4.4 PALEONTOLOGICAL RESOURCES

This section presents the environmental setting and impact analysis for paleontological resources that would be affected by the Proposed Project and its alternatives. The section addresses background information, applicable regulations, known resources, environmental impacts, and mitigation measures to reduce or avoid significant effects.

4.4.1 Definitions

4.4.1.1 Paleontological Resources

Paleontological resources—or fossils—are the remains of ancient plants and animals that can provide scientifically significant information about the history of life on Earth. Paleontological "sensitivity" is defined as the potential for a geologic unit to produce scientifically significant fossils. This sensitivity is determined by rock type, past history of the rock unit in producing significant fossils, and fossil localities that are recorded from that unit. Paleontological sensitivity is assigned based on fossil data collected from the entire geologic unit, not just at a specific site. Paleontological sensitivity ratings are described as follows:

- **High Sensitivity.** Indicates fossils are currently observed on site, localities are recorded within the study area, and/or the unit has a history of producing numerous significant fossil remains.
- **Moderate Sensitivity.** Fossils within the unit are generally not unique or are so poorly preserved as to have only moderate scientific significance.
- **Low Sensitivity.** Indicates significant fossils are not likely to be found because of a random fossil distribution pattern, extreme youth of the rock unit and/or the method of rock formation, such as alteration by heat and pressure.
- **Marginal Sensitivity.** Indicates the limited probability of the geologic unit composed of either pyroclastic rocks or metasedimentary rocks conducive to the existence and/or preservation of fossils.
- **Zero Sensitivity.** Origin of the geologic unit renders it not conducive to the existence of organisms and/or preservation of fossils, such as high-grade metamorphic rocks, intrusive igneous rocks, and most volcanic rocks.
- **Indeterminate Sensitivity.** Unknown or undetermined sensitivity indicates that the rock unit has not been sufficiently studied or lacks good exposures to warrant a definitive rating. An experienced, professional paleontologist can often determine whether the stratigraphic unit should be categorized as having high or low sensitivity after reconnaissance surveys including observations of road cuts, stream banks, and possible subsurface testing, such as augering or trenching.

Paleontological resources are considered to be non-renewable because they are the remains of prehistoric animal and plant life.

4.4.2 Approach to Data Collection

The San Diego Natural History Museum (SDNHM) Department of Paleontology conducted a literature and records search on October 10, 2013 for fossil localities. The literature and records search included a review of all relevant published geological maps and reports, unpublished paleontological reports, and unpublished museum collection locality data within a 0.25-mile radius of the Proposed Project components. A 0.25-mile radius was used for the literature and records search to obtain information on resources that may be directly or indirectly affected by the Proposed Project and to obtain an overview of the types of resources typically found in the Proposed Project area. A previous records search conducted for the Sycamore to Bernardo Project, dated March 12, 2012, covered portions of the Proposed Project alignment.

4.4.3 Environmental Setting

4.4.3.1 Regional Setting

Project Area Geological Units and Associated Paleontological Sensitivity

The Proposed Project area has a large occurrence of granitic, metavolcanic, and metasedimentary rocks. The high temperature and pressure conditions associated with the formation of these plutonic rocks are responsible for the absence of fossils; however, there are portions of the Proposed Project that are underlain by sedimentary rocks, including Ardath Shale, Scripps Formation, Friars Formation, and Mission Valley Formation, all with a high sensitivity and potential for paleontological resources. Geologic units are shown on Figure 4.5-1 in Section 4.5: Geology, Soils, and Mineral Resources.

Identifying the geologic units and associated fossil productivity allows for prediction of where fossils could or could not be encountered within the Proposed Project area. Figures 4.4-1 through 4.4-3 show paleontological sensitivity in the Proposed Project area. The paleontological sensitivity of geologic units that underlay the Proposed Project area is shown in Table 4.4-1. A description of each geological formation is provided below.

Santiago Peak Volcanics

A narrow discontinuous band of volcanic rocks, called the Santiago Peak Volcanics, occurs along the western edge of the Peninsular Ranges from below the International Border in Mexico into Orange County. Most of these rocks are metavolcanic (generated from volcanic eruptions). The potential of these metavolcanic rocks to yield fossils is typically zero; however, rare interbeds of metasedimentary rocks occur in the Rancho Peñasquitos Canyon area have yielded remains of marine siliceous microfossils and macroinvertebrates (e.g., clams and belemnites) (Fife et al. 1967, Jones and Miller 1982). Additionally, petrified wood has been found in some volcanic breccias (i.e., rock consisting of angular fragments that have been cemented together) in Mira Mesa and near Rancho Santa Fe (D'Vincent 1967). Near Rancho Peñasquitos Canyon, the Santiago Peak Volcanics has a moderate paleontological sensitivity due to the presence of marine microfossils and macroinvertebrates in metasediments. Elsewhere, in metavolcanic rocks, the Santiago Peak Volcanics has a marginal paleontological sensitivity.

Figure 4.4-1 Paleontological Sensitivity of the Proposed Project Alignment

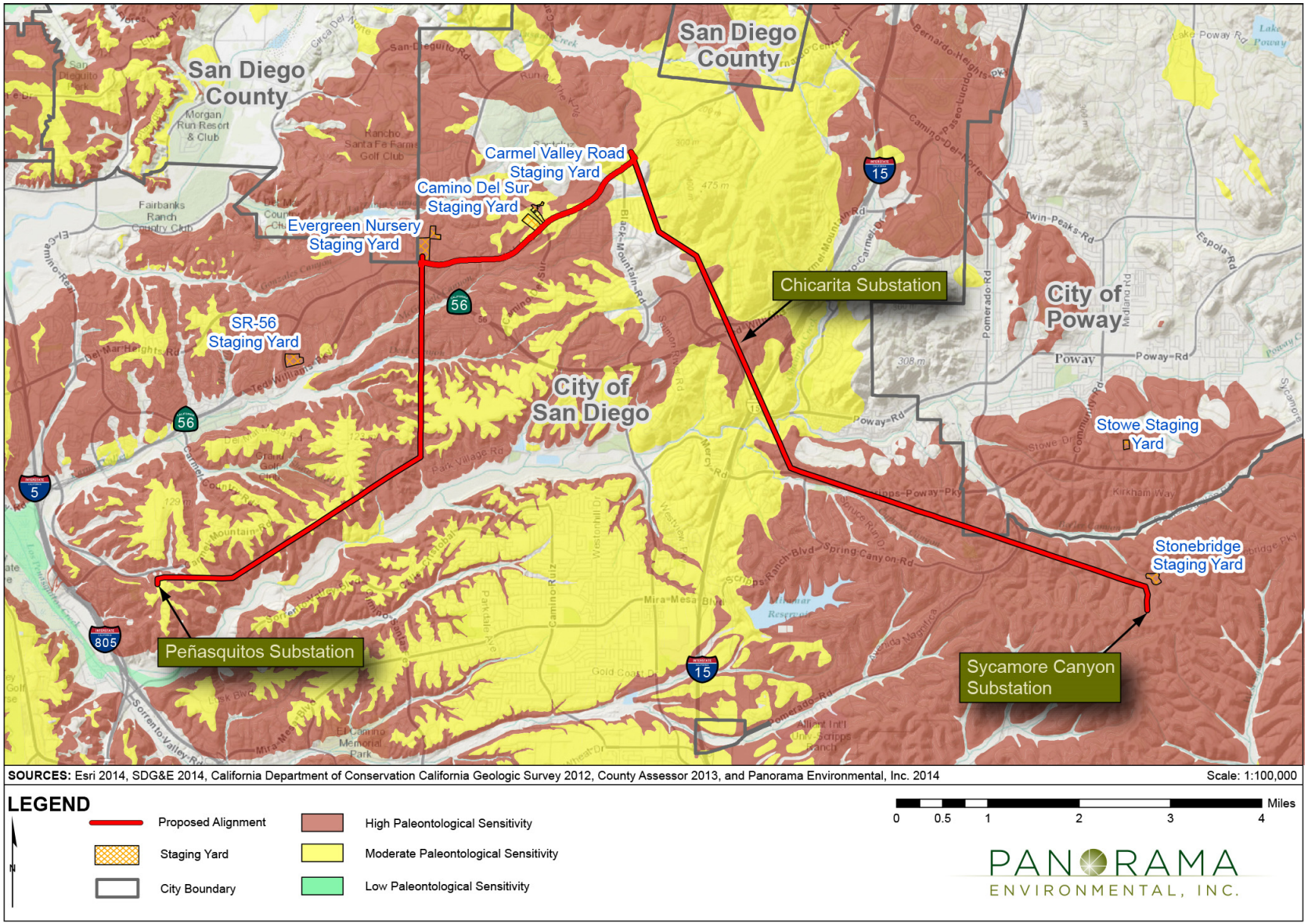


Figure 4.4-2 Paleontological Sensitivity of the Encina Hub, Mission Substation, and San Luis Rey Substation

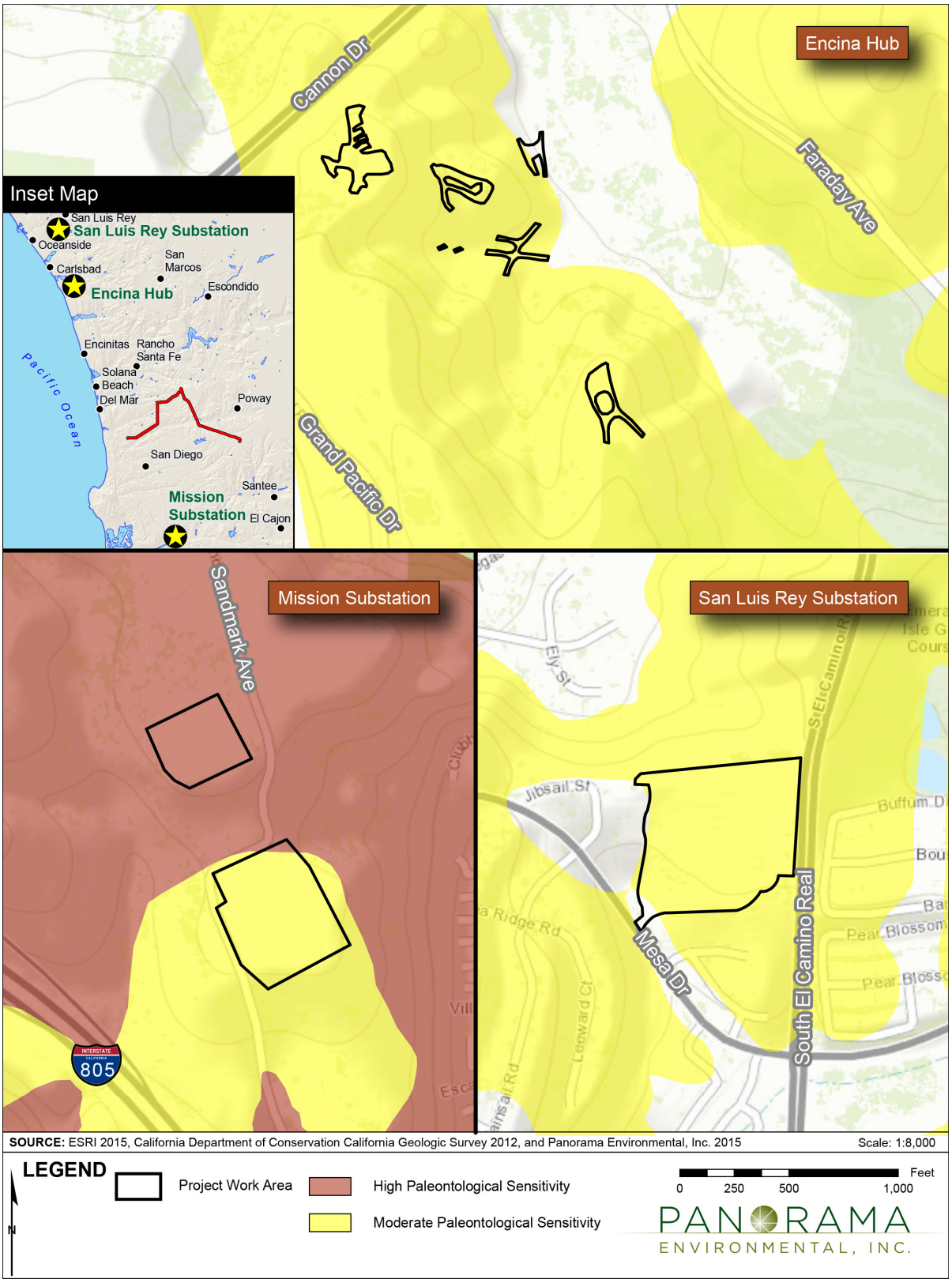


Figure 4.4-3 Paleontological Sensitivity of Mission—San Luis Rey Phase Transposition Work Areas

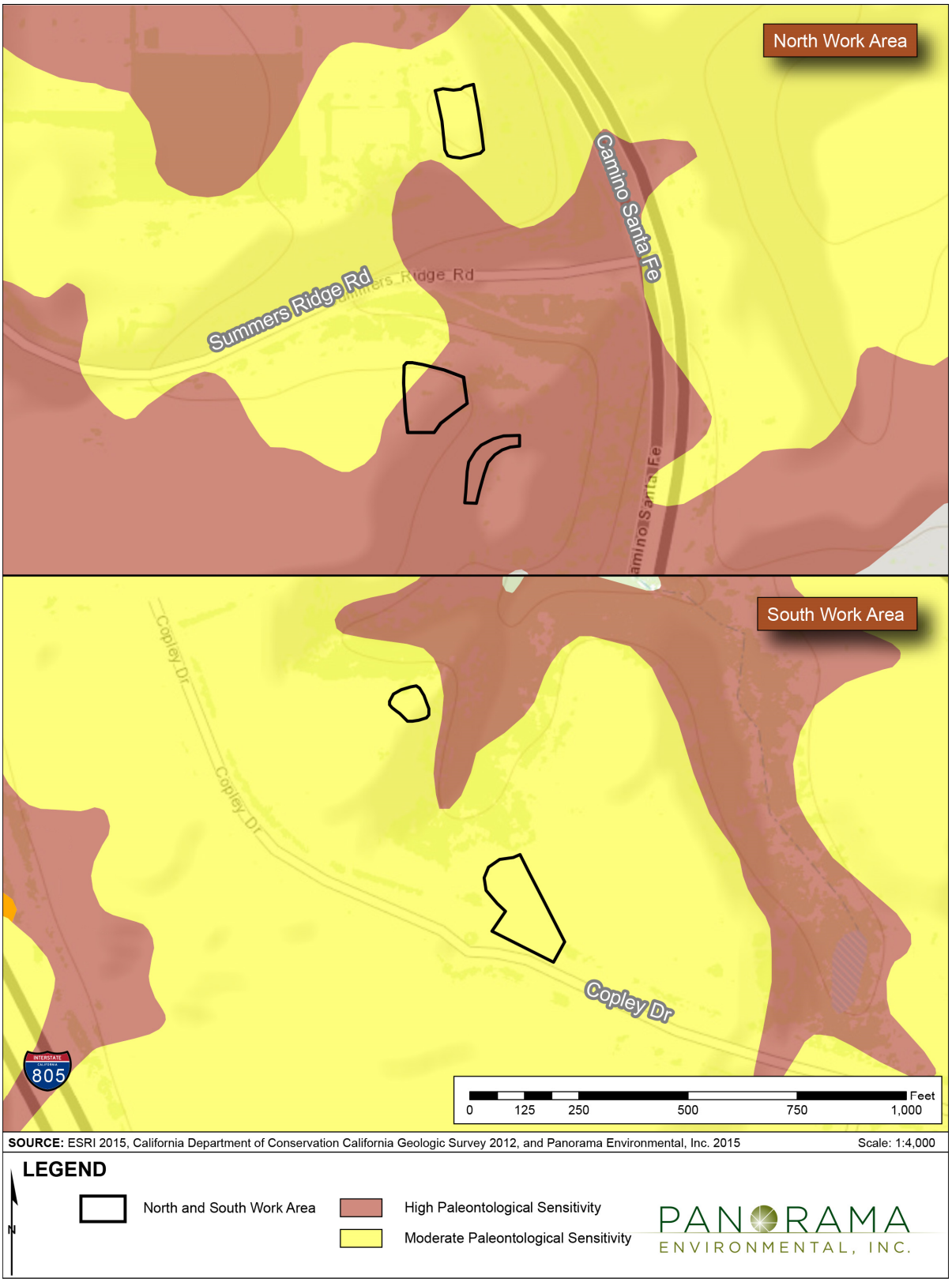


Table 4.4-1 Paleontological Sensitivity of Geologic Units that Underlay the Proposed Project

Proposed Project Location	Geologic Formation	Level of Sensitivity
Transmission Line Segment A	Mission Valley Formation	High
	Stadium Conglomerate	High
	Friars Formation	High
	Pomerado Conglomerate	High
	Santiago Peak Volcanics	Marginal to Moderate
	Late Quaternary Alluvium	Low[1]
	Late Cretaceous Granitics	Zero
Transmission Line Segment B	Mission Valley Formation	High
	Stadium Conglomerate	High
	Friars Formation	High
	Quaternary Very Old Paralic Deposits	Moderate
	Santiago Peak Volcanics	Marginal to Moderate
	Late Cretaceous Granitics	Zero
Transmission Line Segment C	Mission Valley Formation	High
	Stadium Conglomerate	High
	Friars Formation	High
	Scripps Formation	High
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]
Transmission Line Segment D	Stadium Conglomerate	High
	Friars Formation	High
	Scripps Formation	High
	Ardath Shale	High
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]
Peñasquitos Substation	Scripps Formation	High
	Torrey Sandstone	High
	Ardath Shale	High
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]

Proposed Project Location	Geologic Formation	Level of Sensitivity
Sycamore Canyon Substation	Stadium Conglomerate	High
	Torrey Sandstone	High
Chicarita Substation	Mission Valley Formation	High
Mission Substation	Mission Valley Formation	High
	Quaternary Older Alluvium	Moderate
San Luis Rey Substation	Santiago Formation	High
	Late Quaternary Alluvium	Low[1]
Encina Hub	Santiago Formation	High
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]
Mission—San Luis Rey Phase Transposition: North Work Area	Stadium Conglomerate	High
	Quaternary Very Old Paralic Deposits	Moderate
Mission—San Luis Rey Phase Transposition: South Work Area	Quaternary Very Old Paralic Deposits	Moderate
Camino Del Sur Staging Yard	Quaternary Very Old Paralic Deposits	Moderate
Carmel Valley Road Staging Yard	Quaternary Very Old Paralic Deposits	Moderate
Evergreen Nursery Staging Yard	Mission Valley Formation	High
	Stadium Conglomerate	High
	Friars Formation	High
SR-56 Staging Yard	Mission Valley Formation	High
	Stadium Conglomerate	High
	Friars Formation	High
Stonebridge Staging Yard	Stadium Conglomerate	High
Stowe Staging Yard	Stadium Conglomerate	High

Note:

[1] Moderate sensitivity exists in deeper excavations that may encounter older Quaternary alluvium.

Sources: City of San Diego 2007, Deméré and Walsh 2003

Late Cretaceous Granitics

The Late Cretaceous Granitics include granitic and gabbro rocks. These rocks, which both originated from magma cooled at depth, have zero paleontological sensitivity.

Ardath Shale

Ardath Shale is well exposed in Rose Canyon in road cuts along Moreno Boulevard south to Tecolote Canyon and in the seacliffs from Torrey Pines south to Scripps Institute of

Oceanography. This marine sedimentary rock unit has yielded a diverse and well-preserved assemblages of marine microfossils (Bukry and Kennedy 1969, Cushman and Hanna 1927, Gibson 1971, Steineck et al. 1972), macroinvertebrates (e.g., clams and snails) (Hanna 1927, Givens and Kennedy 1979, Gutzler 1973), and fishes (e.g., sharks, rays, and bony fishes) (Fitch 1969, Golz 1973). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine microfossils and macroinvertebrates as well as large and diverse assemblages of fossilized bony fishes and sharks.

Scripps Formation

The Scripps Formation is entirely of marine origin (Kennedy and Moore 1971, Kennedy 1975). Fossils are found throughout the Scripps Formation and consist primarily of marine animals such as clams, snails, crabs, sharks, rays and bony fishes (Givens and Kennedy 1979). Well-preserved pieces of wood have been collected from this rock unit. The fossil remains of reptiles (e.g., crocodile and turtle) as well as land mammals (e.g., uintathere, brothothere, rhinoceros, and artiodactyl [even-toed ungulates]) have also been recovered from the Scripps Formation (Golz and Lillegraven 1977, Walsh 1991). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine macroinvertebrate fossils as well as large and diverse assemblages of marine fishes, reptiles, and land mammals.

Friars Formation

The Friars Formation has been divided into three members (Walsh 1996): a lower sandstone-mudstone tongue, a middle conglomerate, and an upper sandstone-mudstone tongue. All three members of the Friars Formation yield significant terrestrial vertebrate fossils such as opossum, insectivores, primates, rodent, artiodactyls (e.g., camel and oreodont), and perissodactyls (i.e., odd-toed animals such as tapir and brotothere) (Lillegraven et al. 1981, Lillegraven 1980, Golz and Lillegraven 1977, Walsh 1991, Walsh 1996). Remains of fossilized leaves have been recovered from the Friars Formation. Well-preserved remains of marine microfossils, macroinvertebrates, sharks, and bony fishes have been reported from the Friars Formation (Squires and Deméré 1991). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine microfossils, macroinvertebrates, and leaves, as well as large and diverse assemblages of fossil land mammals.

Mission Valley Formation

The Mission Valley Formation consists of marine sediments that were first described in Mission Valley. In the Proposed Project area, the Mission Valley Formation is overlain by the Pomerado Conglomerate and is underlain by the upper tongue of the Friars Formation. This rock unit has yielded large and diverse fossil land mammal assemblages included opposum, insectivores (e.g., shrew), bats, primates, rodents, artiodactyls, and perissodactyls (Lillegraven and Wilson 1975, Lillegraven 1980, Lillegraven and Wilson 1976, Lillegraven 1977, Golz 1976, Walsh 1991). The marine strata of the Mission Valley Formation have yielded numerous and generally well-preserved remains of marine microfossils (e.g., foraminifers, coccoliths, ostracods), diverse faunas of macroinvertebrates (e.g., clams, snails, crustaceans, and sea urchins), bony fishes, and

sharks (Kern 1978, Deméré et al. 1979, Roeder 1991). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine microfossils, macroinvertebrates, and fishes, as well as large and diverse assemblages of fossil land mammals.

Stadium Conglomerate

The Stadium Conglomerate is composed of two distinct conglomerates. The lower member is composed mainly of poorly sorted cobble conglomerate and occasional pockets of vertebrate-bearing siltstone and mudstone (Deméré and Walsh 2003). The upper member consists of better sorted cobble and boulder conglomerate, occasional pockets of sandstone, and occasional thin layers of vertebrate-bearing mudstone. The upper member of the Stadium Conglomerate has yielded fossil foraminifers (microfossils) and marine mollusks (clams and snails) in western outcrops (Dusenbury 1932, Steineck et al. 1972, Givens and Kennedy 1979); however, the eastern outcrops of this member are largely non-marine in origin and have yielded only scattered pieces of petrified wood (Deméré and Walsh 2003). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine microfossils as well as large and diverse assemblages of fossil land mammals.

Pomerado Conglomerate

Like the Friars Formation, the Pomerado Conglomerate consists of three members: a thin, lower conglomerate member; a middle sandstone member; and a thick, upper conglomerate member (Deméré and Walsh 2003). The lower member in the Scripps Ranch area has produced abundant remains of fossil terrestrial mammals including insectivores, primates, rodents, and artiodactyls (Walsh 1996). The middle member has yielded the remains of nearshore marine mollusks as well as a few large mammal fossils (Walsh 1996). The upper member conglomerate has yielded a younger and diverse land mammal assemblage (Walsh and Gutzler 1999). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved marine microfossils as well as large and diverse assemblages of fossil land mammals.

Later Quaternary Alluvium

The valley bottoms of modern drainages have poorly consolidated alluvial sediments that consist of clays, silts, and gravels (Deméré and Walsh 2003). Because of their young age (less than 10,000 years old), later Quaternary alluvial deposits are generally not known to yield fossils; however, mammoth remains have been found in the floodplain deposits of the Tijuana River and alluvial deposits of the Santa Margarita River and the El Cajon Valley (Deméré and Walsh 2003). Later Quaternary alluvium deposits are assigned a low paleontological resource sensitivity because of their young age.

Santiago Formation

The Santiago Formation consists of marine and non-marine sandstone, siltstone, and claystone (Cranham et al. 1994). Although the majority of the Santiago Formation is non-marine, some deposits contain remains of various types of estuarine and marine mollusks (Wilson 1972). Well-preserved remains of turtles, snakes, lizards, crocodiles, birds, and mammals (e.g.,

opossums, insectivores, primates, rodents, brontotheres, tapirs, protoreodonts, and other early artiodactyls) have been found in the non-marine portions of the formation (Deméré and Walsh 2003). Fossils from the Santiago Formation and other Eocene formations in the San Diego area make the Eocene deposits of San Diego County among the most significant in North America (Deméré and Walsh 2003). This formation has a high paleontological sensitivity due to its production of abundant and generally well-preserved large and diverse assemblages of fossil land mammal faunas.

Quaternary Very Old Paralic Deposits

A number of gently sloping marine terraces exist inland along the San Diego County coastline. These terraces increase in age with higher elevations and may represent uplifted sections of the ocean floor in the Pleistocene epoch. The very old paralic deposits are sediments that were laid down on the landward side of the coast and may represent old beach ridges. In the past, the non-marine beach ridges have yielded sparse remains of terrestrial mammals such as camel, horse, and mammoth (Hertlein and Grant 1944). Because the non-marine paralic deposits potentially yield rare vertebrate fossils, they are assigned a moderate paleontological sensitivity.

Quaternary Older Alluvium

Coarse-grained, gravelly sandstone, pebble, and cobble conglomerates, and claystones deposited on the margins of many coastal valleys are referred to as Quaternary older alluvium. Quaternary older alluvium is comprised of several different deposits that occurred through different depositional systems and at different time periods during the late Pleistocene; the term Quaternary older alluvium lumps all of these deposits together because available stratigraphic data does not allow for the differentiation of these distinct deposits. Fossils have been recovered from these deposits at a number of locations in coastal San Diego County. Well-preserved remains of pond turtle, passenger pigeon, hawk, mole, gopher, squirrel, rabbit, deer, mice, shrew, and as well as "Ice Age" mammals such as horse, ground sloth, dire wolf, camel, mastodon, and mammoth have been found in these deposits (Chandler 1982, Jefferson 2008, Majors 1993). Because the non-marine paralic deposits have a potential to yield rare vertebrate fossils, they are assigned a moderate sensitivity for paleontological resources.

Torrey Sandstone

The Torrey Sandstone is well-exposed in the sea cliffs within Torrey Pines State Reserve. It consists of primarily coarse-grained sandstones (Hanna 1927). A variety of invertebrate fossils have been found in this formation, including nearshore marine species (e.g., clams, oysters, snails and barnacles). Vertebrate fossil remains are rare and include teeth of crocodiles, sharks, and rays (Deméré and Walsh 1993). Significant fossilized plant remains (mainly leaf impressions) have also been recovered from Torrey Sandstone; the species identified in the fossils currently live in subtropical and tropical regions of Southeast Asia and the southeastern United States, indicating a changing climate (Myers 1991). This formation has a high paleontological sensitivity due presence of well-preserved floras.

Unique Geologic Features

There are no unique geologic features in the project area.

4.4.3.2 Proposed Project Setting

The literature and record search conducted by the SDNHM indicates that there are 59 fossil localities within a 0.25-mile radius of the Proposed Project area, with eight known fossil localities occurring directly within the Proposed Project area. The eight fossil locations occur in the Scripps Formation (one locality), the Ardath Shale (one locality), the Friars Formation (four localities), and the Mission Valley Formation (two localities).

4.4.4 Applicable Regulations, Plans, and Standards

4.4.4.1 Federal

A federal agency is not approving, implementing, or funding the Proposed Project or any element of it; therefore, the federal Paleontological Resources Preservation Act would not apply to this project.

4.4.4.2 State

Public Resources Code

Section 5097.5

PRC §5097.5 prohibits excavation or removal of any "vertebrate paleontological site…or any other archaeological, paleontological, or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority or public corporation, or any agency thereof. Punishment for unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

4.4.4.3 Local

City of San Diego General Plan

There are no goals or policies pertaining to paleontological resources in the City of San Diego General Plan.

City of San Diego Municipal Code

There are no codes pertaining to paleontological resources in the City of San Diego Municipal Code.

City of Poway General Plan

There are no goals or policies pertaining to paleontological resources in the City of Poway General Plan.

4.4.5 Applicant Proposed Measures

SDG&E has proposed measures to reduce environmental impacts. The significance of the impact, however, is first considered prior to application of APMs and a significance determination is made. The implementation of APMs is then considered as part of the project when determining whether impacts would be significant and thus would require mitigation. These APMs would be incorporated as part of any CPUC project approval, and SDG&E would

be required to adhere to the APMs as well as any identified mitigation measures. The APMs are included in the MMRP for the Proposed Project (refer to Chapter 9 of this EIR), and the implementation of the measures would be monitored and documented in the same manner as mitigation measures. The APMs that are applicable to the paleontological resources analysis are provided in Table 4.4-2.

Table 4.4-2 Applicant Proposed Measures for Paleontological Resource Impacts

APM Number	Requirement
APM PAL-1: Paleontological Monitor	A paleontological monitor would work under the direction of a qualified Project paleontologist and would be on site to observe excavation operations that involve the original cutting of previously undisturbed deposits for the eight poles located within paleontologically sensitive formations (i.e., Friars, Mission Valley, Scripps and the Ardath Shale Formations). A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials.
APM PAL-2: Paleontological Screen-Washing	In the event that fossils are encountered, the paleontological monitor would have the authority to divert or temporarily halt construction activities in the area of discovery to allow recovery of fossil remains in a timely fashion. The paleontologist would contact SDG&E's Cultural Resource Specialist and Environmental Project Manager at the time of discovery. The paleontologist, in consultation with SDG&E's Cultural Resource Specialist would determine the significance of the discovered resources. SDG&E's Cultural Resource Specialist and Environmental Project Manager must concur with the evaluation procedures to be performed before construction activities are allowed to resume. Because of the potential for recovery of small fossil remains, it may be necessary to set up a screen-washing operation on site. If fossils are discovered, the paleontologist (or paleontological monitor) would recover them along with pertinent stratigraphic data. In most cases, this fossil salvage can be completed in a short period of time. Because of the potential for recovery of small fossil remains, such as isolated mammal teeth, recovery of bulk-sedimentary-matrix samples for off-site wet screening from specific strata may be necessary, as determined in the field. Fossil remains collected during monitoring and salvage would be cleaned, repaired, sorted, cataloged, and deposited in a scientific institution with permanent paleontological collections, and a paleontological monitoring report would be written.

4.4.6 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 *et seq.*) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have significant impacts on paleontological resources if it would:

a. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.4.7 Approach to Impact Analysis

This impact analysis considers whether implementation of the Proposed Project or alternatives would result in significant impacts to paleontological resources. The analysis focuses on reasonably foreseeable effects of the Proposed Project and alternatives as compared with baseline conditions. The analysis uses significance criteria based on the CEQA Appendix G Guidelines. The potential direct and indirect effects of the Proposed Project and alternatives are

addressed; cumulative effects are addressed in Chapter 5: Cumulative Impacts. Effects that would result from operation and maintenance of the Proposed Project and alternatives are also addressed. Applicable APMs are identified and mitigation is defined to avoid or reduce significant impacts to paleontological resources.

The SDNHM records search results were reviewed by the CPUC cultural resources specialist and used to describe and assess impacts to paleontological resources.

4.4.8 Proposed Project Impacts and Mitigation Measures

Table 4.4-3 provides a summary of the significance of potential impacts to paleontological resources prior to application of APMs, after application of APMs and before implementation of mitigation measures, and after the implementation of mitigation measures.

Table 4.4-3 Summary of Proposed Project Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-1 APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No Impact	---	---

Impact Paleontology-1: Would the Proposed Project have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

Impacts to paleontological resources would result from ground-disturbing activities. Ground-disturbing activities include project-related excavation, grading, trenching, vegetation clearing, operation of heavy equipment, and other surface and subsurface disturbance. Project components that require ground-disturbing activities include:

- Removal of existing poles/structures and transmission lines in Segments A and D
- Construction of new poles and stringing of new transmission lines in Segments A, C, and D, and potential construction of a new pole at the Encina Hub
- Excavation of a trench for the underground transmission duct bank in Segment B
- Grading of existing and new access roads and temporary work pads
- Vegetation clearing and grading for stringing sites, guard structures, and staging yards

Physical destruction of fossil localities and fossil remains would constitute a significant impact.

Transmission Line Segments A, C, and D

In Segments A, C, and D, construction would occur within the following formations with moderate to high paleontological sensitivity:

- Mission Valley Formation
- Stadium Conglomerate
- Friars Formation
- Pomerado Conglomerate
- Scripps Formation
- Ardath Shale
- Quaternary Very Old Paralic Deposits
- Santiago Peak Volcanics

Ground-disturbing activities that could damage fossils would involve removal of existing structure and poles, and excavation for pole foundations, as well as grading of access roads. Disturbance of unique paleontological resources as a result of construction activities would be considered a potentially significant impact.

SDG&E would implement APMs PAL-1 and PAL-2 as part of the Proposed Project. APM PAL-1 requires that a paleontological monitor be present during construction at the eight known locations within paleontologically sensitive formations within the Proposed Project alignment. APM PAL-2 requires screen washing of sediments to identify fossils if the paleontologist deems it necessary to recover small fossils in select project areas.

While implementation of APMs PAL-1 and PAL-2 would minimize significant impacts to previously recorded paleontological resources, a significant impact would occur if a previously undiscovered unique paleontological resource is uncovered during construction and the paleontological resource is damaged.

Mitigation Measure Paleontology-1 requires SDG&E to prepare a Paleontological Monitoring Treatment Plan that includes monitoring of all ground-disturbing activities that would occur in areas with moderate to high paleontological sensitivity. All Proposed Project areas that require paleontological monitoring will be noted on construction plans per Mitigation Measure Paleontology-2. Mitigation Measure Paleontology-3 includes specific provisions to address discovery of paleontological resources and to minimize effects to these resources. Impacts to paleontological resources would be less than significant with mitigation.

There would be no impact to unique geologic features during construction because none exist in the Proposed Project area.

Transmission Line Segment B

Formations with moderate to high paleontological sensitivity that underlay Segment B include the Mission Valley Formation, Stadium Conglomerate, Friars Formation, Quaternary Very Old Paralic Deposits, and Santiago Peak Volcanics. Damage to fossils in these formations could occur as a result of underground trench and vault construction, which would involve excavation to a maximum depth of 12 feet. Disturbance of unique paleontological resources would be a significant impact. SDG&E would implement APMs PAL-1 and PAL-2 as part of the Proposed Project to reduce impacts to the eight previously recorded paleontological resources

in the Proposed Project transmission alignment; however, a significant impact would still occur if a previously undiscovered unique paleontological resource is damaged during construction.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 require SDG&E to monitor all ground-disturbing activities that would occur in paleontologically sensitive areas, note monitoring areas on construction plans, and mitigate impacts to paleontological resources through preservation in place (i.e., avoidance) or other methods. Impacts to paleontological resources would be less than significant with mitigation.

Substations

Minor modifications at the Sycamore Canyon, Peñasquitos, Chicarita, San Luis Rey, and Mission Substations would include adjusting configurations of existing transmission and power lines, adjusting relays, installing CVTs, and installing and disconnecting circuit breakers. These construction activities would take place on existing concrete substation pads; no ground-disturbing activities would occur to complete the minor modifications. Although the substations are situated on formations with moderate to high paleontological sensitivity, there would be no potential to disturb fossils within the formations because no ground-disturbing construction activities would occur. There would be no impact.

Encina Hub and Mission—San Luis Rey Phase Transposition Work Areas

Moderately to highly paleontologically sensitive formations that underlay the Encina Hub and Mission—San Luis Rey phase transposition work areas include the Santiago Formation, Quaternary Very Old Paralic Deposits, and Stadium Conglomerate. Construction activities may require shallow grading (i.e., to a depth of less than 10 feet) to prepare the work areas and access roads as well as possible installation of one pole at Encina Hub. Although the work areas have been previously disturbed, shallow grading could disturb paleontological resources, particularly if grading were to occur on unweathered formations that are present at the ground surface. Disturbance or damage to unique paleontological resources would be a significant impact.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 require SDG&E to monitor all ground-disturbing activities that would occur in paleontologically sensitive areas, note monitoring areas on construction plans, and mitigate impacts to paleontological resources through preservation in place (i.e., avoidance) or other methods. Impacts to paleontological resources would be less than significant with mitigation.

Staging Yards

All of the proposed staging yards are entirely underlain by formations with moderate or high paleontological sensitivity (Stadium Conglomerate, Mission Valley Formation, Friars Formation, and Quaternary Very Old Paralic Deposits). Ground-disturbing activities that could damage paleontological resources at staging yards include installation of in-ground fencing, vegetation removal, and grading. Grading would require approximately 2,500 cubic yards of cut and fill for staging yard site preparation. Disturbance of unique paleontological resources would be a significant impact.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 require SDG&E to monitor all ground-disturbing activities that would occur in paleontologically sensitive areas, note monitoring areas on construction plans, and mitigate impacts to paleontological resources through preservation in place (i.e., avoidance) or other methods. Impacts to paleontological resources would be less than significant with mitigation.

Operation and Maintenance

Operation and maintenance activities associated with the Proposed Project would be conducted in areas that were previously disturbed during project construction. Operation and maintenance activities such as the routine inspection and repair of transmission components and access associated with these activities would not differ from those currently conducted for the existing transmission system and would not require additional ground disturbance. Maintenance vehicles would use access roads and would not disturb undeveloped lands. Impacts would be less than significant. No mitigation is required.

There would be no impact to unique geologic features during operation because none exist in the project area.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3

Mitigation Measure Paleontology-1: Paleontological Monitoring. Paleontological monitoring shall be required for all ground-disturbing activities that occur in in formations determined to have a moderate to high paleontological sensitivity; ground-disturbing activities that occur areas with indeterminate, low, or marginal paleontological sensitivity may be conducted on a part-time basis at the discretion of the qualified paleontologist, and areas with zero paleontological sensitivity will not require monitoring. Paleontological monitoring shall be conducted by a qualified paleontological monitor under the direction of a CPUC-approved, qualified paleontologist. The qualified paleontologist shall have a Master's or PhD in paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

Paleontological monitoring shall also be required for all construction activities that require excavation, grading, or augering of 5 feet in diameter or greater at depths greater than 5 feet only in areas where these activities will disturb previously undisturbed strata in moderate to high paleontologically sensitive formations.

Mitigation Measure Paleontology-2: Note Monitoring Areas on Plans. All project areas that would require paleontological monitoring shall be noted on construction drawings and plans. A CPUC-approved, qualified paleontologist shall attend pre-construction meetings, as needed, to consult with the excavation

and grading contractor concerning the schedule for excavations and other surface disturbance, paleontological field techniques, and safety issues.

Mitigation Measure Paleontology-3: Avoidance of Resources or Other Methods of Mitigation. In the event that a previously unidentified paleontological resource is uncovered during project implementation, all ground-disturbing work within 50 feet (15 meters) of the discovery shall be halted. A CPUC-approved, qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, the qualified paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part V. If the resource is determined to be unique, ~~T~~the determination and associated plan for protection of the resource shall be provided to CPUC for review and approval. If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the qualified paleontologist shall consult with SDG&E and CPUC staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to paleontological resources and shall be required unless there are other equally effective methods. Other methods may be used but must ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology standard guidelines (SVP 2010) standards. Work may commence upon completion of treatment, as approved by CPUC. A final summary report shall be completed. This report shall include discussions of the methods used, stratigraphy exposed, fossils collected, and significance of recovered fossils. The report shall also include an itemized inventory of all collected and catalogued fossil specimens.

Significance after mitigation: Less than significant.

4.4.9 Alternative 1: Eastern Cable Pole at Carmel Valley Road (Avoids Cable Pole in Black Mountain Ranch Community Park)

Alternative 1 would involve installation of a new cable pole immediately south of and adjoining Carmel Valley Road within existing SDG&E ROW, transitioning the Segment A overhead transmission line directly into the proposed Carmel Valley Road Segment B underground alignment. Alternative 1 would avoid installation of a cable pole and underground duct bank within the Black Mountain Ranch Community Park. This alternative is described in more detail in Chapter 3: Alternatives.

4.4.9.1 Alternative 1 Environmental Setting

The Alternative 1 cable pole location would be underlain by the Santiago Peak Volcanics formation (Figure 4.4-4) and would not be located on a unique geologic feature. The paleontological resource conditions for the Proposed Project described in Section 4.4.3 would apply to this alternative.

4.4.9.2 Alternative 1 Impacts and Mitigation Measures

Table 4.4-4 summarizes the impacts to paleontological resources from Alternative 1.

Table 4.4-4 Summary of Alternative 1 Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No impact	---	---

Impact Paleontology-1: Would Alternative 1 have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

The Alternative 1 cable pole would not be located on a previously recorded paleontological resource and would therefore not impact previously recorded resources. However, the cable pole would be underlain by Santiago Peak Volcanics, a marginally to moderately paleontologically sensitive formation (refer to Figure 4.4-4). A significant impact would occur if a previously undiscovered unique paleontological resource is damaged during construction. SDG&E would implement APM PAL-2 (paleontological screen-washing) to reduce impacts to previously undiscovered unique paleontological resources; however, impacts would remain significant if a resource is uncovered and damaged during construction.

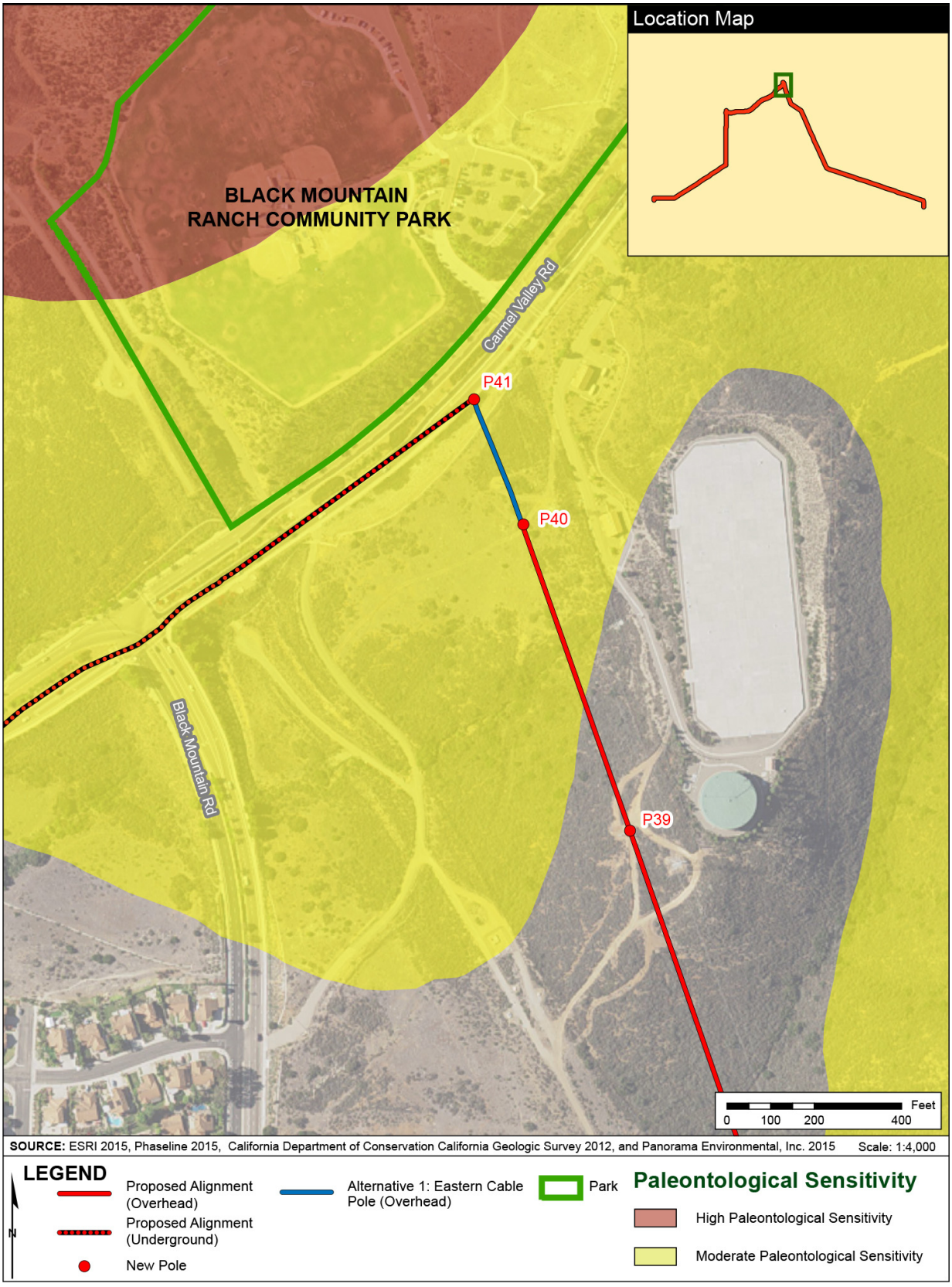
Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 which require paleontological monitoring for all ground-disturbing activities in moderately to highly paleontologically sensitive formations, noting areas requiring monitoring on project plans, and evaluation and preservation of previously undiscovered paleontological resources would be implemented to reduce impacts. Impacts to paleontological resources would be less than significant with mitigation.

There would be no impact to unique geologic features during construction because no unique geologic features exist in the Alternative 1 area.

Operation and Maintenance

Operation and maintenance activities associated with Alternative 1 would be conducted in

Figure 4.4-4 Alternative 1 Paleontological Sensitivity



areas that would be disturbed during Alternative 1 construction and would not require additional ground disturbance; therefore, there would be no impact to paleontological resources.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3 (refer to Section 4.4.8)

Significance after mitigation: Less than significant.

4.4.10 Alternatives 2a and 2b: Eastern Cable Pole at Pole P40 and Underground Alignment through City Open Space or City Water Utility Service Road (Avoids Cable Pole in Black Mountain Ranch Community Park)

Alternative 2 would involve installation of a new cable pole in the same location for both Alternatives 2a and 2b, approximately 300 feet south of Carmel Valley Road within existing SDG&E ROW, transitioning the Segment A overhead transmission line into the proposed Carmel Valley Road Segment B underground alignment via one of two underground alignment options. Alternative 2a would locate the underground duct bank west of SDG&E ROW through City of San Diego open space and into Carmel Valley Road. Alternative 2b would locate the underground duct bank east of SDG&E ROW through a City of San Diego water utility service road and into Carmel Valley Road. Both Alternative 2a and 2b would avoid installation of a cable pole and underground duct bank within the Black Mountain Ranch Community Park. This alternative is described in more detail in Chapter 3: Alternatives.

4.4.10.1 Alternative 2 Environmental Setting

The Alternative 2 cable pole and 2a and 2b underground duct bank options would be underlain by the Santiago Peak Volcanics formation (refer to Figure 4.4-5) and would not be located on a unique geologic feature. The paleontological resource conditions for the Proposed Project described in Section 4.4.3 would apply to this alternative.

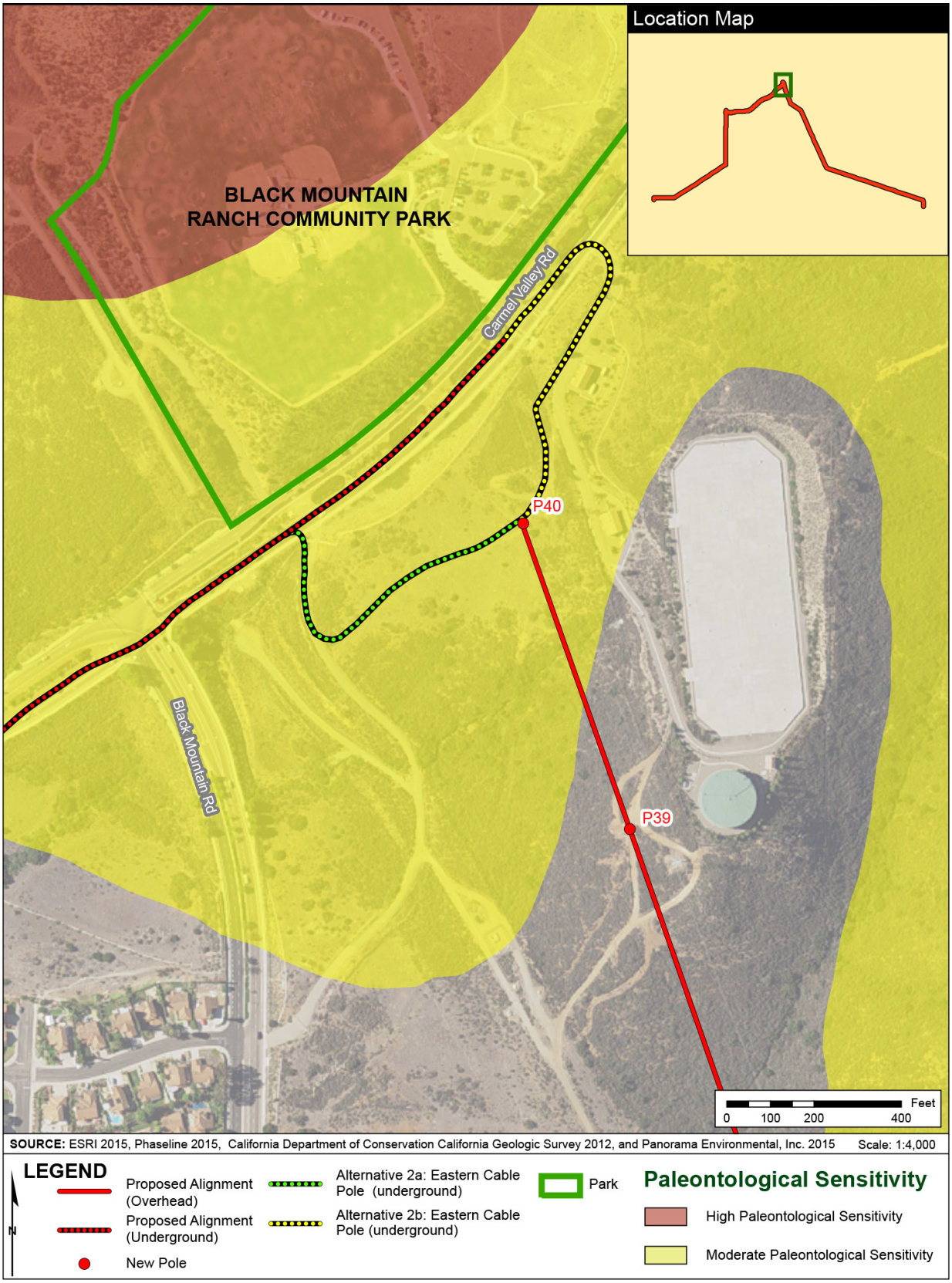
4.4.10.2 Alternative 2 Impacts and Mitigation Measures

Table 4.4-5 summarizes the impacts to paleontological resources from Alternatives 2a and 2b. Both Alternatives 2a and 2b would have a lesser impact on paleontological resources than the Proposed Project.

Table 4.4-5 Summary of Alternatives 2a and 2b Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No Impact	---	---

Figure 4.4-5 Alternative 2 Paleontological Sensitivity



Impact Paleontology-1: Would Alternative 2 have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

The Alternatives 2a and 2b cable pole and underground transmission duct banks would not be located on a previously recorded paleontological resource and would therefore have no impact on previously recorded paleontological resources. However, this area would be underlain by Santiago Peak Volcanics, a marginally to moderately paleontologically sensitive formation (refer to Figure 4.4-5).

A significant impact would occur if a previously undiscovered unique paleontological resource was damaged during construction. SDG&E would implement APM PAL-2 (paleontological screen-washing) to reduce impacts to previously undiscovered unique paleontological resources; however, impacts would remain significant if a resource is uncovered and damaged during construction.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 which require paleontological monitoring for all ground-disturbing activities in moderately to highly paleontologically sensitive formations, noting areas requiring monitoring on project plans, and evaluation and preservation of previously undiscovered paleontological resources would be implemented to reduce impacts. Impacts to paleontological resources would be less than significant with mitigation.

There would be no impact to unique geologic features during construction because no unique geologic features exist in the Alternative 2 area.

Operation and Maintenance

Operation and maintenance activities associated with Alternative 2 would be conducted in areas that would be disturbed during project construction and would not require additional ground disturbance. There would be no impact to paleontological resources.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3 (refer to Section 4.4.8)

Significance after mitigation: Less than significant.

4.4.11 Alternative 3: Los Peñasquitos Canyon Preserve – Mercy Road Underground (Avoids Overhead in Northern Half of Segment A, Underground in Segment B, and Overhead in Segment C)

Alternative 3 would include installing an underground alignment starting at a new cable pole where the existing SDG&E ROW crosses Ivy Hill Road and ending at a new cable pole approximately 550 feet west of the Peñasquitos Junction (i.e., where Proposed Project Segments C and D meet). The underground alignment would follow Scripps Poway Parkway, Mercy Road, Black Mountain Road, and finally Park Village Road. Alternative 3 would bypass the

northern half of Proposed Project Segment A and all of Proposed Project Segments B and C. This alternative is described in more detail in Chapter 3: Alternatives.

4.4.11.1 Alternative 3 Environmental Setting

The Alternative 3 alignment is underlain by sedimentary rocks, which have a high sensitivity and potential for paleontological resources. The paleontological sensitivity of geological formations found along Alternative 3 is shown in Table 4.4-6. A description of each geological formation, with the exception of Delmar and Friars Formation, undivided, is provided in Section 4.4.3.1. A description of Delmar and Friars Formation, undivided, is provided below. Figure 4.4-6 shows the paleontological sensitivity of geologic units along the Alternative 3 alignment.

Alternative 3 would not be located on a unique geologic formation.

Delmar and Friars Formations, Undivided

In the upper reaches of La Zanja, McGonigle, and Peñasquitos Canyons, the Delmar and Friars Formations are undivided (Kennedy and Tan 2005). The Delmar Formation is comprised of sandy claystone interbedded with sandstone, representing deposition in lagoon environments (Kennedy and Moore 1971). The Delmar Formation has yielded significant vertebrate fossils of tillodonts (large, rodent-like mammals), perissodactyls, crocodile, sharks, and fish (Walsh 1996). It has also produced fossils of pollen and foraminifera assemblages (Kennedy and Moore 1971, Frederiksen 1989). The Friars Formation is described above in Section 4.4.3.1. Both the Delmar and Friars Formations have a high paleontological sensitivity due to their production of abundant and generally well-preserved marine microfossils, macroinvertebrates, and leaves as well as large and diverse assemblages of fossil land mammals.

Table 4.4-6 Paleontological Sensitivity of Geologic Units that Underlay Alternative 3

Alternative Location	Geological Formation	Level of Sensitivity
Underground transmission line within Scripps Poway Parkway, Mercy Road, Black Mountain Road, and Park Village Road	Delmar and Friars Formations, undivided	High
	Friars Formation	High
	Scripps Formation	High
	Stadium Conglomerate	High
	Quaternary Very Old Paralic Deposits	Moderate
	Santiago Peak Volcanics	Marginal to Moderate
	Late Quaternary Alluvium	Low[1]

Note:

[1] Moderate sensitivity exists in deeper excavations that may encounter older Quaternary alluvium.

4.4.11.2 Alternative 3 Impacts and Mitigation Measures

Table 4.4-7 summarizes the impacts to paleontological resources from Alternative 3.

Table 4.4-7 Summary of Alternative 3 Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No Impact	---	---

Impact Paleontology-1: Would Alternative 3 have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

Alternative 3 would be located within existing roadways that have been previously disturbed and would be underlain mostly by geological formations with moderate to high sensitivity for paleontological resources. There are no known paleontological resources in the Alternative 3 alignment; however, a significant impact would occur if a previously undiscovered unique paleontological resource was damaged during construction. SDG&E would implement APM PAL-2 (paleontological screen-washing) to reduce impacts to previously undiscovered unique paleontological resources; however, impacts would remain significant if a resource is uncovered and damaged during construction.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 which require paleontological monitoring for all ground-disturbing activities in moderately to highly paleontologically sensitive formations, noting areas requiring monitoring on project plans, and evaluation and preservation of previously undiscovered paleontological resources would be implemented to reduce impacts. Impacts to paleontological resources would be less than significant with mitigation.

There would be no impact to unique geologic features during construction because no unique geologic features exist in the Alternative 3 area.

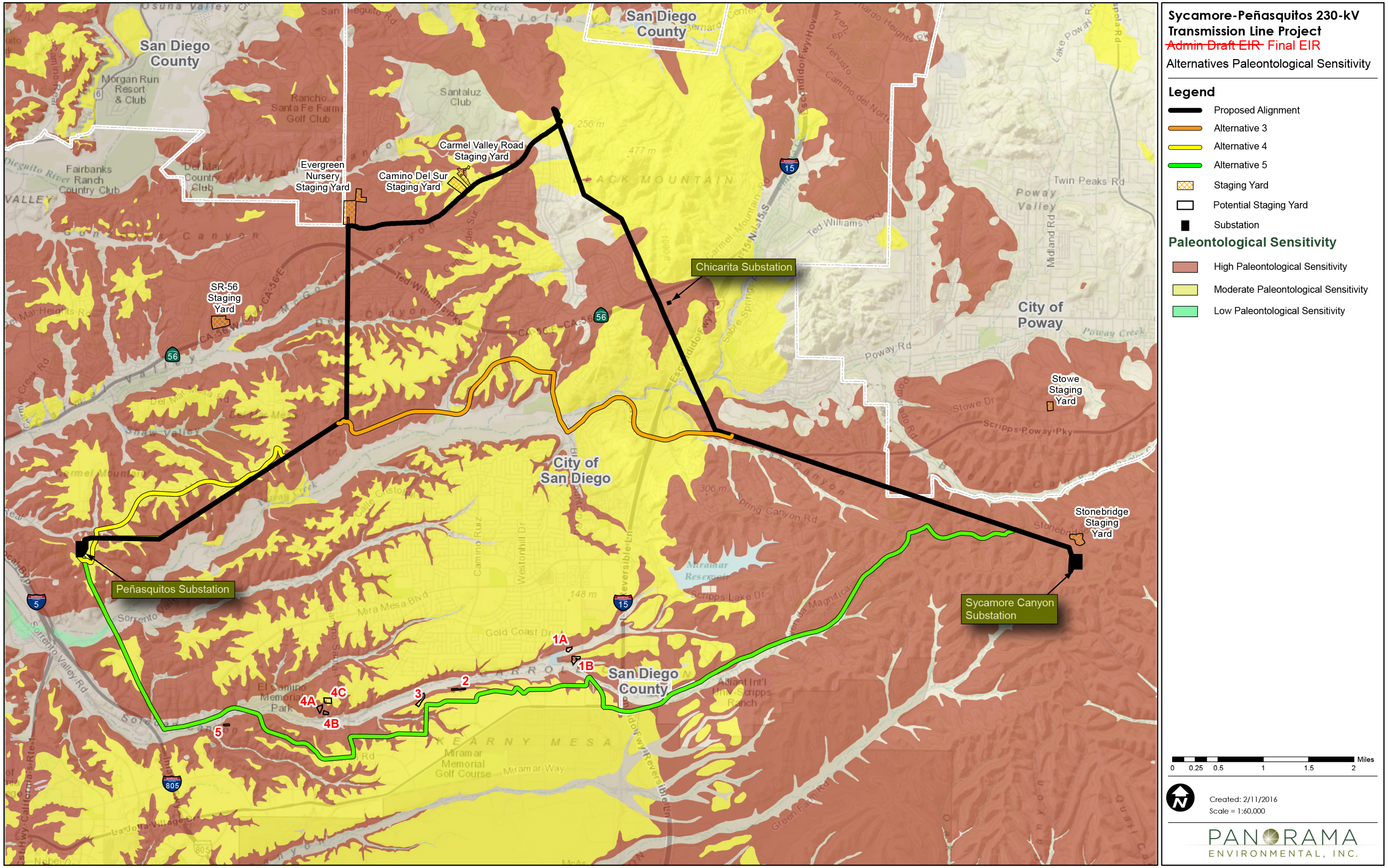
Operation and Maintenance

Operation and maintenance activities associated with Alternative 3 would be conducted in areas that would be disturbed during construction and would not require additional ground disturbance. There would be no impact.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3 (refer to Section 4.4.8)

Significance after mitigation: Less than significant.

Figure 4.4-6 Paleontological Sensitivity of Alternative Alignments



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4.4.12 Alternative 4: Segment D 69-kV Partial Underground Alignment (Reduces New TSPs in Segment D)

Alternative 4 would include the installation of a double 69-kV underground alignment starting at two new cable poles (P48AA and P48BB) in Proposed Project Segment D near existing lattice tower E17. The underground alignment would follow Carmel Mountain Road and East Ocean Air Drive, ending at the Peñasquitos Substation. Within Proposed Project Segment D, an existing 69-kV line would be removed from the existing steel lattice towers, and a second 69-kV power line on existing H-frame structures would be de-energized and left in place. Construction within Proposed Project Segment D would be reduced under Alternative 4. The 230-kV transmission line would be installed on the existing steel lattice towers similar to the Proposed Project; however, the H-frame structures would not be removed, and no new TSPs would be installed between lattice tower E17 and the Peñasquitos Substation. This alternative is described in more detail in Chapter 3: Alternatives.

4.4.12.1 Alternative 4 Environmental Setting

The Alternative 4 underground 69-kV power lines would be mostly underlain by sedimentary rocks, which have a high sensitivity and potential for paleontological resources. The paleontological sensitivity of geological formations found along Alternative 4 is shown in Table 4.4-8. A description of each geological formation is provided in Section 4.4.3.1. Figure 4.4-6 shows paleontological sensitivity along Alternative 4. No unique geologic features are located in the Alternative 4 area.

Table 4.4-8 Paleontological Sensitivity of Geologic Units that Underlay Underground Portion of Alternative 4

Alternative Location	Geologic Formation	Level of Sensitivity
Underground portion of Alternative 4 along Carmel Mountain Road	Friars Formation	High
	Scripps Formation	High
	Stadium Conglomerate	High
	Ardath Shale	High
	Torrey Sandstone	High
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]

Note:

[1] Moderate sensitivity exists in deeper excavations that may encounter older Quaternary alluvium.

4.4.12.2 Alternative 4 Impacts and Mitigation Measures

Table 4.4-9 summarizes the impacts to paleontological resources from Alternative 4.

Table 4.4-9 Summary of Alternative 4 Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No Impact	---	---

Impact Paleontology-1: Would Alternative 4 have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

Alternative 4 would be located within existing roadways that have been previously disturbed and would be underlain mostly by geological formations with moderate to high sensitivity for paleontological resources. There are no known paleontological resources in the Alternative 4 alignment; however, a significant impact would occur if a previously undiscovered unique paleontological resource was damaged during construction. SDG&E would implement APM PAL-2 (paleontological screen-washing) to reduce impacts to previously undiscovered unique paleontological resources; however, impacts would remain significant if a resource is uncovered and damaged during construction.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 which require paleontological monitoring for all ground-disturbing activities in moderately to highly paleontologically sensitive formations, noting areas requiring monitoring on project plans, and evaluation and preservation of previously undiscovered paleontological resources would be implemented to reduce impacts. Impacts to paleontological resources would be less than significant with mitigation.

There would be no impact to unique geologic features during construction because no unique geologic features exist in the Alternative 4 area.

Operation and Maintenance

Operation and maintenance activities associated with Alternative 4 would be conducted in areas that would be disturbed during construction and would not require additional ground disturbance. There would be no impact.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3 (refer to Section 4.4.8)

Significance after mitigation: Less than significant.

4.4.13 Alternative 5: Pomerado Road to Miramar Area North Combination Underground/Overhead (Avoids All Proposed Project Segments)

Alternative 5 would include underground installation of the transmission line with the exception of the east and west ends where the transmission line would be installed in an overhead position within existing SDG&E ROWs. Under this alternative, the alignment would exit the Sycamore Canyon Substation at MCAS Miramar an overhead line and travel westerly within an existing SDG&E ROW toward Stonebridge Parkway. The transmission line would transition to underground beneath Stonebridge Parkway in the vicinity of Greenstone Court, then continue underground on Pomerado Road, Miramar Road, Kearny Villa Road, Black Mountain Road, Activity Road, Camino Ruiz, Miralani Drive, Arjons Drive, Trade Place, Camino Santa Fe, Carroll Road/Carroll Canyon Road and Scranton Road. The transmission line would either remain underground within the Pomerado/Miramar bridge or temporarily transition to an overhead alignment via two new cable poles and potentially two new interset poles, where it would cross I-15. At the western end of the underground portion, the line would transition back to overhead structures located within an existing SDG&E ROW heading northward into the Peñasquitos Substation. Alternative 5 would avoid construction within the Proposed Project alignment with the exception of approximately 3,400 feet of existing SDG&E ROW in Segment A connecting to the Sycamore Canyon Substation. SDG&E may use up to eight other staging yards during construction of Alternative 5 in addition to the Proposed Project staging yards. The Alternative 5 staging yards would be located within the Conrock and Hanson Aggregates Pacific Southwest quarries north of the Alternative 5 underground alignment, within the cul-de-sac west of Birch Canyon Place, off of Summers Ridge Road, and behind the Sorrento Canyon Golf Center. This alternative is described in more detail in Chapter 3: Alternatives.

4.4.13.1 Alternative 5 Environmental Setting

Although Alternative 5 would have a substantially different alignment from the Proposed Project and may involve additional staging yards, it would overlay similar types of geological formations, which are provided in Table 4.4-10. A description of each geological formation is provided in Section 4.4.3.1 with the exception of Paralic Estuarine Deposits, which is described below. The paleontological sensitivity of geologic units that underlay the Alternative 5 alignment is summarized in Table 4.4-10 and shown in Figure 4.4-6. The paleontological sensitivity of geologic units that underlay the Alternative 5 staging yards is shown in Figure 4.4-7.

No unique geologic features are located in the Alternative 5 area.

Paralic Estuarine Deposits

Modern estuaries, confined to intersections of the valley bottom with the modern shoreline, contain unconsolidated estuarine deposits of late Holocene age. These deposits are composed mostly of fine-grained sand and clay (Kennedy and Tan 2005). Because of their young age, late Holocene estuarine deposits generally are not known to yield fossils; therefore, paralic estuarine deposits are assigned a low paleontological sensitivity.

Figure 4.4-7 Paleontological Sensitivity of Alternative 5 Staging Yards

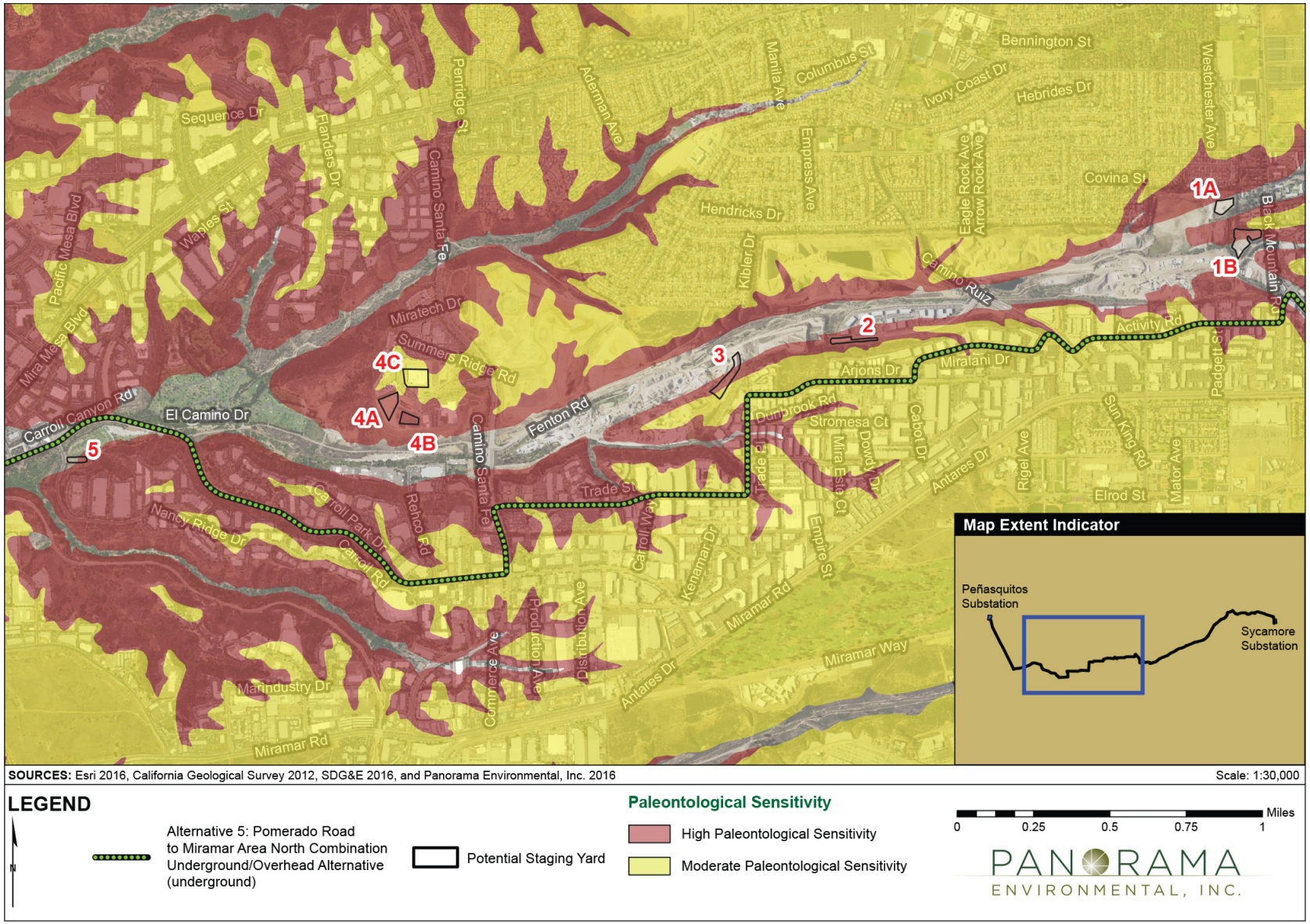

Table 4.4-10 Paleontological Sensitivity of Geologic Units that Underlay Alternative 5

Alternative Location	Geologic Formation	Level of Sensitivity
Overhead transmission line between Sycamore Canyon Substation and P5	Stadium Conglomerate	High
	Torrey Sandstone	High
Underground transmission line along Stonebridge Parkway, Pomerado Road, and roadways within industrial area	Mission Valley Formation	High
	Scripps Formation	High
	Stadium Conglomerate	High
	Torrey Sandstone	High
	Quaternary Older Alluvium	Moderate
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]
Overhead transmission line between Carroll Canyon Road and Peñasquitos Substation within existing ROW	Ardath Shale	High
	Scripps Formation	High
	Quaternary Older Alluvium	Moderate
	Quaternary Very Old Paralic Deposits	Moderate
	Late Quaternary Alluvium	Low[1]
	Paralic Estuarine Deposits	Low

Note:

[1] Moderate sensitivity exists in deeper excavations that may encounter older Quaternary alluvium.

4.4.13.2 Alternative 5 Impacts and Mitigation Measures

Table 4.4-11 summarizes the impacts to paleontological resources from Alternative 5.

Table 4.4-11 Summary of Alternative 5 Impacts to Paleontological Resources

Significance Criteria	Project Phase	Significance prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Paleontology-1: Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Construction	Significant	Significant APM PAL-2	Less than significant MM Paleontology-1 MM Paleontology-2 MM Paleontology-3
	Operation and Maintenance	No Impact	---	---

Impact Paleontology-1: Would Alternative 5 have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (*Less than significant with mitigation*)

Construction

Alternative 5 would be mostly located within existing roadways that have been previously disturbed and would be underlain mostly by geological formations with moderate to high sensitivity for paleontological resources. There are no known paleontological resources in the Alternative 5 underground alignment or Alternative 5 staging yards; however, a significant impact would occur if a previously undiscovered unique paleontological resource was damaged during construction. SDG&E would implement APM PAL-2 (paleontological screen-washing) to reduce impacts to previously undiscovered unique paleontological resources; however, impacts would remain significant if a resource is uncovered and damaged during construction.

Mitigation Measures Paleontology-1, Paleontology-2, and Paleontology-3 which require paleontological monitoring for all ground-disturbing activities in moderately to highly paleontologically sensitive formations, noting areas requiring monitoring on project plans, and evaluation and preservation of previously undiscovered paleontological resources would be implemented to reduce impacts. Impacts to paleontological resources would be less than significant with mitigation.

Alternative 5 would also include installation of new conductor in an existing overhead transmission alignment on the east side of the I-805 freeway. There would be no impact to paleontological resources resulting from overhead conductor installation.

There would be no impact to unique geologic features during construction because no unique geologic features exist in the Alternative 5 area.

Operation and Maintenance

Operation and maintenance activities associated with Alternative 5 would be conducted in areas that would be disturbed during project construction and would not require additional ground disturbance. There would be no impact.

Mitigation Measures: Paleontology-1, Paleontology-2, and Paleontology-3 (refer to Section 4.4.8)

Significance after mitigation: Less than significant.

4.4.14 No Project Alternative

The No Project Alternative would include construction of the CAISO approved Mission—Peñasquitos 230-kV transmission line, ~~and~~ Second Poway—Pomerado 69-kV power line, Second Miguel—Bay Boulevard 230-kV transmission line, and Second Sycamore Canyon—Scripps 69-kV power line, and upgrades of the Miguel—Mission 230-kV, Bernardo—Felicita Tap—Felicita 69-kV, and Artesian—Bernardo 69-kV lines. ~~The No Project Alternative would also involve installation of a series reactor at Sycamore Canyon Substation.~~ This alternative is described in more detail in Chapter 3: Alternatives. Ground disturbance that could impact

cultural resources would occur along approximately 83 miles of transmission and power lines, approximately 69 more ~~3.6 fewer~~ miles than the Proposed Project (13.9 miles of overhead line). The No Project Alternative would have a ~~lesser~~ greater potential to impact paleontological resources than the Proposed Project because the No Project Alternative would involve ~~less~~ more ground disturbance from pole replacements. This alternative is described in more detail in Chapter 3: Alternatives.

~~4.4.14.1 Mission—Peñasquitos 230-kV Transmission Line and Second Poway—Pomerado 69-kV Line~~

The No Project Alternative would be located on paleontologically sensitive formations similar to those of the Proposed Project because the No Project Alternative would be located in the same region. Construction of the transmission line and power lines would require replacement of existing structures. Construction of the Mission—Peñasquitos 230-kV transmission line would be similar to construction of Proposed Project Segment D and would impact the same resources because the transmission line would be constructed in the same ROW as Segment D. Similar to the impacts described for the Proposed Project, installation of new structures for the Mission—Peñasquitos 230-kV transmission line, Second Poway—Pomerado 69-kV power line, Second Miguel—Bay Boulevard 230-kV transmission line, Second Sycamore Canyon—Scripps 69-kV power line, and reconductoring of three existing lines would involve ground-disturbing excavation activities that could impact paleontological resources and result in significant impacts. These impacts could be reduced to less than significant through implementation of standard mitigation measures similar to those defined for the Proposed Project.

~~4.4.14.2 Series Reactor at Sycamore Canyon Substation~~

~~Installation of a series reactor at Sycamore Canyon Substation would not impact paleontological resources because the upgrades would be conducted in previously disturbed areas and would not involve new areas of ground disturbance. Construction activities would not involve excavation deeper than what was previously excavated during grading of the substation site; there would be no impact to paleontological resources.~~

4.4.15 References

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