

IV. Environmental Impact Analysis

D. Geology and Soils—Paleontological Resources

1. Introduction

This section of the Draft EIR provides an analysis of the Project's potential impacts to paleontological resources. The analysis of paleontological resources is based on the *Paleontological Resources Assessment for the 6000 Hollywood Boulevard Project (Paleontology Technical Report)*,¹ which is included as Appendix C of this Draft EIR.

The Project's potential impacts related to the balance of geology and soils issues (e.g., faulting, seismicity, landslides, soil erosion, etc.) were fully evaluated in the Initial Study prepared for the Project included in Appendix A of this Draft EIR and were found to be less than significant.

2. Environmental Setting

a. Regulatory Framework

There are several plans, regulations, and programs that include policies, requirements, and guidelines regarding paleontological resources at the federal, state, regional, and local levels. As described below, these plans, guidelines, and laws include the following:

- Society for Vertebrate Paleontology Standard Guidelines
- California Penal Code Section 622.5
- California Public Resources Code (PRC) Section 5097.5
- City of Los Angeles General Plan Conservation Element

¹ SWCA, *Paleontological Resources Assessment for the 6000 Hollywood Boulevard Project, Los Angeles, California, June 2023.*

(1) Federal

(a) *Society for Vertebrate Paleontology Standard Guidelines*

The Society for Vertebrate Paleontology (SVP) has established standard guidelines² that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. The Paleontological Resources Preservation Act (PRPA) of 2009 calls for uniform policies and standards that apply to fossils on all federal public lands. All federal land management agencies are required to develop regulations that satisfy the stipulations of the PRPA. As defined by the SVP,³ significant nonrenewable paleontological resources are:

Fossils and fossiliferous deposits here are restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or paleobotanical fossils except when present within a given vertebrate assemblage. Certain invertebrate and plant fossils may be defined as significant by a project paleontologist, local paleontologist, specialists, or special interest groups, or by lead agencies or local governments.

As defined by the SVP,⁴ significant fossiliferous deposits are:

A rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces, and other data that provide taphonomic, taxonomic, phylogenetic, ecological, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals, e.g., trackways, or nests and middens which provide datable material and climatic information). Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years BP [before present].

² Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

³ Society of Vertebrate Paleontology, *Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines*, *Society of Vertebrate Paleontology News Bulletin* 163:22-27, 1995.

⁴ Society of Vertebrate Paleontology, *Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines*, *Society of Vertebrate Paleontology News Bulletin* 163:22-27, 1995.

Based on the significance definitions of the SVP,⁵ all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

(2) State

(a) California Penal Code Section 622.5

California Penal Code Section 622.5 provides the following: “Every person, not the owner thereof, who willfully injures, disfigures, defaces, or destroys any object or thing of archeological or historical interest or value, whether situated on private lands or within any public park or place, is guilty of a misdemeanor.”

(b) California PRC Section 5097.5

California PRC Section 5097.5 provides protection for paleontological resources on public lands, where PRC Section 5097.5(a) states, in part, that:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

(3) Local

(a) City of Los Angeles General Plan Conservation Element

The City’s General Plan Conservation Element, adopted in September 2001, recognizes paleontological resources in Section 3: “Archeological and Paleontological” and

⁵ *Society of Vertebrate Paleontology, Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines, Society of Vertebrate Paleontology News Bulletin 163:22-27, 1995.*

identifies site protection as important, stating, “Pursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site.” Section 3 of the Conservation Element, includes policies for the protection of paleontological resources. As stated therein, it is the City’s objective that paleontological resources be protected for historical, cultural research, and/or educational purposes. Section 3 sets as a policy to continue the identification and protection of significant paleontological sites and/or resources known to exist or that are identified during “land development, demolition, or property modification activities.”

b. Existing Conditions

(1) Paleontological Records Search

On April 10, 2023, a Project-specific paleontological records search was conducted through the Natural History Museum of Los Angeles (NHMLA). The records search results are considered confidential and are on file with the City for review by qualified individuals. The results of the records search indicate that the Natural History Museum does not possess records of paleontological resources from within the Project Site; however, several fossil localities have been recorded in the vicinity of the Project Site from unnamed Pleistocene deposits varying from shallow depths of five feet below ground surface to depths of at least 80 feet below ground surface. Table IV.D-1 on page IV.D-5 summarizes the results of the Natural History Museum records search. These results include specimens of horse, mastodon, bison, camel, herring, bristlemouth, drum, and mammoth, located between 0.6 miles and 2.5 miles from the Project Site.

(2) Regional Geology

The Project Site is within the Los Angeles Basin between the northernmost portion of the Peninsular Ranges and the south end of the Transverse Ranges. The Project Site is within the northernmost Central Block of the Los Angeles Basin, which includes the low portions of the Los Angeles coastal plain from Beverly Hills to the Downey Plain within central Orange County. More specifically, the Central Block is bounded by the Hollywood, Santa Monica, and Whittier faults on the north; the Whittier and Elsinore fault and Elysian and Repetto hills on the east; the San Joaquin Hills and Huntington and Newport mesas on the south; and the Newport-Inglewood Fault Zone and Dominguez and Baldwin Hills on the west.

**Table IV.D-1
Natural History Museum Fossil Localities Near the Project Site**

Locality Number	Approximate Distance from the Project Site	Formation	Taxa	Approximate Depth (bgs)
LACM VP 6297–6300	0.6 miles	Pleistocene older alluvium	Horse (<i>Equus</i>); mastodon (<i>Mammot americanum</i>); bison (<i>Bison</i>); camel (<i>Camelops</i>)	47–80 feet
LACM VP 6947	1.8 miles	Puente Formation (Weathered light gray thin bedded siltstone shale)	Herring (<i>Ganolytes</i>), bristlemouth (<i>Cyclothone</i>), drum (<i>Sciaenidae</i>)	70 feet
LACM VP 5845	1.95 miles	Unknown formation (Pleistocene, unconsolidated yellow sediments)	Mastodon (<i>Mammutidae</i>)	5-6 feet
LACM VP 3250	2.35 miles	Unrecorded (Pleistocene)	Mammoth (<i>Mammuthus</i>)	8 feet
LACM VP 3371	2.5 miles	Unknown formation (Pleistocene; green clay)	Bison (<i>Bison</i>)	12 feet (sewer replacement project)
<hr/> <i>bgs = below ground surface</i> <i>Source: SWCA, 2023.</i>				

(3) Local Geology and Paleontology

The surface of the Project Site is mapped as late Pleistocene old fan deposits, Unit 4. However, based on previous site development during the construction of the existing structures and the results of the Preliminary Geotechnical report prepared for the Project by Langan Engineering and Environmental Services, Inc., dated April 27, 2023 (see Appendix IS-3 of the Initial Study), the Project Site also contains unmapped recent artificial fill overlying “native” sedimentary deposits. These geologic units are described in geochronological order below.

(a) Recent Artificial Fill

Although not mapped at the surface of the Project Site, unmapped recent artificial fill is present at the surface of the Project Site based on the results of the Preliminary Geotechnical Report. Here, artificial fill likely partially replaces the uppermost strata of “native” sediments of late Pleistocene old fan deposits, Unit 4 (Qof4) that are mapped at the surface of the Project Site. Artificial fill sediments typically consist of reworked and recompacted sediments originating either from within a project site during its construction, or from outside a project

site as imported sediments that are delivered from other regions and recompacted at a project site. Previously disturbed sediments or artificial fill may contain fossils, but fossils from these deposits would have been removed from their original stratigraphic, taphonomic, or paleoenvironmental context (provenance), making them scientifically invalid. Therefore, unmapped recent artificial fill is unlikely to yield significant paleontological resources and has a low paleontological sensitivity; however, artificial fill deposits are underlain by undisturbed “native” sediments that may have the potential to contain significant paleontological resources.

(b) Late Pleistocene Old Fan Deposits, Unit 4 (Qof4)

Late Pleistocene Old Fan Deposits, Unit 4 (Qof4) are mapped at the surface of the Project Site. The presence of Pleistocene fossils from depths as shallow as five feet below ground surface in developed urban areas in the vicinity of the Project Site would indicate that Pleistocene sediments were likely present at the surface before Project Site development. Today, the surface is capped with recent artificial fill that partially replaced the uppermost “native” strata to depths of approximately 11 feet below ground surface. Late Pleistocene old fan deposits, Unit 4 (Qof4) in the region consist of gravel, sand, silt, and clay deposited along alluvial fans off the Santa Monica Mountains and are moderately to well consolidated and slightly to well cemented.

It is important to note that the Project Site is along the northern edge of the Los Angeles Basin, immediately south of the Santa Monica Mountains and the Hollywood Fault, suggesting a relatively higher-energy depositional setting, with sediments from higher elevations off the mountains or upstream from fluvial or valley systems. In terrestrial environments, higher-energy depositional settings that deposit only coarse-grained sediments tend to either destroy organic remains or wash away such remains to areas further downslope/downstream before settling (if still intact) and becoming buried and fossilized. However, in the case of alluvial fans, grain size typically decreases downslope along the surface of the alluvial fan, such that the coarsest sediments (not likely to preserve fossils) are found at the apex of the fan near the channel in the highlands, with progressively finer sediments (more conducive to fossil preservation) deposited toward the toe of the fan where it means the lowest point of the basin or valley floor. Therefore, although very coarse-grained alluvial fan deposits do not typically preserve intact organic remains as fossils, finer-grained sediments (fine gravel, sand, silt, and clay) within the subsurface of the alluvial fan represent a relatively lower energy environment that may be conducive to the nondestructive burial and subsequent preservation of intact organic remains as fossils.

Pleistocene alluvial deposits have a rich fossil history in Southern California, especially in the Los Angeles Basin. The most common Pleistocene terrestrial mammal fossils include the bones of mammoth, mastodon, giant ground sloth, bison, deer, camel, antelope, peccary, horse, lion, cheetah, wolf, capybara, small rodents, reptiles, snakes, frogs, and salamanders.

In addition to illuminating the striking differences between the Pleistocene and today in southern California, this abundant fossil record has been vital in studies of extinction, ecology, and climate change. Therefore, late Pleistocene old fan deposits, Unit 4 (Qof4) have a high paleontological sensitivity.

3. Project Impacts

a. Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the Project would have a significant impact related to paleontological resources if it would:

Threshold (f): Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

As previously noted above in the Introduction subsection, this section of the Draft EIR provides an analysis of the Project's potential impacts to paleontological resources. The Project's potential impacts related to the balance of the geology and soils issues identified in the Initial Study (e.g., faulting, seismicity, landslides, soil erosion, etc. in Thresholds a through e) were fully evaluated in the Initial Study included as Appendix A of this Draft EIR and were found to be less than significant.

For this analysis, the Appendix G Threshold listed above is relied upon. The analysis utilizes factors and considerations identified in the City's 2006 *L.A. CEQA Thresholds Guide*, as appropriate, to assist in answering the Appendix G Threshold question.

The *L.A. CEQA Thresholds Guide* identifies the following criteria to evaluate impacts to paleontological resources:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource; and
- Whether the paleontological resource is of regional or statewide significance.

b. Methodology

To address potential impacts to paleontological resources, a Paleontological Resources Technical Report (Paleontology Technical Report) was prepared by SWCA to assess the paleontological sensitivity of the Project Site and vicinity. This analysis included a review of geologic maps, scientific literature, museum records search results, and other relevant information, such as the Preliminary Geotechnical Report prepared for the Project by Langan Engineering and Environmental Services, Inc (see Appendix IS-3 of the Initial Study).

The geologic mapping used in this analysis is from Campbell and others (2014) at a scale of 1:100,000. In addition, a formal paleontological records search was conducted by the Natural History Museum of Los Angeles. The paleontological records search request was submitted to the Natural History Museum on April 10, 2023, and the results were received on April 16, 2023. In addition, previous disturbances within the Project Site and the anticipated depths of grading were considered to determine the potential for uncovering paleontological resources. As discussed in the Paleontology Technical Report, the paleontological potential (also referred to as paleontological sensitivity) is derived from the known fossil data collected from the entire geologic unit. In Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (SVP 2010:1–2), the SVP defines four categories of paleontological sensitivity for rock units: high, low, undetermined, and no potential:

(1) High Potential

Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ash or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstone, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstone, fine-grained marine sandstone, etc.). Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

(2) Low Potential

Reports in paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

(3) Undetermined Potential

Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined

potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

(4) No Potential

Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources.

c. Project Design Features

No specific project design features are proposed with regard to paleontological resources.

d. Analysis of Project Impacts

Threshold (f): Would the project cause one or more distinct and prominent geologic or topographic features to be destroyed, permanently covered, or materially and adversely modified?

(1) Impact Analysis

As previously discussed, according to a records search of the paleontological specimen and locality records held by the Natural History Museum of Los Angeles Vertebrate Paleontology Department and the Paleontology Technical Report, there are no previously encountered fossil vertebrate localities located within the Project Site. However, localities have been documented elsewhere in the area from the same geologic units that are known to occur, as well as those anticipated to occur, beneath portions of the Project Site, and several of these localities are located within 2.5 miles. These include specimens of horse, mastodon, bison, camel, herring, bristlemouth, drum, and mammoth. Previously discovered fossils in the area have been found in older Pleistocene alluvium, unnamed Pleistocene deposits, and the Early Pliocene to late Miocene Puente Formation, which all have the potential to yield scientifically significant vertebrate fossils. As discussed above, the Project Site is primarily underlain by recent artificial fill and late Pleistocene old fan deposits, Unit 4 (Qof4). The Project would include excavations to a maximum depth of 40 feet, which could potentially disturb undiscovered paleontological resources. **Therefore, impacts to unique**

paleontological resources would be potentially significant. Accordingly, Mitigation Measures GEO-MM-1 through GEO-MM-4 are included below.

With regard to unique geologic features, given that the Project Site is located in a highly developed urban area, there are no unique geologic features on the Project Site. **Therefore, as determined in the Initial Study, the Project would not directly or indirectly destroy a unique geologic feature. No impact with respect to the destruction of a unique geologic feature would occur, and no further analysis is required.**

(2) Mitigation Measures

The following mitigation measures are proposed to reduce potential impacts to paleontological resources:

Mitigation Measure GEO-MM-1: The Project Applicant shall retain a Qualified Paleontologist, who meets or exceeds the SVP (2010) definition, to carry out all regulatory compliance measures and protocols related to paleontological resources. The Qualified Paleontologist shall obtain a curatorial arrangement with a qualified repository (e.g., NHMLA) prior to construction in the event of significant paleontological resource discoveries during construction.

Mitigation Measure GEO-MM-2: The Qualified Paleontologist shall develop Worker Environmental Awareness Program training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of a fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.

Mitigation Measure GEO-MM-3: Full-time paleontological monitoring shall occur during ground-disturbing activities at depths greater than 11 feet below ground surface (bgs) that have the potential to impact previously undisturbed sediments of high paleontological sensitivity, including late Pleistocene old fan deposits, Unit4 (Qof4). Monitoring shall not be required when ground-disturbing activities are less than 11 feet bgs, or when impacting only previously disturbed sediments and/or recent artificial fill regardless of depth. Monitoring shall be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and who shall be supervised by the Qualified Paleontologist. The Qualified Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. Monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Qualified Paleontologist. Paleontological monitoring shall include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor

shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. The monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological repository (e.g., NHMLA).

Mitigation Measure GEO-MM-4: Upon conclusion of ground-disturbing activities, the Qualified Paleontologist overseeing paleontological monitoring shall prepare a final monitoring report that documents the paleontological monitoring efforts for the Project and describes any paleontological resources discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the final monitoring report and any associated data pertinent to the curated specimen(s) shall be submitted to the designated repository. A copy of the final monitoring report shall be filed with the Department of City Planning.

(3) Level of Significance After Mitigation

As determined in the Paleontology Technical Report, with the implementation of Mitigation Measures GEO-MM-1 through GEO-MM-4, Project-level impacts to paleontological resources would be reduced to a less-than-significant level.

e. Cumulative Impacts

(1) Impact Analysis

Impacts related to paleontological resources are generally site-specific since the potential for discovery of such resources relate to the particular underlying conditions of a specific site. The Project Site is located within a highly urbanized area that has been disturbed and developed over time. Therefore, many subsurface paleontological resources in the area have likely been disturbed by present development. Like the Project, as part of the environmental review processes for the related projects, it is expected that mitigation measures would be established as necessary to address potential impacts to geology and soils, including paleontological resources. **Therefore, the Project and related projects would not result in significant cumulative impacts to paleontological resources. As such, the Project's contribution would not be cumulatively considerable, and cumulative impacts would be less than significant.**

(2) Mitigation Measures

Cumulative impacts related to paleontological resources would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Cumulative impacts related to paleontological resources were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.