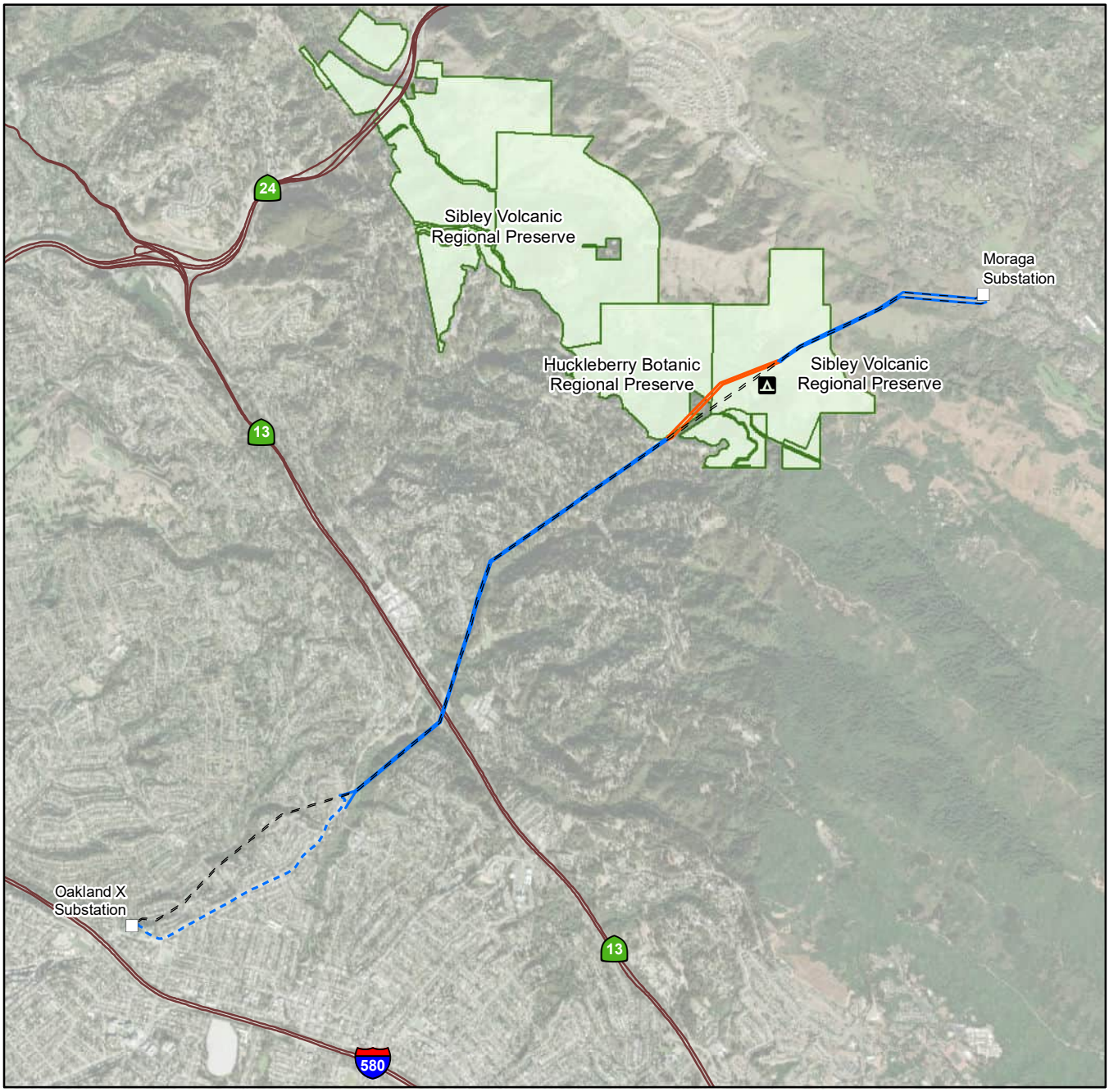
0 0.5 1

Miles

Figure 4.2-5
Alternative D: All Overhead Replacement in Existing Alignment
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs



Version: 6/11/2024

Legend

- Substation
- Existing Overhead Route
- East Bay Regional Park District (EBRPD): Huckleberry Botanic Regional Preserve and Sibley Volcanic Regional Preserve
- Planned Campground

Alternative E: Proposed Project with Campground Overhead Option

- Overhead - Campground
- Overhead
- Underground

N

0 0.5 1

Miles

Figure 4.2-6
Alternative E: Proposed Project with Campground Overhead Option
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs

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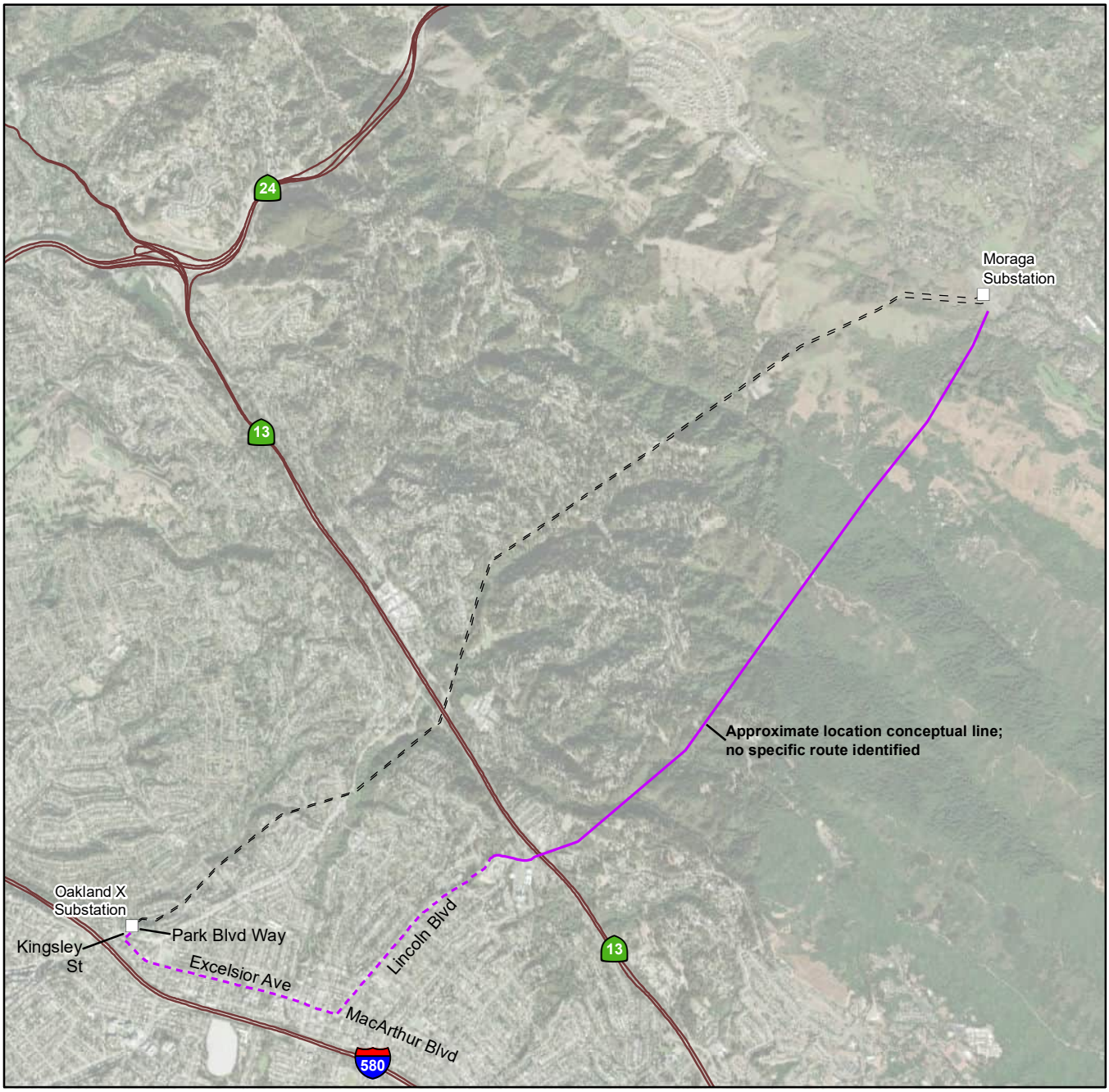


Version: 6/11/2024

Legend

- Substation
- Existing Overhead Route

Alternative F: Conceptual South Overhead Alignment

- Overhead
- Underground

N

0 0.5 1

Miles

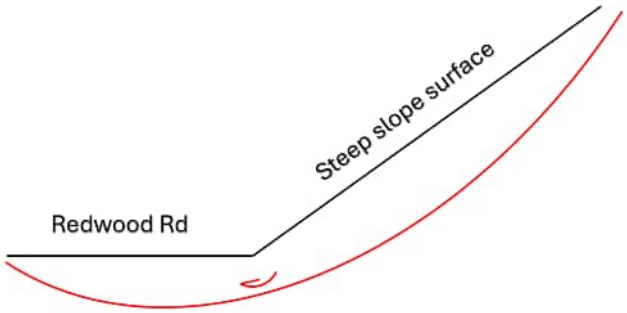
Figure 4.2-7
Alternative F: Conceptual South Overhead Alignment
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

Preliminary and Subject to Change Based on CPUC Requirements, Final Engineering, and Other Factors

Jacobs

Figure 4.2-8
Example Transition Station with Two 230 kV Circuits in an Approximately 0.3-acre Yard
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

View of the approximate 3 to 4 feet of vertical displacement.



Landslide profile showing a failure plane under roadway.

A deep-seated landslide with a failure plane extending under roadway.

Figure 4.2-9
Example Landslide Failure Plane and Roadway Uplift of Redwood Road in Novato, California
Moraga-Oakland X 115 kV Rebuild Project
Pacific Gas & Electric Company

6. Comparison of Alternatives

Section 15126.6 of the CEQA Guidelines requires that a range of reasonable alternatives for a project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, be described in an EIR. The EIR also must evaluate the comparative merits of the alternatives. The CEQA Guidelines also require an evaluation of the No Project Alternative. Because the CPUC may do an EIR for the state environmental document, this PEA section has been prepared consistent with CEQA requirements to support the CPUC action.

Section 6.1 provides a brief summary of the four alternatives to the proposed project and the No Project Alternative. The section also describes the approach for comparing the potential impacts of the alternatives to the proposed project. Section 6.2 includes the environmental setting and potential impacts of the four alternatives to the proposed project. Section 6.3 provides a summary of the alternative comparison results and ranks the alternatives in order of environmental superiority.

6.1 Alternatives Comparison

This chapter compares the potential impacts of alternatives, including the No Project Alternative, against the proposed project. The comparison of potential impacts is organized with a proposed project discussion followed by the discussions for each of the possible project alternatives. The chapter concludes with ranking the proposed project and the alternatives and summarizing the potential impacts for each.

6.1.1 Alternatives Compared

Chapter 4 of this PEA describes four possible alternatives carried forward for evaluation against the proposed project: the Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground Alternative (Alternative A); the Manzanita Drive-Colton Boulevard-Estates Drive Underground Alternative (Alternative B); the Shepherd Canyon Road Underground Alternative (Alternative C); and the Proposed Project with Campground Overhead Option Alternative (Alternative E). These alternatives would meet the underlying project purpose and objectives and are potentially feasible. The following paragraphs briefly summarize these alternatives as well as the No Project Alternative. Refer to Chapter 4 for additional detail on Alternatives A, B, C, and E.

Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground Alternative. This alternative would replace three of the four existing Moraga–Oakland X circuits within the same ROW from Moraga Substation to the intersection with Monterey Boulevard. From there, one circuit would be installed underground southeast in Monterey Boulevard and Lincoln Avenue to Oakland X Substation for a total of approximately 3.1 miles. The other two circuits would continue overhead in the ROW on one set of double-circuit structures to the intersection of Estates Drive and Park Boulevard and transition to underground to Oakland X Substation in the same streets as the proposed project. In addition, Alternative A would include reconductoring two portions of the Moraga–Claremont Circuits 1 and 2 115 kV lines (approximately 3 miles total), which would include replacing conductors and would likely include replacement of structures, primarily in parks and open space but also through and adjacent to residential neighborhoods in Orinda and Oakland. Alternative A had been one of PG&E's Northern Oakland Area Reinforcement projects, and it represents a different engineering alternative to the proposed project with a different type of overhead conductor and underground cable configuration.

Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground Alternative. All four of the existing Moraga–Oakland X 115 kV lines would be replaced overhead in the existing ROW in the eastern section, in Contra Costa County, the same as the proposed project. In the central and western sections of the project, the lines would be replaced underground in Oakland and Piedmont and the existing overhead lines would be removed. An overhead span between new riser poles and a transition

station (approximately 0.5 acre) would be used to cross over SR 13 and the Hayward Fault. New riser poles also would be required near Manzanita Drive where the lines transition from aboveground to underground. The western-most mile of underground line between the intersection of Estates Drive and Park Boulevard and Oakland X Substation would be the same as the proposed project. This alternative would have approximately 1.6 miles of lines replaced overhead and approximately 4.2 miles of lines replaced underground.

Alternative C: Shepherd Canyon Road Underground Alternative. All four of the existing Moraga–Oakland X 115 kV lines would be replaced overhead in the existing ROW in the eastern section and part of the central section, matching the proposed project. From there, the route would transition underground at approximately the intersection of Saroni Drive and Gunn Drive, and the two double duct banks would go south in Saroni Drive for approximately 0.1 miles to Shepherd Canyon Road and progress westbound for approximately 1.0 mile. The lines would transition to aboveground in a transition station near the City of Oakland Municipal Service Yard. From there, the four circuits would connect to two new structures north of Shephard Creek before connecting to the existing ROW to cross SR 13 and the Hayward Fault. The four circuits would continue overhead in the existing ROW to the intersection of Estates Drive and Park Boulevard, where they would transition underground in Park Boulevard and Park Boulevard Way to Oakland X Substation in the western section, also matching the proposed project. This alternative would have approximately 3 miles of lines replaced overhead and approximately 2 miles of lines replaced underground.

Alternative E: Proposed Project with Campground Overhead Option Alternative. This alternative would be the same as the proposed project other than the two structures northwest of the Eastport Staging Area entrance of the EBRPD Sibley Volcanic Regional Preserve. The two structures would be replaced approximately 325 feet northwest of the existing locations. This alternative was developed to provide better maintenance access in the future next to an existing access road with a flatter surrounding work area and to place them farther from the planned group campground in Sibley Volcanic Regional Preserve. The length of this portion of the alignment with the angle would increase the overall total approximately 5-mile line length by approximately 100 feet.

No Project Alternative. Under the No Project Alternative, the existing Moraga–Oakland X lines would not be replaced. Lifecycle updates of line structures would not be completed, leading to future reliability issues and potentially unsafe operations. Lifecycle updates would occur in a piecemeal fashion for years driven by ongoing inspections that identify maintenance issues, including additional aging structure replacement. NERC recommendations to the industry for clearance and wildfire risk reduction would be implemented with each structure replacement over an indeterminate amount of time.

6.1.2 Comparison Approach

As discussed in Sections 5.1 through 5.20, the proposed project will not result in significant impacts. Nevertheless, alternatives were identified that could reduce one or more of the less-than-significant impacts. Therefore, the comparison of impacts focuses on the following environmental resources of concern to the community and environmental resources that distinguish among the alternatives:

- Aesthetics
- Air Quality
- Biological Resources
- Geology, Soils, and Paleontological Resources
- Noise
- Transportation
- Wildfire

For the resource topics Agriculture and Forestry Resources; Cultural Resources; Energy; Greenhouse Gas Emissions; Hazards, Hazardous Material, and Public Safety; Hydrology and Water Quality; Land Use and Planning; Minerals; Population and Housing; Public Services; Tribal Cultural Resources; and Utilities and Service Systems, either the proposed project has no impacts, or the impacts would not distinguish among the alternatives. These resource areas are not discussed further in this chapter.

No field visits, visual simulations, fire risk calculations, or other studies were conducted to evaluate the alternatives; potential impacts were identified using existing documentation and data gathered or prepared for the proposed project unless otherwise noted. Key assumptions for the impact analysis of the alternatives include the following:

- Alternatives would include implementation of all applicable APMs discussed in Sections 5.1 to 5.20.
- Construction staging areas are assumed to be similar in size and would be located on available vacant land not in use at the time of construction. Laydown areas are assumed to be similar in areas.
- Because potential aesthetics construction (short-term) impacts would be temporary and generally of the same type for the proposed project and all alternatives, potential construction impacts associated with aesthetics are not discussed.
- Potential construction (short-term) impacts associated with air quality and noise are discussed in the context of the overall length of each alternative in comparison to the proposed project's length. All alternatives are located within the SFBAAB and fall under the jurisdiction of the BAAQMD.
- Where alternative replacement is in the same location and of the same type as the project, potential biological resources impacts are assumed to be the same. In other locations, it is assumed that structures, access roads, and construction areas would be sited judiciously to avoid waterways, wetlands, or rare plants. The BSA for the proposed project overlaps with large areas of the footprints of the alternatives and the botanical survey included the Lincoln Avenue component of Alternative A. The alternatives are located within the limits of the BAHCP; applicable measures from the BAHCP and the Bay Area Operations and Maintenance ITP would be implemented for all alternatives.
- Potential wildfire impacts associated with construction, such as overland travel, the use of equipment that may create sparks, and construction equipment and vehicles that contain combustible materials such as fuels and oils and ignition sources, generally would be the same for the proposed project and the alternatives, and the same APMs would be implemented. Wildfire construction impacts are not discussed further.
- O&M impacts for the alternatives are assumed to be similar to O&M impacts for the proposed project and typically would not distinguish among alternatives. They are not discussed except for Alternatives B and C. Potential O&M transportation impacts that would occur for Alternatives B and C are compared with the proposed project.
- As with to the proposed project, all alternatives would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled.
- As with the proposed project, the potential for avian electrocution or accidental line collision would be minimized for all alternatives by rebuilding the electrical lines in accordance with avian-safe construction standards and PG&E's Avian Protection Plan. This is not discussed further for the alternatives.
- Permanent changes to aesthetics, geology, and wildfire could occur from alternatives and are discussed.
- No scenic vistas were identified in the viewshed of any alternative.

6.1.3 Proposed Project Impact Summary

The proposed project includes rebuilding the four PG&E existing 115 kV circuit lines and structures and implementing minor modifications to Moraga and Oakland X substations. Approximately 4 miles of the existing 5 miles of overhead lines will be rebuilt overhead and approximately 1 mile will be rebuilt in city streets. This section summarizes potential impacts of the proposed project. Refer to Sections 5.1 (Aesthetics), 5.3 (Air Quality), 5.4 (Biological Resources), 5.7 (Geology, Soils, and Paleontological Resources), 5.13 (Noise), 5.17 (Transportation), and 5.20 (Wildfire) for additional information, including environmental setting.

6.1.3.1 Proposed Project – Aesthetics Impacts

As discussed in Section 5.1, the project will not result in any significant impacts to aesthetics and no mitigation is required.

The proposed 115 kV power line rebuild will not substantially degrade the existing visual character or quality of the landscape setting. There are no specific recognized scenic vistas within the project viewshed. The perceived change from Interstate 580, the nearest designated state scenic highway approximately 600 feet west of the project, will be minor. Where the existing overhead lines will be replaced by underground lines, the removal of the existing towers, to the extent they are visible, will be a positive visual change. In most cases, structures along the alignment are only partially visible and from any one location where the project can be seen, views are, in many cases, limited to a single pair of structures. Only a few locations afford open (public) views of multiple project structures. Permanent visual change resulting from modifications to the existing PG&E alignment will be noticeable but largely incremental and will not substantially alter or degrade the existing visual character of the landscape within the project area. Intervening vegetation and built structures will fully or partially screen public views of the project to a large degree. For the most part, modifications to existing PG&E 115 kV lines will occur in a predominantly urban context, where established landscape features seen in public views include a variety of existing infrastructure, such as wood power poles and lattice power line structures. The rebuilt 115 kV power lines will use non-specular conductors and a dulled galvanized finish on the new project poles, reducing potential glare of power line components.

6.1.3.2 Proposed Project – Air Quality Impacts

As discussed in Section 5.3, the project will not result in any significant impacts to air quality and no mitigation is required.

The air emissions from construction of the project will result in a temporary increase in criteria air pollutants. Air quality emissions will occur within the SFBAAB under the jurisdiction of the BAAQMD. The BAAQMD has provided project-level thresholds of significance for criteria pollutants; project construction emissions will not exceed these limits. The project will not conflict with or obstruct implementation of the applicable air quality plan and will not result in a cumulatively considerable net increase in the nonattainment pollutants. Incorporation of APMs to manage dust and asbestos, if it occurs on structures to be removed, will further reduce construction emissions. Because the project involves the rebuilding of existing infrastructure, no change to current O&M activities is expected. For this reason, the change in operational air emissions from the project was not estimated but was instead presumed to be zero.

6.1.3.3 Proposed Project – Biological Resources Impacts

As discussed in Section 5.4, the proposed project will not result in any significant impacts to biological resources and no mitigation is required.

No special-status plant species were identified within the project footprint (direct impact area); however, there is potential for occurrence in later years of annual species not previously observed. The plant AMMs from the BAHCP will be implemented.

Several special-status wildlife species have the potential to occur within or in the vicinity of the project footprint: Crotch's bumble bee, Monarch butterfly, foothill yellow-legged frog, California red-legged frog, Northwestern pond turtle, Alameda whipsnake, pallid bat, Townsend's big-eared bat, Western red bat, San Francisco dusky-footed woodrat, Cooper's hawk, golden eagle, and birds protected under the MBTA and Fish and Game Code Section 3503. The incorporation of applicable measures from the BAHCP and the ITP, as well as project-specific APMs, further minimizes potential impacts.

Little riparian habitat and other sensitive communities exist in the BSA. Within the project footprint, riparian habitat occurs primarily along access roads and near Moraga Substation. The project will not impact any riparian habitat that it spans. Only minor trimming of riparian habitat will be necessary to

provide construction equipment access. Trimming or removal of a small number of trees in coast live oak woodland along Dimond Canyon Park to accommodate replacement structures RN26 and RS26 also will occur. With implementation of measures from the BAHCP and ITP noted previously, both direct and indirect effects will be further minimized.

The project has been designed to avoid impacts on waterways and wetlands to the greatest extent feasible, and the project will not remove, fill, or result in the hydrologic interruption of waterways or wetlands. No direct impacts to aquatic resources are expected to occur. Implementation of the general measures from the BAHCP and ITP will minimize indirect adverse impacts to wetlands.

Wildlife may move through the BSA and use breeding habitat during work activities. The eastern section of the project footprint has been recognized as an important open space area and essential corridor/ linkage by the California Department of Fish and Wildlife, the California Essential Habitat Connectivity Project, and the Critical Linkage Project. Construction may impede wildlife movement and degrade breeding habitat or nursery sites within and adjacent to work areas. Migratory birds may move through the BSA during work activities and may nest in the vicinity. Construction activities may temporarily degrade nesting habitat within the immediate vicinity of the work locations. Any potential effect is expected to be minimal based on the disturbed nature of many of the work locations and the large amount of surrounding habitat. These potential impacts will be further minimized through implementation of applicable measures from the BAHCP, ITP, and project-specific APMs.

There also is potential for avian interactions with PG&E power lines and structures, including collisions and electrocutions. Species of birds reported to be susceptible to collisions generally have a large body size, long wingspan, heavy body, and poor maneuverability. PG&E will minimize the potential for electrocution or accidental line collision by rebuilding the electrical lines in accordance with avian-safe construction standards and will implement the processes and procedures outlined in the PG&E Avian Protection Plan.

6.1.3.4 Proposed Project – Geology, Soils, and Paleontological Resources Impacts

As discussed in Section 5.7, the proposed project will not result in any significant impacts to geology, soils, or paleontological resources and no mitigation is required.

As discussed in Section 5.7, it is likely that the project area will be exposed to at least one moderate or greater earthquake located close enough to produce strong ground shaking in the project area. The greatest potential for strong seismic ground shaking within the project area comes from the Hayward Fault, which has produced moderate to large earthquakes during historical time. Proposed power line structures are not located above active traces of the fault. In addition, overhead power line spans will be designed to accommodate potential fault displacement between support structures. The project will incorporate APM GEO-1 to develop seismic design criteria and appropriate safety design measures.

The project generally is not within a known area of liquefaction hazard; however, localized areas of rated liquefaction potential occur within the project area. Although there is a low probability that conditions conducive to liquefaction will be encountered within the project alignment, the project will implement APM GEO-2, which will minimize liquefaction and associated ground failure hazards such as lateral spreading that could be exacerbated by strong seismic ground shaking.

The project is located within a known landslide hazard area. No proposed project facilities, including overhead structures in the overhead portion of the alignment and power lines in the underground portion of the alignment, are located within a mapped landslide area. However, the proposed locations of two structures are above mapped landslides. The proposed deep foundations, including micropiles and caissons, will minimize the potential for impacts from shallow slope failure. Furthermore, the project will incorporate APM GEO-3 to include appropriate design measures for localized soil conditions.

Project impacts associated with erosion and loss of topsoil during construction will be minimized because of the limited areas that will be graded and disturbed, the temporary nature of construction, and the use of standard best management practices and dust control measures to minimize fugitive dust

emissions and stormwater runoff. The project also will incorporate APM HYD-1, which requires development and implementation of a stormwater pollution prevention plan.

Expansive soils were identified in the Contra Costa County section of the project area. Replacement foundations in the overhead portion of the alignment will be either a group of micropiles with a pile cap or a single drilled-shaft reinforced-concrete caisson. In the underground portion of the alignment, a duct bank will be encased in 1.5-foot-thick thermal concrete located a minimum of 3 feet below the road surface. Neither the deep foundations to be used for the aboveground portion of the project nor the duct banks in the underground portion of the project are susceptible to damage from expansion and contraction of shallow soils.

Excavation activities deeper than 3 feet in four geological units in the project study area have high paleontological sensitivity and have high potential to encounter paleontological resources. For these construction activities, PG&E will implement APM PAL-1, which requires a qualified project paleontologist; APM PAL-2, which requires worker awareness training monitoring for all project excavation activities deeper than 3 feet below ground surface; APM PAL-3, which requires monitoring for select construction activities; and APM PAL-4, which requires recovery of paleontological resources.

6.1.3.5 Proposed Project – Noise Impacts

As discussed in Section 5.13, the proposed project will not result in any significant impacts to noise, so no mitigation is required.

Because construction activities will be conducted near residences, a temporary increase in noise will result. Although noise levels from construction activities at times may exceed noise limits established by local jurisdictions, construction of most project components at any given location will occur for a short period of time and will move between different points of the lines. Construction within each work area is anticipated to last from a few days to 2 to 3 weeks with intermittent and nonconsecutive days, further minimizing the total duration of elevated noise experienced by any one sensitive receptor. PG&E is exempt from local noise standards. Given the limited and intermittent duration of construction activity at any one location, impacts under this criterion will be less than significant with the implementation of APM NOI-1 through APM NOI-7.

Pile driving would be limited in duration and only be used for construction of the underground portion of the project if sheet piles are needed to stabilize vault excavations. These construction areas are expected to be far enough from buildings to not exceed vibration damage criteria. Nevertheless, APM NOI-8 will be implemented to require a vibration assessment that will consider site-specific factors and be incorporated into project construction. Impacts will be temporary and less than significant.

The replaced 115 kV power lines are not predicted to cause an exceedance of 45 A-weighted decibels at any noise sensitive receptor during foul weather conditions during the operational phase after construction. Proposed changes to Moraga Substation and to Oakland X Substation do not add transformer banks or any other new noise-producing equipment at the substations. Maintenance activities for the rebuilt power lines generally are expected to be the same as existing maintenance activities and typically will occur over short timeframes and generate minimal noise.

6.1.3.6 Proposed Project – Transportation Impacts

As discussed in Section 5.17, the proposed project will not result in any significant impacts to transportation, so no mitigation is required. The project will not conflict or be inconsistent with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Project construction traffic would temporarily increase traffic volumes on local roadways, arterials, and state highways, and most trips would occur when background traffic volumes are somewhat lower. The effects of these volume increases would be short term and periodic. Not all trips will affect the same roads, as crew members along with the necessary equipment will be working at multiple locations. When construction is completed, construction-related traffic will cease,

and vehicle miles traveled will return to pre-existing conditions. The project will not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).

Temporary road and lane closures are anticipated when certain sections of the PG&E lines are being removed or reconductored at the overhead road crossings and where lines will be installed underground. In some locations, road closures may last up to 2 weeks. Full closures at several locations along Montclair Railroad Trail also will likely last up to 2 weeks. Temporary interference with walking or bicycling accessibility may occur from temporary closures of sidewalks and trails along roadways. Any closures will be temporary and short term, and closures will be coordinated with Caltrans or local jurisdictions to reduce the impacts to potential temporary and short-term emergency access. PG&E will provide, as part of the Traffic Management Plan, notification to property owners and businesses in advance of work. In addition, where the installation of guard structures is required, APM TRA-1, which requires that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, will further reduce potential impacts. Implementation of APM TRA-2 will restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, as necessary.

6.1.3.7 Proposed Project – Wildfire Impacts

As discussed in Section 5.20, the proposed project would not result in any significant impacts to wildfire, so no mitigation is required.

Portions of the project are in areas identified as very high FHSZs, including some in SRAs. Construction activities, including work areas, staging areas, and laydown areas, and temporary access associated with rebuilding the power lines could cause a temporary increase in fire risks from overland travel, the use of equipment that may create sparks, and construction equipment and vehicles that contain combustible materials such as fuels and oils and ignition sources. However, PG&E will comply with all applicable California Health and Safety Codes and ordinances regulating the handling, storage, and transportation of hazardous materials, which would help to minimize the potential for accidental conditions, including fire. Additionally, during construction, PG&E will implement APM WFR-1, Construction Fire Prevention Plan, and APM WFR-2, Fire Prevention Practices.

Construction vehicles and equipment are anticipated to access project construction areas by using existing PG&E access and paved roads, existing dirt access roads, or overland access. Construction vehicles and equipment needed at the pull sites will follow designated access routes and are expected to be parked or staged within the project ROW or alongside existing access roads. Two 4,000-gallon water trucks will be used during construction activities in unincorporated Contra Costa County, where fire hydrants and related fire suppression infrastructure are not present. Road closures will be coordinated with Caltrans or local jurisdictions to reduce the effects to potential temporary and short-term emergency access.

Completion of the project would replace aging structures with stronger, more fire-resistant structures and conductors. The results of the Wildfire Transmission Risk Model estimate a 90 percent reduction in wildfire risk from the project. The project will not have occupants and, therefore, will not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

6.2 Potential Impacts of Alternatives

For each of the four alternatives to the proposed project, this section provides a summary of the existing setting and a description of potential impacts to the following resources: aesthetics; air quality; biological resources; geology, soils, and paleontological resources; noise; transportation; and wildfire. The analysis of each resource topic also provides a comparison to proposed project impacts.

6.2.1 Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground

6.2.1.1 Alternative A – Existing Setting

The environmental setting for Alternative A is similar to the proposed project setting where it would replace three of the four Moraga–Oakland X circuits in the existing alignment and construct the underground replacement portion with two circuits in Park Boulevard. These portions of Alternative A generally would be in the same locations; would be near the same sensitive receptors; would have the same habitats and potential special-status species present; would have the same soils and slopes; and would be in the same very high FHSZ as the proposed project.

The third underground circuit would be in Monterey Boulevard, Lincoln Avenue, MacArthur Avenue, and other streets, all of which generally are relatively flat and developed urban streets similar to Park Boulevard. The roads are adjacent to residential areas and near several schools, including Growing Light Montessori School, Head-Royce School, and Sequoia Elementary School. Vegetation and trees are present along both sides of these roads. A portion of this underground circuit would be in a very high FHSZ.

The additional aboveground portion of Alternative A between Moraga and Claremont substations (approximately 3.1 miles) is located primarily within open space, including in the EBRPD and East Bay Municipal Utility District, with undulating open grass areas and woodland greenbelts in the East Bay Hills. The existing alignment crosses over several hiking and recreation trails, including the Skyline Trail, Quarry Road, Pond Trail, and Volcanic Trail, and several roadways, including Skyline Boulevard and Grizzly Peak Road, which are Alameda County designated scenic routes. Near Moraga Substation, Alternative A is adjacent to a low-density residential area. Near Claremont Substation, Alternative A passes through an area of low-density residential development adjacent to City of Oakland ball fields. The Temescal Regional Recreation Area and Lake Temescal are located immediately west of Claremont Substation. SR 24 is located just north and SR 13 just east of Claremont Substation. This part of Alternative A is in areas identified as very high FHSZ.

The area through which the Moraga–Claremont portion of Alternative A would cross contains steep slopes that may be subject to landslides, may contain expansive soils and soils with liquefaction potential, may be near or cross fault zones, and may contain soils with high paleontological sensitivity and high potential to encounter paleontological resources.

Surveys completed for the proposed project's BSA overlap with areas along and near the Moraga–Claremont reconductoring portion of Alternative A. Based on those survey results, vegetation types along this part of Alternative A include coast live oak, moderate grasslands, and eucalyptus. The eastern section of the Moraga–Claremont replacement is within Alameda whipsnake critical habitat and BAHCP modeled habitat for California red-legged frog potential breeding and Alameda whipsnake movement. Because no critical habitat for plants was identified within 5 miles of the proposed project, critical habitat for plants would not be expected to occur in the footprint of Alternative A.

6.2.1.2 Alternative A – Aesthetics Impacts

The impacts to visual resources from Alternative A would be similar to the proposed project where it would replace three of the four Moraga–Oakland X circuits, remove the existing lines, and construct two underground single-circuit lines in Estates Drive/Park Boulevard. Permanent visual change resulting from replacement of three of the four existing PG&E circuits between Moraga and Oakland X substations would be incrementally better than the proposed project but would not substantially alter or degrade the existing visual character of the landscape, as with to the proposed project. As with the proposed project, Alternative A would result in a positive visual change between the intersection of Estates Drive and Park Boulevard and Oakland X Substation, where the existing overhead line will be replaced by underground lines. Between Monterey Boulevard and Park Boulevard, Alternative A would have one set

of structures and associated conductors instead of the proposed project with two sets of structures and associated conductor, resulting in a minor improvement to visual character compared to the proposed project at this location. Alternative A would have a different transition structure location compared to the proposed project, with a single-circuit structure at Monterey Boulevard just west of SR 13 for the underground portion of the third circuit. The third underground single-circuit would be in Monterey Boulevard/Lincoln Avenue/MacArthur Avenue and other roadways to reach Oakland X Substation. The transition structure would be noticeable and generally similar to existing power line structures in the same area.

Permanent visual change also would result from reconductoring two end sections of the Moraga–Claremont Circuits 1 and 2 115 kV lines, which would require replacement of conductors and would likely require associated replacement structures. This change would be noticeable by nearby residents and users of the recreational trails but would be largely incremental and similar to the replacement of structures and conductor along the proposed project. Because of this additional reconductoring, visual changes from Alternative A would occur over a wider area than the proposed project and would be seen by more residents and recreational trail users.

Alternative A would include implementation of APM AES-2, requiring the use of non-specular conductors and a dulled galvanized finish on new structures. Although its visual impacts would extend over a larger area than the proposed project, Alternative A would be expected to result in less visual impacts than the proposed project at the local scale.

6.2.1.3 Alternative A – Air Quality Impacts

Localized construction air quality impacts from Alternative A would be similar to the proposed project because similar construction activities and equipment would be used. Alternative A also would implement applicable air quality APMs, as with to the proposed project. However, because of the greater length of Alternative A compared to the proposed project, total air emissions from Alternative A construction would be greater and more sensitive receptors could be affected compared to the proposed project.

6.2.1.4 Alternative A – Biological Resources Impacts

The impacts to biological resources from Alternative A would be similar to the proposed project where it would replace three of the four Moraga–Oakland X circuits, remove the existing lines, and construct the underground single-circuit lines in Estates Drive/Park Boulevard. The same biological resources APMs would be implemented.

Depending on the location of existing utilities in Monterey Boulevard, Lincoln Avenue, and MacArthur Avenue, trimming or removal of existing vegetation, including native and non-native trees, may be required along these roads. Palo Seco Creek crosses under Monterey Boulevard and Sausal Creek crossed under MacArthur Boulevard and may be impacted during construction of the third underground circuit unless a horizontal directional drill or other trenchless construction was possible.

The vegetation and habitats along the reconductoring of the two circuits between Moraga and Claremont substations likely are similar to the proposed project. Vegetation removal may be required to access structures and to prepare staging areas and helicopter landing zones. Construction activities for this overhead reconductoring would be similar to construction activities for the proposed project. Because of the greater length of Alternative A from the additional underground alignment and Moraga–Claremont reconductoring, Alternative A would result in greater vegetation and tree removal than the proposed project. Alternative A also could result in impacts during construction to Palo Seco Creek and Sausal Creek that would not occur with the proposed project.

6.2.1.5 Alternative A – Geology, Soils, and Paleontological Resources Impacts

Because of the similar setting and similar construction activities, the impacts to geology, soils, and paleontological resources from Alternative A would be similar to the proposed project for the portion associated with replacing three of the four Moraga–Oakland X circuits, removing the existing lines, and constructing the underground single-circuit lines in Estates Drive/Park Boulevard, as well as reconductoring the Moraga–Claremont lines. Impacts from seismic hazards, expansive soils, landslides, and liquefaction in these portions of Alternative A would be similar to the proposed project and the same geology APMs would be implemented where applicable. Paleontology APMs would be implemented in any areas with high paleontological sensitivity where soil disturbance below 3 feet would occur with a drill diameter wider than 3 feet.

The third underground circuit would be in Monterey Boulevard, Lincoln Avenue, MacArthur Avenue, and other streets, all of which generally are relatively flat and would not be expected to be subject to landslide issues. However, the third underground circuit alignment would cross the Hayward Fault along Monterey Boulevard and again along Lincoln Avenue. Underground power lines paralleling or crossing the Hayward Fault underground would need to accommodate fault creep and seismic displacement measured in feet, rather than inches, for a typical underground line to accommodate the maximum credible earthquake. An innovative, unprecedented design would be required to conceptually accommodate the movement of the lines expected from the maximum credible earthquake on the Hayward Fault. This degree of displacement likely would require construction of a tunnel (approximately 10-foot diameter or more) with tracks from which the cables would hang. The tracks would move to accommodate a potential range of displacement. Construction of such a tunnel would be extremely costly and would have residual reliability risk. The cable may not be able to withstand the potential degree of displacement. The length of the section crossing under the fault would make locating and addressing damage to the line more difficult, leading to longer outages. The resulting third underground circuit may not be sufficiently reliable. Such an underground crossing of the Hayward fault that would be imprudent and contrary to accepted engineering practice. PG&E is not aware of any tested engineering solution to the dangers of an underground power line crossing an active fault with the potential fault creep and coseismic displacement measured in feet. Because of these geotechnical conditions, an underground line crossing the Hayward Fault is considered to present significant and unavoidable geology impacts.

6.2.1.6 Alternative A – Noise Impacts

Localized construction noise impacts from Alternative A would be similar to the proposed project because similar construction activities and equipment would be used. Horizontal directional drilling, if used to cross Sausal Creek and Palo Seco Creek, would create noise levels at 50 feet similar to other proposed construction equipment. Alternative A also would implement applicable noise APMs, as with the proposed project. However, because of the greater length of Alternative A compared to the proposed project, noise impacts from Alternative A construction would be more widespread and more sensitive receptors could be affected compared to the proposed project.

6.2.1.7 Alternative A – Transportation Impacts

The impacts to transportation from Alternative A would be similar to the proposed project for the portion where it would replace three of the four Moraga–Oakland X circuits, remove the existing lines, and construct two underground single-circuit lines in Estates Drive/Park Boulevard. Temporary road and lane closures are anticipated when certain sections of the lines are being removed or reconductored at the overhead road crossings and where lines will be installed underground. In some locations, road closures may last up to 2 weeks. Full closures at several locations along Montclair Railroad Trail also will likely last up to 2 weeks. Guard structures would be installed where the alignment crosses roads or trails. APM TRA-1, which would require that traffic controls and other traffic safety measures be in place to maintain proper traffic flow, and APM TRA-2, which would restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces, would be implemented to further minimize impacts.

Similar temporary lane and road closures also would occur along Monterey Boulevard, Lincoln Avenue, MacArthur Avenue, Excelsior Avenue, Kingsley Street and Park Boulevard Way during construction of the third underground circuit. APM TRA-1 and APM TRA-2 also would be implemented.

For the Moraga–Claremont reconductoring, guard structures would be installed where the alignment crosses roads or trails. Existing trails and roads in the open space areas may have minor improvements installed and be used for construction access. Where structures to be replaced cannot be accessed by roads, helicopters would be used for construction.

Because of the greater length of Alternative A compared to the proposed project, transportation impacts from Alternative A construction would be more widespread and more temporary road and trail closures would occur compared to the proposed project.

6.2.1.8 Alternative A – Wildfire Impacts

Completion of the project would replace aging structures with stronger, more fire-resistant structures and conductors on both the Moraga–Oakland X circuits and the Moraga–Claremont circuits, as with the proposed project. Although the wildfire risk reduction was not calculated for Alternative A, the wildfire risk reduction from Alternative A on the Moraga-Oakland X circuits likely would be similar to the proposed project because it is upgrading the same infrastructure. In addition, upgrades on the Moraga-Claremont circuits likely would result in some reduction in wildfire risk in the surrounding area. Alternative A would not have occupants and, therefore, would not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors. Because Alternative A would reduce fire risk along both the Moraga–Oakland X and Moraga–Claremont lines, it would provide fire risk reduction in a larger area than the proposed project.

6.2.2 Alternative B: Manzanita Drive-Colton Boulevard-Estates Drive Underground

6.2.2.1 Alternative B – Existing Setting

The environmental setting for Alternative B is similar to the proposed project setting. It has the same location as the proposed project in the eastern section for structure removal and replacement and in the central and western sections for the removal of the existing lines and for construction of the underground lines on Park Boulevard. These portions of Alternative B generally would be in the same locations, would be near the same sensitive receptors, would have the same habitats and potential special-status species present, would have the same soils and slopes, and would be in the same very high FHSZ as the proposed project.

The additional underground portion in the central section of Alternative B includes construction in Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road and Estates Drive. These roadways and the transition station location are in residential areas, including hillside residential, interspersed with recreational open space preserves. Mountain Boulevard, a north-south arterial that runs parallel to SR 13 and has two to four lanes, passes through a commercial area in the village of Montclair. The others are local roads and are narrow and windy with limited straight sections. The predominant vegetation type along these roads is urban/developed, likely with some areas of coast live oak woodland, non-native ornamental, and eucalyptus trees, as with to the proposed project. No additional wetlands or waters were identified in this area. This area of Alternative B likely would have similar conditions associated with expansive soils, soils with liquefaction potential, and soils with high potential to encounter paleontological resources. In addition, these roads pass by or through several areas susceptible to landslides.

6.2.2.2 Alternative B – Aesthetics Impacts

As with to the proposed project, permanent visual change resulting from Alternative B from replacement of structures aboveground in the eastern section would be noticeable but largely

incremental and would be similar to the proposed project. Alternative B would include implementation of APM AES-2 requiring the use of non-specular conductors and a dulled galvanized finish on new structures.

As described in Chapter 4, Alternative B would include a transition station at the west end of the underground segment in an area with commercial parking lots with existing road access. The transition station would occupy approximately 0.5 acres. Riser poles would be required where the lines transition to underground near Manzanita Drive and on the west side of SR 13. An example transition station is shown on Figure 4.2-8. The new transition station required for this alternative would result in visual changes at a location not affected by the proposed project. The new riser poles near Manzanita Drive and west of SR 13 also would be new structures that would result in a visual change that does not occur with the proposed project. Therefore, at the transition station location and riser pole locations, Alternative B would result in greater impacts to aesthetics than the proposed project.

A greater portion of the alignment, a total of approximately 3.4 miles, would be replaced underground compared to the proposed project. These underground duct banks would be in sections of Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, and, after crossing over SR 13, in Sims Drive, Somerset Road and Estates Drive. In these areas in the central and western sections, the removal of the existing power line structures, to the extent they are visible, would be a positive visual change.

However, existing conditions of Manzanita Drive, Colton Boulevard, Heartwood Drive, Sims Drive, Somerset Road and Estates Drive could require modifications affecting visual character. As described in Chapter 4, these roads may need to be widened, retaining walls constructed, and trees and vegetation removed, which would impact aesthetic resources. Several roads, including Manzanita Drive and Colton Boulevard, are in areas of significant grade change and landslide susceptibility. In some locations, to meet design and reliability requirements, large retaining walls may be needed to protect the underground lines from ground movement. Retaining walls could be high enough to be visible beyond the immediate roadway. Construction of the retaining walls would require removal of trees and vegetation. The change from trees and vegetation to large, engineered structures would result in a negative impact to aesthetic resources. Soils data would be needed prior to completing project design to identify areas at risk and determine the size and location of retaining walls. Creation of access to, and drilling equipment work areas in, residential yards would be required to obtain the soils data.

Although the removal of power line structures and conductors between Manzanita Drive and Park Boulevard would create a positive visual change at those locations, Alternative B's modifications to Manzanita Drive, Colton Boulevard, Sims Drive, Somerset Road and Estates Drive could result in greater impacts to visual character in other locations that would not occur with the proposed project. Treatments to retaining walls that reduce their visibility and revegetation where substantial earth disturbance has occurred could reduce impacts.

6.2.2.3 Alternative B – Air Quality Impacts

Localized construction air quality impacts from Alternative B would be similar to the proposed project in the eastern section for structure removal and replacement and in the central and western sections for the removal of the existing lines and construction of the underground lines on Park Boulevard because similar construction activities and equipment would be used. However, construction of the underground alignment on Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road and Estates Drive, as well as construction of the transition station and additional riser poles, would result in a longer construction duration and greater earth disturbance in the central section than the proposed project and would generate greater air emissions from dust and construction equipment than the proposed project. Alternative B would implement applicable air quality APMs, as with to the proposed project.

6.2.2.4 Alternative B – Biological Resources Impacts

The impacts to biological resources from Alternative B generally would be the same as the proposed project in the eastern section and in the western section where the existing lines would be removed and the underground portion in Park Boulevard constructed. Similar impacts to special-status species, riparian habitat, and coast live oak woodland would occur in this area.

Depending on location of any existing utilities and the site-specific geotechnical issues in Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road, and Estates Drive, trimming or removal of existing vegetation, including native and non-native trees, may be required along these roads. The number and species of trees and vegetation that would be removed cannot be determined at this time without extensive soil sampling and detailed design and engineering, but it would be greater than the proposed project.

6.2.2.5 Alternative B – Geology, Soils, and Paleontological Resources Impacts

The impacts to geology, soils, and paleontological resources from Alternative B generally would be the same as the proposed project in the eastern section and in the western section where the existing lines would be removed and the underground portion in Park Boulevard would be constructed. Impacts from seismic hazards, expansive soils, landslides, and liquefaction in these portions of Alternative B would be similar to the proposed project. Paleontology APMs would be implemented in any areas with high paleontological sensitivity where soil disturbance below 3 feet would occur with a drill diameter of more than 3 feet.

As noted previously, Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road and Estates Drive pass by or through several areas susceptible to landslides, which expose this route to significant geological hazards. To prevent failure of an underground line from landslide, construction of underground lines in these areas would require retaining walls and other engineered stabilization in some locations, which may require acquisition of multiple residential properties and removal of buildings. Additionally, land use restrictions would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components of the underground line installation. For example, these restrictions could include no residential expansions, no accessory dwelling units, and no pools. Without retaining walls, the alternative would be subject to an unacceptable risk of failure. Alternative B, therefore, would result in greater geology impacts than the proposed project and these impacts could be significant.

6.2.2.6 Alternative B – Noise Impacts

Localized construction noise impacts from Alternative B would be similar to the proposed project in the eastern section for structure removal and replacement and in the central and western sections for the removal of the existing lines and construction of the underground lines on Park Boulevard because similar construction activities and equipment would be used. Alternative B would have less construction noise impacts along the existing alignment in the central section from Manzanita Drive to Park Boulevard than the proposed project, which would remove but not replace structures and conductors in this location. However, construction of the underground alignment on Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road and Estates Drive to replace the existing overhead alignment, as well as construction of the transition station and additional riser poles, would result in a longer construction duration and greater earth disturbance than the proposed project. These construction activities also would be in proximity to more residences than the proposed project. Therefore, Alternative B would result in greater noise impacts than the proposed project. Alternative B would implement applicable noise APMs, as with the proposed project.

6.2.2.7 Alternative B – Transportation Impacts

The impacts to transportation from Alternative B generally would be the same as the proposed project in the eastern section where the lines will be rebuilt in place and in the western section where the

existing lines would be removed and the underground portion in Park Boulevard constructed. In these areas, temporary road closures of up to 2 weeks may occur. Transportation APMs similar to the proposed project would be implemented during construction.

Construction of the underground lines on Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road, and Estates Drive presents additional transportation challenges. As discussed in Chapter 4, the construction work areas would extend the width of the road, and possibly beyond, in numerous areas. Construction of Alternative B, therefore, likely would require full closure of some roads. Because the trucks that would carry precast vaults may not be able to navigate the narrow, winding roads, and because straight road segments of approximately 165 feet are needed to install precast vaults, it is expected that many of the vaults would have to be cast in place. This construction approach would extend the time required for full road closure. Installation of forms and concrete pouring for vault walls and floors would take approximately 3-4 weeks to complete. At the end of each work day, the vault pit could be plated to allow for traffic flow during non-construction hours. Road widening and retaining wall construction would further extend the duration of road closures. Although portions of Mountain Boulevard are wider with four lanes, closure of one or more lanes during construction could disrupt access to businesses along Mountain Boulevard in the Montclair Village.

Depending on the specific site conditions and design requirements, temporary road closure at a given location could last several weeks or more. Access to some residences may be limited or not possible during these times. Property owners may be required to use detours and alternate routes to get to and from their properties or, in cases of temporary inaccessibility, arrange for temporary relocation. Emergency access could be affected, particularly for Sims Drive and Somerset Road, which are deadend roads. Construction of Alternative B would have greater impacts to transportation than the proposed project. Detours and temporary relocation could reduce these impacts.

During O&M of Alternative B, the curvature of the roads could present risks while accessing vaults for maintenance. Some vaults would be located with significant road curves on either side, and some would be on a significant grade. These factors may make it more difficult to safely access the vaults for maintenance. Temporary full closure of Manzanita Drive, Colton Boulevard, Heartwood Drive, Sims Drive, Somerset Road, and Estates Drive may be required during some O&M activities. Depending on the duration, detours and temporary relocation may be required to reduce impacts of these closures. In addition, even with construction of retaining walls, a coseismic event could damage the underground duct bank in Manzanita Drive, Colton Boulevard, Heartwood Drive, Sims Drive, Somerset Road or Estates Drive, and repair could require months of construction activity that affects transportation. These O&M impacts would not occur with the proposed project.

6.2.2.8 Alternative B – Wildfire Impacts

Because of the greater construction activity in vegetated areas required for Alternative B compared to the proposed project, the risk of wildfire during construction would be greater for Alternative B than for the proposed project. The additional construction activity would result from the construction of the underground segment on Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road, and Estates Drive and the associated transition station, new riser poles, retaining walls, and relocated utilities.

Completion of Alternative B would replace aging structures with stronger, more fire-resistant structures and conductors, as with the proposed project. Alternative B would replace approximately 4.2 miles of the existing overhead lines by underground lines. Although the wildfire risk reduction was not calculated for Alternative B, it is likely that it would result in a substantial reduction in wildfire risk. Alternative B would replace more of the lines underground and would provide an incrementally greater reduction in wildfire risk than the proposed project during the O&M project phase.

As with to the proposed project, Alternative B would not have occupants and, therefore, would not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

6.2.3 Alternative C: Shepherd Canyon Road Underground

6.2.3.1 Alternative C – Existing Setting

The environmental setting for Alternative C is similar to the proposed project setting. It has the same location as the proposed project in the eastern section and the eastern edge of the central section for structure removal and replacement. It also has the same location in the central and western sections for the removal of the existing lines and for construction of the underground lines on Park Boulevard. These portions of Alternative C generally would be in the same locations, would be near the same sensitive receptors, would have the same habitats and potential special-status species present, would have the same soils and slopes, and would be in the same very high FHSZ as the proposed project.

The additional underground portion in the central section of Alternative C includes construction in Saroni Drive and Shepherd Canyon Road. These roadways and the transition poles near Saroni Drive and Gunn Drive are in residential areas, including hillside residential, interspersed with recreational parks. Shepherd Canyon Road is a two-lane local road in Oakland that runs through a residential area and adjacent to Shepherd Canyon Park. It connects to Skyline Boulevard, Pinehurst Road, and Manzanita Drive at its northeast end and to Snake Road in the village of Montclair at its southwest end. Shepherd Canyon Road is designated as part of the existing bike network in Oakland (Oakland 2019). Saroni Drive is a narrow local road that is relatively straight where the underground segment would be located. The predominant vegetation type along Saroni Drive is urban/developed. Along Shepherd Canyon Road, vegetation includes coast live oak woodland, non-native ornamental, urban/developed, and eucalyptus trees. No additional wetlands or waters were identified in this area. This area of Alternative C likely would have similar conditions associated with expansive soils, soils with liquefaction potential, and soils with high potential to encounter paleontological resources. In addition, Shepherd Canyon Drive and Saroni Drive pass through areas susceptible to landslides. Refer to Figures 4.2-4b to 4.2-4d.

6.2.3.2 Alternative C – Aesthetics Impacts

As with to the proposed project, permanent visual change resulting from Alternative C from replacement of structures aboveground in the eastern section and part of the central section would be noticeable but largely incremental and would be similar to the proposed project. Alternative C would include implementation of APM AES-2 requiring the use of non-specular conductors and a dulled galvanized finish on new structures.

An additional approximately 1.1 miles of the alignment would be replaced underground compared to the proposed project. These underground duct banks would be in Saroni Drive and Shepherd Canyon Drive in the central section. The removal of this section of the existing power line structures, to the extent they are visible, would be a positive visual change.

Alternative C would include a new transition station where the lines transition from aboveground to underground at the City of Oakland Municipal Service Yard. The transition station would occupy approximately 0.5 acres. This new transition station would result in visual changes at a location not affected by the proposed project. An example transition station is shown on Figure 4.2-8. The existing site currently contains parking and several small one-story buildings and a fenced enclosure. The transition station would introduce four riser poles up to approximately 65 feet tall. The riser poles would be much more visible than the existing buildings and fenced enclosure. In addition, two new structures comparable in height to the proposed project structures would be constructed north of Shephard Creek. The new riser poles would be visible from Shepherd Canyon Park and surrounding areas; the new structures north of Shephard Creek may be visible from Shepherd Canyon Road or residential areas directly south. Therefore, in the vicinity of the transition station, Alternative C would result in greater impacts to aesthetics than the proposed project.

Four new riser poles approximately 65 feet tall would be constructed near the intersection of Saroni Drive and Gunn Drive, where Alternative C would transition from aboveground to underground. Currently, no power line structures are visible from this intersection and surrounding area. The addition of the riser poles would result in an aesthetic impact in the area that would not occur with the proposed project.

The existing conditions of Saroni Drive and Shepherd Canyon Road would require modifications because of the risk of landslides and narrow roadways. As described in Chapter 4, the roads may need to be temporarily or permanently widened in locations, retaining walls would be required, and trees and vegetation would have to be removed. Retaining walls could be high enough to be visible beyond the immediate roadway. Construction of the retaining walls and protection of the duct banks from root zones would require permanent removal of trees and vegetation. The collection of exploratory borings, described in Chapter 4, would be required to determine the size and location of retaining walls. Completing the borings would require bringing heavy construction equipment, including drilling rigs, onto residential properties, grading to provide vehicle access to get the drilling rigs to the sampling locations, and extensive vegetation removal. Land use restrictions would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components of the underground line installation. The change from roadside trees and vegetation to large, engineered structures would affect the visual character of the roads and result in a negative impact to aesthetic resources along most of the underground segment on Saroni Drive and Shepherd Canyon Road. Treatments to retaining walls that reduce their visibility and revegetation where substantial earth disturbance has occurred could reduce impacts.

Overall, Alternative C would result in positive visual changes in some locations compared to the proposed project and in negative aesthetic impacts in other locations compared to the proposed project.

6.2.3.3 Alternative C – Air Quality Impacts

Localized construction air quality impacts from Alternative C would be similar to the proposed project in the eastern section for structure removal and replacement and in the central and western sections for the removal of the existing lines and construction of the underground lines on Park Boulevard because similar construction activities and equipment would be used.

Construction of the underground segment in Saroni Drive and Shepherd Canyon Road, as well as construction of the transition station and additional riser poles, would result in a longer construction duration and greater earth disturbance than the proposed project and overall would generate greater air emissions from dust and construction equipment than the proposed project. Alternative C would implement applicable air quality APMs, as with to the proposed project.

6.2.3.4 Alternative C – Biological Resources Impacts

The impacts to biological resources from Alternative C generally would be the same as the proposed project in the eastern section and part of the central section, where existing lines and structures would be removed and replacement structures and lines installed, and in the western section where the existing lines would be removed and the underground portion in Park Boulevard would be constructed. Similar impacts to special-status species, riparian habitat, and coast live oak woodland would occur in these areas.

Construction of the underground segment in Saroni Drive and Shepherd Canyon Road, as well as construction of the transition station and additional riser poles, would result in potentially extensive removal of trees, shrubs, and other vegetation to complete the exploratory geotechnical investigation and construct retaining walls. Vegetation also would be removed to construct the two new structures south of Shephard Creek and the new transition station. The amount of vegetation removal in the central section would be greater than for the proposed project. In addition, Shephard Creek runs under Shepherd Canyon Road (Oakland Museum of California n.d.) and could be affected during construction,

potentially requiring relocation. Overall, biological impacts of Alternative C would be greater than the proposed project.

6.2.3.5 Alternative C – Geology, Soils, and Paleontological Resources Impacts

The impacts to geology, soils, and paleontological resources from Alternative C generally would be the same as the proposed project in the eastern section and part of the central section, where existing lines and structures would be removed and replacement structures and lines would be installed, and in the western section, where the existing lines would be removed and the underground portion in Park Boulevard would be constructed. Impacts from seismic hazards, expansive soils, landslides, and liquefaction in these portions of Alternative C would be similar to the proposed project. Paleontology APMs would be implemented in any areas with high paleontological sensitivity where soil disturbance below 3 feet would occur with a drill diameter of more than 3 feet.

As noted previously, Saroni Drive and Shepherd Canyon Road pass through an area susceptible to landslides, which exposes this route to significant geological hazards. To prevent failure of an underground line from landslide, retaining walls would be required in some locations, which may require acquisition of multiple residential properties and removal of buildings. Additionally, land use restrictions would be required for all upslope properties to avoid excess loading of the retaining walls or other load-bearing components of the underground line installation. For example, these restrictions could include no residential expansions, no accessory dwelling units, and no pools. Without retaining walls, the alternative would be subject to an unacceptable risk of failure. Alternative C, therefore, would result in greater geological impacts than the proposed project and these impacts could be significant.

6.2.3.6 Alternative C – Noise Impacts

Localized construction noise impacts from Alternative C would be similar to the proposed project in the eastern section and part of the central section for structure removal and replacement and in the central and western sections for the removal of the existing lines and construction of the underground lines on Park Boulevard because similar construction activities and equipment would be used. Alternative C would have less construction noise impacts along the existing alignment in a portion of the central section than the proposed project where existing structures would be removed but not replaced. However, construction of the underground alignment on Saroni Drive and Shepherd Canyon Road as well as construction of the transition station, additional riser poles, and two new structures would result in a longer construction duration and greater earth disturbance than the proposed project in the central section. In particular, the construction equipment used for the exploratory geotechnical investigation and to construct retaining walls likely would generate noticeably greater noise for longer periods than the proposed project. Therefore, compared to the proposed project, Alternative C would result in comparable noise impacts in some locations, lesser noise impacts in some locations, and much greater noise impacts in some locations. Alternative C would implement applicable noise APMs, as with the proposed project.

6.2.3.7 Alternative C – Transportation Impacts

The impacts to transportation from Alternative C generally would be the same as the proposed project in the eastern section and part of the central section where the lines will be rebuilt in place, and in the western section where the existing lines would be removed and the underground portion in Park Boulevard would be constructed. In these areas, temporary road closures of up to 3 to 4 weeks may occur at specific locations to excavate and install underground vaults. Transportation APMs similar to the proposed project would be implemented during construction.

Construction of the underground lines on Saroni Drive and Shepherd Canyon Road presents additional transportation challenges. As discussed in Chapter 4, the construction work areas would extend beyond the width of one lane and the roads do not have shoulders in most locations. Construction of Alternative C, therefore, likely would require full closure of the roads. On Shepherd Canyon Road, construction work may be at one location for a period of time with the road closed at that location; as the construction

work areas move, the location of the closure would move. Closures on Shepherd Canyon Road could last for several weeks to several months or longer, especially where large retaining walls are needed near the roadway. In some locations, because of road width or road curves, vaults may need to be cast in place, which also would extend the time required for full road closure. If feasible, at the end of each work day, vault pits or trenches for duct banks could be plated to allow for traffic flow during non-construction hours.

Shepherd Canyon Road is one of the larger northeast-southwest roads in the area that connect the hillside neighborhoods to SR 13 and Montclair Village. The nearest road of comparable size that connects the hillside neighborhoods to SR 13/Montclair Village is Thornhill Drive, approximately 0.6 mile northwest. Access to some residences may be limited or not possible during these times. Property owners may be required to use detours and alternate routes to get to and from their properties or, in cases of temporary inaccessibility, arrange for temporary relocation. Emergency access could be affected, including emergency vehicles from Oakland Fire Station No. 24 on Shepherd Canyon Road. Emergency vehicles from this station may need to divert to Thornhill Drive, Snake Road, Ascot Drive, or other roads to reach areas north of the station on Shepherd Canyon Road, taking longer to respond to some emergencies. Therefore, construction of Alternative C would have greater impacts to transportation than the proposed project. Detours and temporary relocation could reduce these impacts.

During O&M of Alternative C, the narrowness of Saroni Drive and Shepherd Canyon Road may require temporary full closure to safely access vaults. Depending on the duration, detours and temporary relocation may be required to reduce impacts of these closures. In addition, even with construction of retaining walls, a coseismic event could damage this segment of underground pipeline in Saroni Drive or Shepherd Canyon Road and repair could require months of construction activity that affects transportation. These O&M impacts would not occur with the proposed project.

6.2.3.8 Alternative C – Wildfire Impacts

Because of the greater construction activity in vegetated areas required for Alternative C compared to the proposed project, the risk of wildfire during construction would be greater for Alternative C than for the proposed project. The additional construction activity would result from the construction of the underground segment on Saroni Drive and Shepherd Canyon Road and the associated transition station, two new structures, new riser poles, retaining walls, and relocated utilities.

Completion of Alternative C would replace aging structures with stronger, more fire-resistant structures and conductors in the eastern section and parts of the central and western sections, as with to the proposed project. This would result in a similar substantial reduction in wildfire risk in these areas. As with to the proposed project, Alternative C would replace approximately 1.1 miles of overhead lines with underground lines in Park Boulevard and result in a similar reduction in wildfire risk in this area. For the approximately 1.1 mile of underground lines on Saroni Drive and Shepherd Canyon Road, Alternative C would result in an incrementally greater reduction in wildfire risk than the proposed project during the O&M phase.

As with to the proposed project, Alternative C would not have occupants and, therefore, would not potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire caused by slope, prevailing winds, or other factors.

6.2.4 Alternative E: Proposed Project with Campground Overhead Option

6.2.4.1 Alternative E – Existing Setting

The environmental setting for Alternative E is the same as the setting for the proposed project because it has the same existing and proposed replacement alignment except near the planned EBRPD Sibley Volcanic Regional Preserve Group Campground, where two structures would be replaced northwest approximately 380 feet outside of the existing alignment. The location for these two structures would be

within the same open space visual setting with the same vegetation type (coast live oak) as the proposed project. The structures would be in the same very high fire hazard severity zone as the proposed project. The two structures would be replaced on a flatter area adjacent to an existing access road and away from the existing structure locations on steeper slopes but otherwise have similar soils and geologic conditions as the related proposed project structures.

6.2.4.2 Alternative E – Aesthetics Impacts

Replacing two structures farther from the planned EBRPD Sibley Volcanic Regional Preserve Group Campground would result in a minor but noticeable long-term improvement in visual character of the immediate campground area where the lines span would be farther (approximately 160 feet) in the overhead view. However, the two structures would be at a higher elevation than the corresponding proposed project towers and would be more visible to hikers and other users of the Sibley Volcanic Regional Preserve and East Bay Skyline Trail (Bay Area Ridge Trail). In addition, more vegetation would need to be removed, along approximately 3,200 feet of the new alignment, compared to the proposed project for construction of these two new structures, and to comply with General Order 95. The additional vegetation removal would affect views of campground users and nearby hikers and trail users. Therefore, Alternative E would result in greater aesthetic impacts than the proposed project in the vicinity of these two structures.

6.2.4.3 Alternative E – Air Quality Impacts

Localized construction air quality impacts from Alternative E would be similar to the proposed project over most of the alignment because similar construction activities and equipment would be used. Alternative E also would implement applicable air quality APMs, as with to the proposed project. However, at the location of the planned EBRPD Sibley Volcanic Regional Preserve Group Campground, replacing two structures farther from the campground would increase the construction time and activity, primarily for vegetation removal, compared to the corresponding proposed project structures. Therefore, Alternative E would result in incrementally greater construction air emissions than the proposed project.

6.2.4.4 Alternative E – Biological Resources Impacts

Impacts to biological resources from Alternative E would be expected to be similar to the proposed project along nearly the entire alignment, and the same biological resource APMs would be implemented. At the location of the planned EBRPD Sibley Volcanic Regional Preserve Group Campground, replacing two structures farther from the campground generally would occur in the same type of habitat and have the same impacts as the proposed project in this area. However, an increase in vegetation removal and tree trimming or removal compared to the proposed project (an additional approximately 3,200 feet) may be required for construction and to meet General Order 95 clearance requirements in the new ROW in this area.

6.2.4.5 Alternative E – Geology, Soils, and Paleontological Resources Impacts

Impacts to geology, soils, and paleontological resources from Alternative E would be the same as the proposed project along nearly the entire alignment. Where the two structures would be replaced farther from the campground, applicable APMs would be implemented. Alternative E would incorporate APM GEO-1 to develop seismic design criteria and appropriate safety design measures; APM GEO-2 to minimize liquefaction and associated ground failure hazards; and APM GEO-3 to include appropriate design measures for localized soil conditions. Impacts would be similar to the proposed project.

6.2.4.6 Alternative E – Noise Impacts

Localized construction noise impacts from Alternative E would be similar to the proposed project over most of the alignment because similar construction activities and equipment would be used. Alternative E also would implement applicable noise APMs, as with to the proposed project. However, at the

location of the planned EBRPD Sibley Volcanic Regional Preserve Group Campground, replacing two structures farther from the campground would increase the construction time and activity due to an increase in vegetation removal, compared to the corresponding proposed project structures. Therefore, Alternative E would result in incrementally greater construction noise impacts than the proposed project at this location.

6.2.4.7 Alternative E – Transportation Impacts

Impacts to transportation from Alternative E would be nearly the same as for the proposed project. Temporary road and lane closures may occur when certain sections of the lines are being removed or reconductored at the overhead road crossings and where lines will be installed underground. In some locations, road closures may last up to 2 weeks. Guard structures would be installed where the alignment crosses roads or trails. Similar construction access and road or trail closures as the proposed project would be done for replacement of the two structures farther from the planned EBRPD Sibley Volcanic Regional Preserve Group Campground. The project would include APM TRA-1 and APM TRA-2 to further minimize impacts. Transportation impacts of Alternative E would be similar to the proposed project.

6.2.4.8 Alternative E – Wildfire Impacts

Completion of Alternative E would replace aging structures with stronger, more fire-resistant structures and conductors, as with to the proposed project. Because all the structures except two would be replaced in the same locations and with the same types of structures as the proposed project, and two structures would be replaced approximately 160 feet away, it is expected that the reduction in wildfire risk would be the same as the proposed project. Alternative E would implement the same wildfire APMs as the proposed project. Wildfire impacts of Alternative E would be the same as the proposed project.

6.3 Alternatives Ranking

CEQA Guidelines Section 15126.6(e) 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."

Table 6.2-1 compares the impacts of the alternatives to the proposed project impacts for aesthetics, air quality, biological resources, geology and soils, noise, transportation, and wildfire. As discussed in Section 6.1.2, for the other environmental resource topics, either the proposed project has no impacts, or the impacts would not distinguish among the alternatives The alternatives are listed from left to right in order of increasing impacts. As shown in Table 6.2-1, the proposed project would be the environmentally superior alternative because the impacts of the alternatives would be greater for several environmental resources with only incremental, if any, improvements to aesthetics or wildfire.

Table 6.2-1. Alternatives Comparison Summary and Ranking

Environmental Resource	No Project Alternative	Alternative E: Proposed Project with Campground Overhead Option	Alternative A: Moraga–Oakland X 3-Circuit with Moraga–Claremont and Park Blvd/Lincoln Ave[a]	Alternative B: Manzanita Drive-Colton Blvd-Estates Drive Underground	Alternative C: Shepherd Canyon Road Underground
Aesthetics	↑	↑	↓	=	=
Air Quality	=	↑	↑	↑	↑
Biological Resources	=	↑	↑	↑	↑
Geology and Soils	=	=	↑	↑	↑
Noise	=	↑	↑	↑	↑
Transportation	=	=	↑	↑	↑

Table 6.2-1. Alternatives Comparison Summary and Ranking

Environmental Resource	No Project Alternative	Alternative E: Proposed Project with Campground Overhead Option	Alternative A: Moraga–Oakland X 3-Circuit with Moraga–Claremont and Park Blvd/Lincoln Ave[a]	Alternative B: Manzanita Drive-Colton Blvd-Estates Drive Underground	Alternative C: Shepherd Canyon Road Underground
Wildfire	↑	=	↓	↓	↓

[a] The complete name is Alternative A: Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground.

↑ indicates impacts are relatively greater than the proposed project impacts.
↓ indicates impacts are relatively less than the proposed project impacts.
= = indicates impacts are similar to the proposed project impacts.

The No Project Alternative would individually replace aging structures over time. Ultimately, all structures and the conductors would be replaced, resulting in similar localized construction impacts as the proposed project to air quality, biological resources, noise, and transportation. However, the No Project Alternative would delay the substantial wildfire risk reduction of the proposed project for many years. In addition, the visual improvements from the proposed project from replacing a portion of the overhead lines underground in the western section would not occur with the No Project Alternative.

Alternative E, the Proposed Project with Campground Overhead Option Alternative, generally would have the same impacts as the proposed project except for the different replacement location of two towers near the planned EBRPD Sibley Volcanic Regional Preserve Group Campground. Compared to the proposed project at this location, Alternative E would result in increased localized impacts to air quality and noise during construction; greater aesthetic impacts because of visibility to more visitors to Sibley Volcanic Regional Preserve and East Bay Skyline Trail (Bay Area Ridge Trail); and greater biological impacts from the removal of more trees and vegetation.

Alternative A, the Moraga–Oakland X 3-Circuit Replacement with Moraga–Claremont Reconductoring and Park Boulevard/Lincoln Avenue Underground Alternative, would result in wildfire risk reduction over a greater area than the proposed project. Alternative A also would result in a minor improvement in aesthetics compared to the proposed project along the existing alignment between Monterey Boulevard and Park Boulevard. However, Alternative A has a much larger footprint than the proposed project with the additional underground construction on Monterey Boulevard, Lincoln Avenue, MacArthur Avenue, and other streets and the reconductoring of most of the Moraga–Claremont power lines. As a result, Alternative A would result in overall greater impacts to air quality, biological resources, noise, and transportation than the proposed project. The third underground circuit along Monterey Boulevard and Lincoln Avenue would cross the Hayward Fault twice. Because of the associated geotechnical conditions and the need for an innovative, unprecedented design, an underground line crossing the Hayward Fault is considered to present a potential significant and unavoidable geology impact.

Alternative B, the Manzanita Drive-Colton Boulevard-Estates Drive Underground Alternative, would result in an incrementally greater reduction in wildfire risk than the proposed project. It also would place a greater length of the power lines underground, potentially resulting in improvements to the visual character of the area where the existing overhead lines are currently located, benefiting some residents and public road users. However, construction along Manzanita Drive, Colton Boulevard, Heartwood Drive, Sims Drive, Somerset Road, and Estates Drive could result in road widening and retaining wall construction, as well as creation of new visible transition station and riser poles. These changes likely would substantially alter the visual character in multiple locations and would result in greater visual impacts to views of other residents and public road users than Alternatives A and E and the No Project Alternative. These construction activities also could result in extensive vegetation removal and greater biological impacts than Alternatives A and E and the No Project Alternative. The underground portion on Manzanita Drive, Colton Boulevard, Heartwood Drive, Mountain Boulevard, Sims Drive, Somerset Road, and Estates Drive could result in significant geology impacts because the roads are in areas susceptible to landslides and are exposed to significant geological hazards.

Alternative C, the Shepherd Canyon Road Underground Alternative, would result in an incrementally greater reduction in wildfire risk than the proposed project. It also would place a greater length of the power lines underground, potentially resulting in improvements to the visual character of the area where the existing overhead lines are currently located, benefiting some residents and public road users. However, construction along Saroni Drive and Shepherd Canyon Road would result in retaining wall construction in some locations, possible road widening in some locations, and creation of visible new transition station, power line structures, and riser poles. These changes likely would substantially alter the visual character in multiple locations and would result in greater visual impacts to views of other residents and public road users than any of the other alternatives. These construction activities also could result in extensive vegetation removal and greater biological impacts than any of the other alternatives. The underground portion on Saroni Drive and Shepherd Canyon Road could result in significant geology impacts because the roads are in areas susceptible to landslides and are exposed to significant geological hazards.

Western Regional Climate Center (WRCC) 2024. NOAA Cooperative Stations – Temperature and Precipitation. Oakland Museum, California (046336). Accessed April 10, 2024. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6336.

9.5.21 Section 5.21. Mandatory Findings of Significance

None.

9.6 Chapter 6. Comparison of Alternatives

Oakland Museum of California. n.d. Sausal Creek Watershed Map. Accessed October 25, 2024. https://explore.museumca.org/creeks/1190-OMSausal.html#.

9.7 Chapter 7. Cumulative Impacts and Other CEQA Considerations

Bay Area Air Quality Management District (BAAQMD). 2023. *California Environmental Quality Act Air Quality Guidelines*. April. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

California Air Resources Board (CARB). 2017. California's 2017 Climate Change Scoping Plan. November. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.

East Bay Municipal Utility District (EBMUD). 2019. *Central Reservoir Replacement Project Draft Environmental Impact Report*. Prepared by ESA. November. https://www.ebmud.com/about-us/construction-and-maintenance/construction-my-neighborhood/central-reservoir-replacement-project.

9.8 Chapter 8. List of Preparers

None.

Attachment 5
PG&E Response to CPUC Data Request 9

Pacific Gas and Electric Company

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June 17, 2025

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VIA EMAIL

RE: CPUC Data Request #9 for PG&E's Moraga to Oakland X 115 Kilovolt Rebuild Project (A.24-11-005)

Dear Ms. Wright,

This letter is in reply to your June 4, 2025 letter in which you request certain additional information regarding Pacific Gas and Electric Company's (PG&E's) application (A.24-11-005) for a Permit to Construct (PTC) and Proponent's Environmental Assessment (PEA) for the Moraga-Oakland X 115 kilovolt (kV) Rebuild Project (project). The original text for each data request item from the California Public Utilities Commission (CPUC) is included, followed by PG&E's response.

There is one attachment to this letter to support PG&E's response.

- Attachment 1 – Table ALT-6 Road Closures

PEA Chapter 4, Alternatives

ALT-6 Roadway widths for underground alternatives are discussed under PEA Alternatives B and C; however, the PEA analyzes installation of 4 circuits and the EIR is considering 2 circuits each road. The EIR must evaluate impacts of construction of the underground alternatives on traffic and evacuation routes, so must consider the need for road closures. Please define the minimum roadway width that would allow retaining a single traffic lane open at all times during underground installation of 2 power line circuits and associated vaults.

Specifically, please define the specific areas (by block, e.g., "along x street between y and z streets") along the following roadways that would require full roadway closure for any length of time during installation of 2 underground circuits:

Manzanita Drive to State Route 13
- Skyline Boulevard
- Colton Boulevard
- Heartwood Drive
- Snake Road
- Shepherd Canyon Road (west of Saroni Drive)
- Ascot Drive

West of State Route 13
- Sims Drive
- Somerset Drive
- Estates Drive (west of Somerset Drive to Park Boulevard)

PG&E's Response

The minimum roadway width required for construction and to retain a single traffic lane open depends on several factors. PG&E assumed the following to provide a response:

- Construction width required to install 2 circuits in a double-circuit duct bank in one of the roads listed above would be the same as described in the PEA Project Description for installing 2 circuits in Park Boulevard. As noted on PEA Page 3-28:

> *[T]he workspace for open trenching operations to install the duct bank between the vaults typically may extend up to approximately 1,500 feet long by 24 feet wide.*

The 24 feet provides space for the 4-foot wide trench, sidecasting of excavated soil into a hauling truck, a cement pouring truck, a cable splicing trailer, construction equipment access, and materials and equipment storage, among other construction activities.

- The construction width required to install a vault in one of the roads listed above would be the same as described in the PEA Project Description for installing a vault in Park Boulevard. As noted on PEA Page 3-28,

  > *Each vault will have an excavation size of 42 feet long by 18 feet wide by 13 feet deep*.

- Vault construction requires greater road width than duct construction. Where a road would not be wide enough for a traffic lane during duct bank construction, it also would not be wide enough for a traffic lane during vault construction.

- The minimum required width of a traffic lane during construction would be established in coordination with the applicable agencies (primarily City of Oakland). For this response, the minimum traffic lane width is assumed to be 10 feet wide. This assumption is based on several sources:

  (1) The City of Oakland's "Supplemental Design Guidance: Accommodating Pedestrians, Bicyclists, and Bus Facilities in Construction Zones" requires that motor vehicle travel lanes be maintained at least 10 feet wide if narrowed to provide temporary bike lanes in construction zones (https://cao-94612.s3.amazonaws.com/documents/OakDOT-Updated-Guidance-Temporary-Traffic-Control_2017_01_06.pdf).
  (2) The City of Oakland also requires, in its Street Design Manual (https://cao-94612.s3.us-west-2.amazonaws.com/documents/STREET-DESIGN-GUIDELINES.pdf), that driveways be a minimum of 10 feet wide.
  (3) Federal Highway Administration's *Manual on Uniform Traffic Control Devices* (https://mutcd.fhwa.dot.gov/htm/2003/part6/part6h1.htm) states that lanes should be a minimum of 10 feet wide when shoulders are temporarily closed for construction work.

- The entire width of pavement, including paved parking lanes and paved shoulders, is assumed to be available for construction activities or a traffic lane. Areas outside of existing pavement on public right-of-way would not be available for construction or traffic because private residential property or vegetated slopes are adjacent to the pavement along nearly the entire length of the roadways. It is assumed no temporary road widening would occur. The PEA notes that the Montclair Railroad Trail (MRRT) along Shepherd Canyon Road could potentially be used if additional width was needed (p. 4-18). However, much of the MRRT is not at the same grade as Shepherd Canyon Road and extensive vegetation removal, earthwork, and modifications to a drainage would be required to accommodate a traffic lane along an entire block. Use of MRRT therefore was not assumed.

Based on the above assumptions, a minimum existing road width of 34 feet would be required for construction of a duct bank with 2 power line circuits and associated vaults. This assumes the trench location is placed optimally in one lane with no shifting of the alignment to avoid existing utilities (e.g. concrete storm drains, electric distribution lines). Aerial and street view imagery were reviewed to identify which blocks of the roads in question have an existing width of at least 34 feet. Blocks with one lane each way and without paved shoulders or parking lanes are less than 34 feet wide and were eliminated from further consideration. Where the roadways could be seen to have more than one lane in each direction, have a double yellow center line, or have a shoulder or parking lane, the roadway width was measured for each block using an online map with aerial imagery base.

Most blocks had only intermittent and short lengths wider than 34 feet and were less than 34 feet wide most of the block length. For example, while Skyline Boulevard has lengths that are wider than 34 feet, most lengths have areas with less than 34 feet of width, as illustrated in PEA Figure 5.1-2c, Representative Photo: *5. Skyline Boulevard looking west*. Blocks such as these were assumed to require complete closure. It should be noted that intersections may appear to have sufficient width because the intersecting road(s) add "width" in that location. Isolated intersections were not included as separate blocks. The desktop review results are summarized in Table ALT-6 Road Closures in Attachment 1.

Based on this review, it appears nearly all blocks of the roadways listed would require complete closure during construction. Several road blocks may be sufficiently wide to accommodate a traffic lane during construction of a duct bank with 2 circuits, although they may not be wide enough to accommodate vault construction with a traffic lane left open. These road blocks are:

- Colton Boulevard between Arrowhead Drive and Lodge Court
- Snake Road between Hemlock Street and Thornhill Drive
- Ascot Drive between Ascot Lane (a deadend street) and Skyline Boulevard
- Ascot Drive between Mountaingate Way and Scout Road
- Ascot Drive between Longwalk Drive and Melville Drive

ALT-7 For each road, please define the estimated duration of full closure for any one segment requiring a detour for installation of the underground power line (2 circuits) and vault.

PG&E's Response

The pace and durations provided in this response are approximate and would change depending on engineering design, site conditions, construction sequencing, and other factors. Because of these limitations, it was not feasible to develop a specific estimated duration of full closure for each road segment and block discussed in the ALT-6 response. However, this response does provide an estimate of what road closure durations may be like for shorter and longer road segments to illustrate the possible range of road closures. The road closure duration estimates presented below represent a "best case" scenario because the durations used were developed for a wide road with minimal grade and bends. Actual durations would likely be longer than presented below.

Construction duration at a single location is assumed to be the same as construction in Park Boulevard described in the PEA and in previous responses to data requests. The Part A Response to CPUC Data Request #6 (dated April 21, 2025), identifies a timeline of construction activities at a single address on Park Boulevard, assuming a vault within 100 feet, as follows:

- *Vault (excavation, shoring, soil hauling, installation, and backfill) will take approximately 2 weeks [12 days].*
- *Duct bank (trenching, shoring, soil hauling, conduit installation, and backfill) will take approximately 6 days of active construction progressing at minimum of 40 feet/day, nonconsecutive days expected.*
- *Cable pulling installation at a vault will take approximately 12 days (6 days in each direction to the adjacent vault).*
- *Cable splicing at a vault will take approximately 20 days.*
- *Repaving and lane striping will take approximately 2 days.*

DR #6 Part A also notes that duct bank trenching and conduit installation would move at an approximate pace of 40 to 100 feet per day per crew in Park Boulevard. PG&E's response Item ALT-1a in Data Request 6 Part B describes the relationship between the cumulative horizontal curvature of a duct bank and vault spacing. More vaults would be expected for the windier roads in question and they would be spaced closer together than the approximate 1,000 to 1,200 feet distance on Park Boulevard. The physical characteristics of Park Boulevard have optimal construction conditions for duct bank and vault installation, including a relatively straight road alignment with slight grade and wide multiple lanes. These optimal conditions allow for construction activities to be completed at a faster pace than they would in the winding, narrow, and steep streets that are included in this request. Additionally, these smaller residential roadways may have reduced construction working hours stipulated in the encroachment permits compared to Park Boulevard thus reducing the construction pace.

<u>Approximate full lane closure duration for shorter road segments (blocks).</u>
Shorter blocks would be up to approximately several hundred feet and are assumed to have only one vault. Shorter blocks could be closed for approximately 12 days for vault installation. Using a roadway length of approximately 600 feet to calculate and an optimal construction pace range of approximately 40 to 100 feet per day, the shorter block would be closed for approximately 6 to 15 days for duct bank construction. During the cable installation phase of construction (cable pulling), shorter road segments would be closed for approximately 12 days. The size of cable reels, which would be placed near vaults, and the trucks that carry them would necessitate full closure of these roads. During cable splicing, the vaults would be open, and in roadways less than 28 feet wide, full closure of the roadway at each adjacent vault location would be required for approximately 20 days. The repaving phase could require full closure of shorter road segments for approximately 2 days.

Approximate full lane closure duration for longer road segments (blocks).
For longer road segments, such as Skyline Boulevard between the north end of Manzanita Drive and Pinehurst Road (approximately 2,700 feet), closures would be longer. For this segment of Skyline Boulevard, for example, the duration for duct bank construction alone for one crew could be up to approximately 27 work days to 68 work days (at an approximate pace of 40 to 100 feet per day for approximately 2,700 feet). More than one vault would be constructed in longer road segments, and the road would be closed at each vault location for approximately 12 days. Skyline Boulevard would be closed to through traffic at the single inroad work area as work progressed between the north end at Manzanita Drive and Pinehurst Road. Using more than two crews on longer segments is not advisable because it would prevent vehicles between the two work areas from moving past either work area. Cable pulling would require closure for approximately 20 days at each adjacent vault work location. The repaving phase could require full closure of longer road segments for approximately 6 days.

PEA Page 5.20-11 notes that, for work on Park Boulevard, "[a]t the conclusion of a construction work day, a work area in a roadway will be demobilized and temporary lane or road closures will end." It may be possible that temporary lane closures could end at the conclusion of a construction work day along the roadway segments in question. However, this may not be possible due to the more constrained work areas compared to Park Boulevard. Leaving a single traffic lane open outside work areas, without flaggers or similar traffic controls, would be unsafe. Reestablishing both lanes of traffic (one lane each way) would require that all construction equipment and materials be demobilized from the work area to a staging area, which likely would not be near the work area, and placement of plates over the trenching. The daily mobilization and demobilization, if feasible, would leave a short work window each day and would significantly slow the pace of construction. The possibility for ending temporary lane closures each day cannot be determined at this time without detailed design and construction sequencing.

ALT-8 If underground alternatives are constructed, the existing overhead structures will need to be removed after energization of the underground circuits. PG&E has provided "Structure Work Areas" defining areas along roads where cranes would be located, and roads would be closed to through traffic while cranes are in place. For structure removal activity only, what would be the estimated duration of closure of roadways for each tower site for the removal of existing conductors and towers only?

PG&E's Response

As noted in PEA Table 3.6-4 structure removal requires approximately 1 to 2 days per structure for the proposed project. Therefore, for each pair of structures for an alternative, roadway closure is assumed to be approximately 2 to 4 days, as well as approximately 1 day for conductor removal.

ALT-9 PG&E's PEA (pages 4-18 and 4-19) discusses roadway closures for underground installation of 4 circuits under PEA Alternative C, which includes a transition pole on Saroni Drive. What is the estimated duration of closure of Saroni Drive and/or Gunn Drive to accommodate construction of the Saroni transition pole and installation of an underground 2-circuit power line from the overhead-to-underground transition location to Shepherd Canyon Road?

PG&E's Response

As noted in PEA Table 3.6-4, transition structure installation for the proposed project would require approximately 12 to 18 days. It is assumed either or both Saroni Drive and Gunn Drive would be closed for approximately 12 to 18 days for installation of transition structures at this location.

PEA Chapter 15.7, Transportation

TRA-1

a. Pending coordination with transit agencies, what is the estimated maximum distance a temporary bus stop is expected to be relocated and for what maximum duration for construction of the proposed Project?

PG&E's Response

PG&E will coordinate with the transit agencies to relocate bus stops temporarily during construction. Construction details are not known at this time to determine specific temporary bus stop locations or durations. However, based on the PEA assumptions about construction activity at a single address on

Park Boulevard (see response to ALT-7), bus stops may be moved temporarily up to several hundred feet and the duration would be up to approximately 2 weeks during vault installation and approximately 1 week during duct bank installation. If cable pulling or cable splicing requires a temporary work area at an existing bus stop location, the temporary relocation of the bus stop would be approximately 12 days and 20 days, respectively. It is anticipated that bus stop locations can be avoided for these construction activities. Paving would require temporary relocation for approximately 2 days.

b. Please describe PG&E's coordination with transit agencies and responsibilities for signage and alerting riders of temporary bus stop relocations.

PG&E's Response

Coordination with transit agencies and specific measures related to temporary bus stop locations would be done consistent with PEA APM TRA-1: PG&E Temporary Traffic Controls. Detailed measures for temporary bus stop relocation would be developed in coordination with transit agencies but could include postings of notices and appropriate signage of construction activities with construction schedule, the exact location and duration of activities at each bus stop, and a tollfree telephone number for receiving questions or complaints.

TRA-2 PEA page 5.17-14 states that "[f]ull closures at several locations along Montclair Railroad Trail [MRRT] will also likely last up to 2 calendar weeks."

a. Please confirm whether the 2-week MRRT closures would be staggered (based on specific construction activities that may take place months apart) or would trail closures be expected to occur continuously and simultaneously at multiple locations.

PG&E's Response

It is assumed that one crew would move to each work location consecutively along the trail. The 2-week, or approximately 12-day, MRRT closure would occur at one work location at a time.

b. Please describe the anticipated MRRT pedestrian and bicycle detours that would be established during each planned trail closure, including exit and reentry locations. Trail entry points are mapped at: https://montclairrrtrail.org/visit/.

PG&E's Response

Structures with work areas that will use MRRT are described on PEA Page 5.16-7. Potential MRRT temporary closures as well as possible pedestrian and bicycle detours, which would be determined during implementation of PEA APM TRA-1: PG&E Temporary Traffic Controls, are as follows:

Structures EN19/ES21/RN18/RS18 will be included in a single work area between MMRT entry point E7 (near Paso Robles Drive) and entry point E6 (near the Oakland Corporation Yard). Three detour options include:

(1) Close MRRT only at the work area so that pedestrians and bikes could use the trail from E7 or E6 and turn around upon reaching the work area, which would use flagging, barriers, or other appropriate safety measures to identify the limits of the work area and MRRT trail closure.

(2) Close MRRT between E7 and E6. Although it would be long, a MMRT detour could be marked along nearby residential roads including Paso Robles Drive, Balboa Drive, Drake Drive, and Snake Road to connect to entry point E5 on Snake Road. This detour would have substantive grade variation in comparison to the relatively flat MMRT. Closures would be indicated using flagging, barriers, or other appropriate measures.

(3) Close MRRT between E7 and the Zinn Trail, which connects to MRRT to the north of the work area, near project milepost 2.7 (see PEA Figure 3.5-1 Page 16 of 25). The Zinn Trail is unpaved and has substantive changes in grade. A detour could be marked along nearby residential roads including Paso Robles Drive, Balboa Drive, and Asilomar Drive.

Two work areas (for structures EN20/ES22 and for structures EN21/ES23/RN19/RS19) will be located between MMRT entry points E6 and E5. Detour options are similar to those described previously and include:

(1) Closure MRRT only at each work area so that pedestrians and bikes could use the trail from E6 or E5 and turn around upon reaching the marked work area.

(2) Close MRRT between E6 and E5. A detour could be marked along Zinn Trail and nearby residential roads including Zinn Drive and Snake Road to connect to entry point E5 on Snake Road.

We trust the information provided herein is fully responsive to your requests. However, should you have any further requests, please contact me at **415-990-6001** or **BXLG@pge.com**.

Sincerely,

Brandon Liddell
Principal Land Planner

Attachment:
Attachment 1 – Table ALT-6 Road Closures

cc:
Michelle Wilson, CPUC CEQA Unit
Erica Schlemer, PG&E Law Department
Colleen Taylor, Jacobs
Hedy Koczwara, Aspen Environmental Group

Attachment 6
Recent Historic Fire Risk by Month

Month	R1	R2	R3	R4	R5	R5+
January	91%	9%	-	-	-	-
February	81%	19%	-	-	-	-
March	87%	13%	-	-	-	-
April	86%	12%	2%	-	-	-
May	63%	21%	15%	1%	-	-
June	17%	35%	39%	8%	-	1%
July	-	6%	65%	28%	-	1%
August	-	2%	71%	23%	3%	1%
September	4%	10%	67%	15%	4%	-
October	8%	25%	45%	12%	6%	4%
November	50%	37%	11%	3%	-	-
December	83%	10%	6%	-	1%	-

PG&E Fire Potential Index (FPI) model calculations and scale from R1 to R5-Plus consider fuel, moisture, humidity, wind speed, air temperature, and historical fire occurrence. These fire danger determination ratings are as follows:

- *R1: Very little or no fire danger.*
- *R2: Moderate fire danger.*
- *R3: Fire danger is so high that care must be taken using fire-starting equipment. Local conditions may limit the use of machinery and equipment to certain hours of the day.*
- *R4: Fire danger is critical. Using equipment and open flames is limited to specific areas and times.*
- *R5: Fire danger is so critical that using some equipment and open flames is not allowed in certain areas.*
- *R5-Plus: The greatest level of fire danger where rapidly moving, catastrophic wildfires are possible.*

Refer to DEIR at 3.18-5.

Historic Analysis of Predicted Fire Risk by Month, 2020-2025, in Proposed Project Fire Index Area (FIA 530)

PG&E'S MORAGA-OAKLAND X 115 KILOVOLT REBUILD PROJECT
September 3, 2025 Public Meeting Comments

Grace Weeks - Aspen Environmental Group to Hosts and panelists (CHAT at 13:57:18, 14:02:48 and 14:08:56):

Welcome to the public meeting on the Draft EIR for the proposed Moraga-Oakland X 115 Kilovolt Rebuild Project. A copy of this presentation is available to download on the CPUC's project website. A recording of this meeting will be posted to the CPUC's website at a later date.

https://ia.cpuc.ca.gov/environment/info/aspen/moraga-oakland/moraga-oakland.htm

If you do have questions, you can reach out anytime to the CPUC via the MOX email address which is MOX@aspeneg.com.

AFTERNOON SESSION
(2:00 p.m. Pacific)

Comment #1: Jonathan Goodwin (00:27:21.000 - 00:29:24.000)

Well, I'm assuming that's me, is that correct? Good, thank you. My name is Jonathan Goodwin. Uh, sorry I couldn't figure out how to put my real name on the, uh… you know, to come up on this thing. I live in Canyon, California, uh, through which this Project passes. I actually have… two questions.

One is tangential about the lines that blew up during the tunnel fire. In 91, between the Temiscal substation and the Moraga substations, just as to what stage they're at. Um, but more, uh… pertaining to this project. I really liked the EIR, but… There's just one glaring, like, crazy omission, which is the… Uh, looking at the alternative of using the Redwood Peak Tunnel to run the lines underneath. That whole hell. It runs from Pinehurst Road to Shepherd Canyon Road. It would be vast… should be, I would suppose, vastly cheaper, vastly safer. Uh, you know, you'd eliminate all the wildfire risk in that very, very sensitive area. Uh, by running it under, you know, through an existing bore, uh, and it would, um, it would also… the maintenance would be far easier. You know, the construct… everything would just be a big plus. So, I mean, either you didn't know about it or, you know, you withheld, um… uh, written consideration of it, I'm guessing it's the former.

So, I would suggest… I sent in an email yesterday, uh, which you may not have gotten to. But, um, giving information about this, I strongly suggest that you, um, look into this, and uh… consider this as an alternative. You know, give this… give this serious consideration, because it's… it should be a complete game changer for your project if you'd pay attention to it. Thank you.

Comment #2, Andrew Jeffries (00:29:40.000 - 00:31:44.000)

Yes, uh, my name is Andrew Jeffers. I own property near Shepherd Canyon between Cerrone Court. And, uh, say or drive, and the two towers are in my parking area on some easement.

Uh, towers EN15 and EN17. And as I carefully read the impact report, I realized the proposal is to move those towers, uh, essentially west. And unfortunately, on those diagrams, they don't show the actual location of one's home.

Uh, moving… moving the towers substantially west places them directly, uh, 15 feet from the front of our deck, and uh… in our garden, and I'm wondering what kind of alternatives could be… could be placed in this situation. It looks like one could move them almost any other direction and it would be far superior.

Also, I have a question about the wildfire risk. Certainly in Northern California, there's a very expensive project to underground, many of these lines in areas that seem substantially less risky than this area now. So the undergrounding, to me, seems vastly superior. It's commensurate with what's being done already. And I'm disappointed that that isn't really an active, real active consideration.

Secondly, I think that, overall… Uh, the wildfire should be… should be addressed.

And third last point is, would it be possible to put these less essentially the circular tubular poles in place of these extremely large structures. Thank you very much.

Andrew Jeffries to Hosts and panelists (CHAT at 14:35:03):

Why are the lot boundaries and house location not shown on the figures, The proposed replaced poles are blocking views.

EVENING SESSION
(5:00 p.m. Pacific)

Commentor #3: Mike Retondo (00:27:31.390 --> 00:29:15.550)

I'm Pete Retondo. I live… in a place where I can actually look out my window and see these towers across Highway 13. I've been here for 25 or more years and hope to be here for somewhat longer, although the wildfire that this overhead line reconstruction might cause will probably, at some point, cause me to lose my house. And… Sorry, Hetty, I hate to say this, I'm an architect, I have 50 years of experience in construction and reviewing plans, and I just think this report is inadequate and irresponsible when it comes to evaluating the underground alternatives.

What I would request is that a bona fide engineering firm that doesn't work for PG&E develop a specific plan that's actually realistic, that doesn't take a cue from PG&E objections to actually analyze the cost and feasibility for the CPUC.

This report reads like a hit job. On the alternative to underground these lines, especially when it comes to the wildland portion that you haven't even really addressed at all. The major problem is that you do not consider 8 catastrophic wildfire to be an actual environmental problem to be mitigated. You're only talking about the relatively trivial construction environmental hazards. You have a whole litany of those. I think that is the major problem with this report and needs to be addressed.

Comment #4: Ella Matsuda (00:29:39.420 --> 00:31:10.380)

Hi, my name is Ella Matsuda. I'm a botanist with Friends of Sausal Creek. We are a nonprofit that's collaborated with the City of Oakland for over 30 years to manage 20 habitat restoration projects in public parks. So we are concerned about potential impacts to the federally threatened and state-endangered pallid Manzanita, which is found in Huckleberry Preserve and along Manzanita Drive. There are only about 2,000 of these plants remaining, they grow only in the hills

of Alameda and Contra Costa counties. We have permits to propagate this species, so if any are pruned or affected by the project, we would be grateful for the opportunity to salvage plant material to propagate in our nursery. We run the only nursery specializing in locally sourced native plants from the Salsa Creek watershed, growing thousands of plants each year, and local plants have been shown to establish significantly more successfully in restoration projects, so we request consideration if you're purchasing plants for any revegetation or remediation efforts.

We're also concerned about construction waste endangering the water quality for open community members, as well as resident rainbow trout and other wildlife that rely on the creek. Excess sediment from the replacement of towers and undergrounding along Park Boulevard can cover trout nesting sites, clog their gills, and make them more susceptible to disease. We regularly find debris from construction sites in the creek, and have documented numerous fish kills caused by tools covered in paint and concrete being cleaned into storm drains. So we encourage construction crews to dispose of these materials properly and avoid storm drains to protect Oakland's water quality.

And thank you for considering our concern.

Commenter #5: Lauren Wilson (00:31:26.840 --> 00:32:31.610)

Hi there, my name is Lauren Wilson and I'm a resident of Oakland. I live about 200 feet away from the proposed project path. And I understand that this is a… necessary, improvement. And I appreciate the community engagement that has been involved, and the opportunity for public comment and engagement on this project as it has moved forward.

Being a necessary upgrade to the system, I believe it also has to balance the cost to ratepayers and the impact on the community. Undergrounding is a massive cost to ratepayers, and is a huge disruption and displacement to the communities, in the surrounding environment, and so I believe that the project as proposed here is the best pla- the best plan and the best path forward, and, I, hope this is the direction that the CPUC continues to move. Thank you.

Comment #6 - Erik Olafsson (00:32:49.810 --> 00:34:32.909)

My name is Eric Olofsson. I live in Canyon and one thing that I think my associate has brought up is that there's a railroad tunnel that goes from Shepherd Canyon over at the middle of Shepherd Canyon, all the way into Canyon. And this, if… if PG&E were to use this old railroad, tunnel, which is just plugged on both ends, I think it's intact for the most part. It could be used to completely avoid having the towers over the steep part of the hills in Oakland and that you could run the electrical right into that tunnel, bring it out into Canyon, and then from there, I don't know, you might have to put it on towers going to the Moraga substation, but that seems to be a fairly decent solution, could save a lot of money, could avoid fire danger, etc, etc. Could void aviation effects as well, because I know the… the FAA was concerned with the height of some of the towers going over the hills. So, that's just my suggestion, is that that be an alternative, added to this DEIR. I don't know how you could do that, if you'd have to amend it or whatever but that would be my suggestion, that, using the railroad tunnel could save PG&E and the taxpayers a lot of money.

That's all I have to say.