

4.10 PALEONTOLOGICAL RESOURCES

This section of the EIR evaluates potential impacts associated with paleontological resources resulting from implementation of the proposed project. The following discussion is based, in part, on the Report of Preliminary Geotechnical Investigation (Geotechnical Exploration, Inc. 2004), Interim Report of Site Conditions and Preliminary Opinions (Geotechnical Exploration, Inc. 2018), and Report of Geotechnical Investigation Update (Geotechnical Exploration, Inc. 2019), which are included as Appendix F of this EIR.

4.10.1 Existing Conditions

4.10.1.1 Paleontological Resources

Paleontology is the science dealing with prehistoric plant and non-human animal life. Paleontological resources (or fossils) typically include the buried remains or traces of prehistoric organisms (i.e., animals, plants, and microbes). Fossil remains such as bones, teeth, shells, leaves, and wood, as well as trace fossils such as tracks, trails, burrows, and footprints, are found in geologic units composed of the sediments that originally buried them. The formation of fossils typically involves the rapid burial of plant or animal remains and the formation of casts, molds, or impressions in the associated sediment (which subsequently becomes sedimentary bedrock). Paleontological resources include not only the actual fossil remains, but also the collecting localities and the geologic formations containing those localities.

Fossils are considered important scientific and educational resources because they serve as direct and indirect evidence of prehistoric life and are used to understand the history of life on Earth, the nature of past environments and climates, the membership and structure of ancient ecosystems, and the patterns and processes of organic evolution and extinction. Fossils are also considered to be non-renewable resources because typically the organisms they represent no longer exist.

The potential for fossil remains at a location can be predicted through previous correlations that have been established between the fossil occurrence and the geologic formations within which they are buried. Geologic formations possess a specific paleontological resource potential wherever the formation occurs based on discoveries made elsewhere in that particular formation.

4.10.1.2 Paleontological Resource Sensitivity

Paleontological resource sensitivity of geologic formations is typically rated from zero to high. The sensitivity of the paleontological resource determines the significance of a paleontological impact. Paleontological resource sensitivity ratings, derived from Deméré and Walsh (1993), are briefly defined as follows:

- **High Sensitivity** – High sensitivity is assigned to geologic formations are known to contain paleontological localities with rare, well-preserved, critical fossil materials. Generally, high-sensitivity formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.
- **Moderate Sensitivity** – Moderate sensitivity is assigned to geologic formations known to contain paleontological localities with poorly preserved, common elsewhere, or stratigraphically unimportant fossil material. The moderate sensitivity category is also applied to geologic

formations that are judged to have a strong, but often unproven, potential for producing unique fossil remains.

- Low Sensitivity – Low sensitivity is assigned to geologic or surficial formations/materials that, based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains.
- Zero Sensitivity – Zero sensitivity is assigned to geologic formations that consist of volcanic or plutonic igneous rocks with a molten origin (such as basalt or granite), or artificially and/or mechanically-generated materials (such as fill and topsoil), and do not exhibit any potential for producing fossil remains.

4.10.1.3 Geologic Setting

The project site is located within the coastal plain of San Diego County, which lies at the western edge of the Peninsular Ranges Geomorphic Province of California. Along the coastal plain, crystalline basement rocks of the Jurassic- to Cretaceous-age Santiago Peak Volcanics and the Cretaceous-age Peninsular Ranges Batholith are overlain by a “layer cake” sequence of sedimentary strata of late Cretaceous, Eocene, Oligocene, Miocene, Pliocene, and/or Pleistocene age.

4.10.1.4 Geologic Formations

Knowing the geology of a particular area and the fossil productivity of formations that occur in that area, it is possible to predict where fossils will, or will not, be encountered. The City is located in areas underlain by very old paralic (deposits laid down on the landward side of a coast in shallow fresh water subject to marine invasions resulting in marine and nonmarine sediment interbedding) deposits of Pleistocene-age (approximately 0.5 to 1 million years old) and three middle Eocene-age formations: the Stadium Conglomerate (approximately 44 million years old), Mission Valley Formation (43 million years old), and Pomerado Conglomerate (37 million years old; El Adli 2012, Kennedy and Tan 2005, 2008).

Geologic formations located underlying the project site are identified below, along with associated paleontological resource sensitivity ratings.

- Artificial Fill – Since almost the entire project site has been previously graded and/or excavated during development of the RV resort, surface soils are highly disturbed. The surface of the project site is covered by a relatively shallow layer of artificial fill soils that extend to a depth of two to three feet. The fill consists of a loose to medium density and consists of damp, red-brown to gray-brown, silty, fine to medium and fine to coarse sand with pebbles and cobbles. Artificial fill deposits exhibit zero potential for the occurrence of sensitive paleontological resources.
- Stream Deposits – The fill soils along the southern portion of the site are underlain by stream deposits to an approximate depth of three to nine feet below the present surface grade. The stream deposits consist of a medium dense, wet, tan-gray to orange-brown, fine to coarse sand with abundant cobbles and boulders. River deposits in the County are generally grouped together because there is insufficient stratigraphic data available to differentiate them (Deméré and Walsh 1993). Stream deposits exhibit a low to moderate to high potential for the occurrence of sensitive paleontological resources.

- Stadium Conglomerate Formation – The entire site is underlain by dense cobble conglomerate formational material of the Tertiary Stadium Conglomerate Formation at depths greater than three feet. Stadium Conglomerate exhibits a moderate to high potential for the occurrence of sensitive paleontological resources.

4.10.1.5 Unique Geologic Features

A unique geological feature may be the best example of its kind locally or regionally, illustrate a geologic principle, provide a key piece of geologic information, be the “type locality” of a fossil or formation, or it may have high aesthetic appeal. Unique geologic features may be exposed or created from natural weathering and erosion processes, or from human excavations. These unique geological features provide aesthetic, scientific, educational, or recreational value. There are no known unique geological features located within the City.

4.10.2 Regulatory Setting

4.10.2.1 State

California Environmental Quality Act

CEQA requires lead agencies to consider the potential effects of a project on unique paleontological resources. CEQA requires an assessment of impacts associated with the direct or indirect destruction of unique paleontological resources or sites that are of value to the region or state. Pursuant to Section 15065 of the CEQA Guidelines (CCR Sections 15000–15387), a lead agency must find that a project would have a significant effect on the environment when the project has the potential to eliminate important examples of the major periods of California prehistory, including significant paleontological resources.

4.10.2.2 Local

City of La Mesa Municipal Code

Title 25, Historic Preservation, of the City’s Municipal Code implements the goals of the Historic Preservation Element of the City’s General Plan. Section 25.01.060 created the Historic Preservation Commission and established their powers and duties. Section 25.03.010 identifies the Historic Landmark and Historic District Designation Criteria. Under Section 25.03.010, a cultural resource may be recommended for designation as a landmark or historic district if it is an archaeological or paleontological site that has the potential of yielding information of scientific value. If designated as a landmark, any alteration or relocation of the resource is prohibited without a Certificate of Appropriateness issued by the City’s Historic Preservation Commission of City Council.

4.10.3 Methodology and Assumptions

The identification of underlying geologic formations was based on field testing conducted as part of the Geotechnical Investigation for the project (Geotechnical Exploration, Inc. 2004, 2018, 2019). The field testing consisted of cone penetrometer tests, exploratory trenches, and two supplemental drilling borings within the site, as described in greater detail in Section 4.4.3. Relevant information from the California Department of Conservation and the California Geological Survey, as well as relevant maps and geologic documentation, were also reviewed.

Additionally, relevant information and paleontological resource sensitivity data contained *Paleontological Resources County of San Diego* (Deméré and Walsh 1993) was reviewed.

4.10.4 Significance Thresholds

According to Appendix G of the CEQA Guidelines, a significant impact to paleontological resources would occur if implementation of the proposed project would result in the following:

1. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

4.10.5 Impact Analysis

4.10.5.1 Paleontological Resources

Threshold 1: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Because paleontological resources are limited, non-renewable resources of scientific, cultural, and/or educational value, the loss of fossils that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be considered a significant environmental impact. Impacts to paleontological resources primarily entail the destruction of non-renewable paleontological resources and the loss of information associated with such resources. If potentially fossiliferous bedrock is disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information.

Geological formations within the project site include a shallow layer of fill (approximately two to three feet), stream deposits in the southern portion of the site at depths from three to nine feet, and the Stadium Conglomerate Formation underlying the entire site at depths greater than three feet. There is no potential for paleontological resources to exist within the fill material. The stream deposits have a low to moderate potential for resources. The Stadium Conglomerate Formation is assigned a high paleontological resource sensitivity rating. Thus, ground disturbing activities associated with construction of the project have the potential to uncover paleontological resources. In the event that paleontological resources are encountered during construction, such resources could potentially be damaged or destroyed. Therefore, implementation of the proposed project could potentially result in significant impacts to paleontological resources.

There are no unique geologic features known or expected to occur on the project site. Therefore, implementation of the proposed project would not result in impacts to unique geologic features.

4.10.6 Mitigation Measures

Implementation of the proposed project could result in a potentially significant impact to unknown paleontological resources. Implementation of mitigation measure PAL-1 would reduce this impact to below a level of significance.

PAL-1 Paleontological Monitoring. Prior to construction, the owner/permittee shall retain a qualified paleontological monitor. The paleontological monitor shall attend pre-construction meeting(s)

with the construction manager and shall be present during all initial cutting, grading, or excavation of previously undisturbed substratum. If a fossil is encountered, all operations in the area where the fossil was found shall be suspended immediately, the City shall be notified, and a qualified paleontologist shall be retained by the City to evaluate the significance of the find; to salvage, record, clean, and curate significant fossil(s); and to document the find in accordance with current professional paleontological standards. Within 30 days of completion of ground-disturbing activities, either a letter signed by the paleontological monitor stating that no fossils were found or, if fossils were found, a report prepared by the qualified paleontologist documenting the mitigation program shall be submitted to the City.

4.10.7 Significance Determination

The significance of paleontological resources impacts before and after mitigation is summarized in Table 4.10-1, *Significance Determination Summary of Paleontological Resources Impacts*. No impacts related to unique geological features would occur, and no mitigation is required. Implementation of the proposed project, however, would result in potentially significant impacts related to paleontological resources. With implementation of mitigation measure PAL-1, these impacts would be reduced to below a level of significance.

**Table 4.10-1
SIGNIFICANCE DETERMINATION SUMMARY OF PALEONTOLOGICAL RESOURCES IMPACTS**

Issue	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Paleontological Resources	Potentially significant	PAL-1	Less than significant

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