

## 4. Impact Analysis Approach

---

This section explains how potential impacts associated with the proposed Project are assessed with regards to Geology, Soils, and Paleontology. Section 4.1 presents the significance criteria on which impact determinations are based. Section 4.2 discusses Applicant Proposed Measures (APMs) presented in the Proponent’s Environmental Assessment (PEA). Section 4.3 presents the impact assessment methodology used in this analysis. All impacts identified for the proposed Project and alternatives are presented in Sections 5 through 11.

### 4.1 Criteria for Determining Impact Significance

A wide range of potential impacts, including loss of mineral and paleontological resources, slope instability including landslides, debris flows and slope creep, and seismic hazards including surface fault rupture, strong groundshaking, liquefaction, and seismically induced landslides, was considered in this analysis. Each of these potential geologic, soils, and paleontologic impacts is discussed in the following sections. An impact would be considered significant and require additional mitigation if Project construction or if maintenance of Project facilities during Project operations would result in any of the following criteria being met.

#### Geology and Soils

- Criterion GEO1: Results in disturbance or otherwise adverse effects on unique geologic features or geologic features of unusual scientific value for study or interpretation.
- Criterion GEO2: Results in known mineral and/or energy resources being rendered inaccessible.
- Criterion GEO3: Results in triggering or acceleration of geologic processes, such as landslides, substantial soil erosion, or loss of topsoil during construction.
- Criterion GEO4: Expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings.
- Criterion GEO5: Expose people or structures to potential risk of loss or injury where there is high potential for seismically induced ground shaking, landslides, liquefaction, settlement, lateral spreading, and/or surface cracking.
- Criterion GEO6: Expose people or structures to potential risk of loss or injury where corrosive soils or other unsuitable soils are present.
- Criterion GEO7: Results in damage to Project structures where there is potential for future slope failures on existing unstable slopes.

#### Paleontology

- Criterion GEO8: Results in the destruction of scientifically important paleontological resources.

Determination of the “significance” of a fossil can only occur after a fossil has been found and identified by a qualified paleontologist. Until then, the actual significance is unknown. The most useful designation for paleontological resources in an EIR document is the “sensitivity” of a particular geologic unit. Sensitivity refers to the likelihood of finding significant fossils within a geologic unit. Categories of “sensitivity” are defined in Section 2.2.5. Fossils are considered to be scientifically significant if they meet or potentially meet any one or more of the following criteria:

- Taxonomy – fossils that are scientifically judged to be important for representing rare or unknown taxa, such as defining a new species

- Evolution – fossils that are scientifically judged to represent important stages or links in evolutionary relationships, or fill gaps or enhance under-represented intervals in the stratigraphic record
- Biostratigraphy – fossils that are scientifically judged to be important for determining or constraining relative geologic (stratigraphic) age, or for use in regional to interregional stratigraphic correlation problems
- Paleoecology – fossils that are scientifically judged to be important for reconstructing ancient organism community structure and interpretation of ancient sedimentary environments
- Taphonomy – fossils that are scientifically judged to be exceptionally well or unusually or uniquely preserved, or are relatively rare in the stratigraphy.

## 4.2 Applicant-Proposed Measures (APMs)

The following are Applicant-Proposed Measures (APMs) to reduce geological and paleontological resource-related impacts that the Applicant has committed to completing as part of the Project.

<b>APM GEO-1</b>	<b>Seismic Design.</b> For new substation construction, specific requirements for seismic design would be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substation." Other Project elements would be designed and constructed in accordance with the appropriate industry standards, and good engineering and construction practices and methods, as applicable.
<b>APM GEO-2</b>	<b>Perform Geotechnical Studies.</b> Prior to final design of substation facilities and T/L tower foundations, a geotechnical study would be performed to identify site-specific geologic conditions and potential geologic hazards in enough detail to support good engineering practice. The geotechnical study would be performed by professional civil or geotechnical engineers and engineering geologists licensed in the State of California and would provide design and construction recommendations, as appropriate, to reduce potential impacts from geologic hazards or soil conditions.
<b>APM GEO-3</b>	<b>Construction SWPPP.</b> T/L and substation construction activities would be performed in accordance with the soil erosion/water quality protection measures to be specified in the Construction Storm Water Pollution Prevention Plan (SWPPP) for the TRTP.
<b>APM HYD-1</b>	<b>Construction SWPPP.</b> A Construction SWPPP would be developed for the Project. Notices of Intent (NOIs) would be filed with the SWRCB and/or the RWQCBs, and a Waste Discharge Identification Number (WDID) would be obtained prior to construction. The SWPPP would be stored at the construction site for reference or inspection review. In addition, grading permit applications would be submitted, as applicable, to local jurisdictions. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminants are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silt basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff.
<b>APM HYD-8</b>	<b>Operation Storm Water Management Plan.</b> The post-construction (Operation) Storm Water Management Plan (SWMP) for Vincent Substation would be updated. The SWMP identifies potential pollutants based on the activities that take place at the site, and discusses the appropriate Best Management Practices that should be used to prevent pollutants from entering the storm water and non-storm water runoff from the site. The SWMP also includes requirements for periodic site training for employees and inspections by onsite personnel.
<b>APM PALEO-1</b>	<b>Retention of Paleontologist.</b> Prior to construction, a certified paleontologist would be retained by SCE to supervise monitoring of construction excavations and to produce a PRMP for the proposed Project. Paleontological monitoring would include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. The monitor would have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens. More specific guidelines for paleontological resource monitoring can be found in the PRMP.

APM PALEO-2	<b>Conduct a Pre-construction Paleontological Field Survey.</b> The paleontologist and/or his designated representative will conduct a pre-construction field survey of the Project area underlain by Tertiary rock units and older alluvium. Results of the field inventory and associated recommendations would be incorporated into the PRMP.
APM PALEO-3	<b>Prepare and Implement a Paleontological Resource Management Plan (PRMP).</b> This plan would be prepared and implemented under the direction of a qualified paleontologist and would address and incorporate the following APMs:
APM PALEO-4	<b>Environmental Training.</b> Training would be provided to construction supervisors and crew with environmental awareness training regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered by ground-disturbing activities.
APM PALEO-5	<b>Construction Monitoring.</b> Ground-disturbing activities would be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the Project area where these activities will disturb previously undisturbed strata in rock units of moderate and high sensitivity. Quaternary Alluvium, colluvium, and Quaternary Landslide Deposits have a low paleontological sensitivity level and would be spot-checked on a periodic basis to insure that older underlying sediments are not being penetrated. Monitoring would not be implemented in areas underlain by younger alluvium unless these activities have reached a depth 5 feet below the present ground surface and fine grained strata are present. Ground-disturbing activities in areas underlain by rock units of low sensitivity would be monitored on a quarter-time basis or spot checked if fine grained strata are present.
APM PALEO-6	<b>Recovery and Testing.</b> If fossils are encountered during construction, construction activities would be temporarily diverted from the discovery and the monitor would notify all concerned parties and collect matrix for testing and processing as directed by the Project Paleontologist. In order to expedite removal of fossil-bearing matrix, the monitor may request heavy machinery to assist in moving large quantities of matrix out of the path of construction to designated stockpile areas. Construction would resume at the discovery location once the all necessary matrix was stockpiled, as determined by the paleontological monitor. Testing of stockpiles would consist of screen washing small samples to determine if important fossils are present. If such fossils were present, the additional matrix from the stockpiles would be water screened to ensure recovery of a scientifically significant sample. Samples collected would be limited to a maximum of 6,000 pounds per locality.
APM PALEO-7	<b>Prepare Monthly Progress Reports.</b> The Project Paleontologist would document interim results of the construction monitoring program with monthly progress reports. As well, at each fossil locality, field data forms would record the locality, stratigraphic columns would be measured, and appropriate scientific samples submitted for analysis.
APM PALEO-8	<b>Analysis and Prepare Final Paleontological Resource Recovery Report.</b> The Project Paleontologist would direct identification, laboratory processing, cataloguing, analysis, and documentation of the fossil collections. When appropriate, and in consultation with SCE, splits of rock or sediment samples would be submitted to commercial laboratories for microfossil, pollen, or radiometric dating analysis. After analysis, the collections would be prepared for curation (see APM PALEO-9, below). A final technical report would be prepared to summarize construction monitoring and present the results of the fossil recovery program. The report would be prepared in accordance with SCE, Society of Vertebrate Paleontology guidelines, and lead agency requirements. The final report would be submitted to SCE, the lead agency, and the curation repository (see below).
APM PALEO-9	<b>Curation.</b> Prior to construction, SCE would enter into a formal agreement with a recognized museum repository and would curate the fossil collections, appropriate field and laboratory documentation, and the final Paleontological Resource Recovery Report in a timely manner following construction.

### 4.3 Impact Assessment Methodology

The Geology, Soils and Paleontology impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to geologic and seismic hazards and mineral and paleontologic resources for each criterion, and determines whether implementation of the proposed Project would result in significant impacts by evaluating effects of construction and operation of the proposed Project against the affected environment described above in Section 2.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is

less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact. Sections 5 through 11, below, provide a detailed discussion of the impacts identified for the proposed Project and alternatives.