

IV. Environmental Impact Analysis

D. Geology and Soils—Paleontological Resources

1. Introduction

This section evaluates the potential for the Project to directly or indirectly destroy a unique paleontological resource or unique geologic feature. This component of the analysis is based, in part, on the *Paleontological Resources Technical Memorandum for the 9000 Airport Project, City of Los Angeles, California* (Paleontology Report),¹ which is included as Appendix E of this Draft EIR.

Potential geologic and soils hazards of the Project, including the potential for the Project to cause direct or indirect impacts associated with existing environmental conditions that could cause, in whole or in part, fault rupture, ground shaking, liquefaction of soils, expansion of soils, and/or landslide were evaluated in the Project's Initial Study included as Appendix A of this Draft EIR and determined 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 Public Resources Code Section 5097.5
- Los Angeles General Plan Conservation Element

¹ SWCA Environmental Consultants, *Paleontological Resources Technical Memorandum for the 9000 Airport Boulevard Project, Los Angeles, California, October 13, 2023 (Revised December 7, 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 paleontological resources are:

Fossils and fossiliferous deposits here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Based on the significance definitions of the SVP,⁴ 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 potential for containing additional significant paleontological resources. This is because paleontological sites indicate that the containing rock unit or formation is fossiliferous. Therefore, the limits of the entire rock unit, both areal and stratigraphic, define the extent of paleontological potential. 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 *Society of Vertebrate Paleontology, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010.*

³ *Society of Vertebrate Paleontology, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010*

⁴ *Society of Vertebrate Paleontology, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010.*

(2) State

(a) California PRC Section 5097.5

California Public Resources Code (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) 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 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) Regional and Local Geology

(a) Regional Geology

The Project Site lies within the northern Peninsular Ranges Geomorphic Province and the southern boundary of the Transverse Ranges. The Peninsular Ranges were formed by uplift of plutonic igneous rock resulting from the subduction of the Farallon Plate underneath the North American Plate during the Mesozoic Era (approximately 125 to 90 million years old). The Los Angeles Basin developed from tectonic forces associated with the northern migration of the San Andreas Fault zone, with subsidence occurring 18 to 3 million years ago. The Los Angeles Basin is subdivided into four structural blocks, within which the Project Site lies in the

Southwestern Block, where sediments are approximately 20,500 feet thick. The Southwestern Block is approximately 28 miles long and five to 12 miles wide and is bounded on the north by the Santa Monica Mountains and Santa Monica Fault System, on the east by the Newport-Inglewood Fault System, and on the west by the Palos Verdes Hills Fault System; most of the block on the south is beneath the Pacific Ocean. Within the Southwestern Block, sedimentary strata overlying basement rocks consist of mostly marine sedimentary rocks from the Miocene to the early Pleistocene and nonmarine sediments eroding from the surrounding montane regions from the middle to late Pleistocene to Recent.⁵

(b) Local Geology

According to the Geotechnical Report, borehole logs indicate the Project Site is underlain by artificial fill that extends from the surface to depths as shallow as three feet bgs or as deep as 7.5 feet bgs.⁶ The artificial fill likely replaced the “native” sediments that were present prior to development to facilitate proper soil compaction and leveling construction. The artificial fill is composed of clayey sand and silty clayey sands. Artificial fill and previously disturbed sediments sometimes contain redeposited fossils that no longer retain their association with a specific stratigraphic context (i.e., provenance). Therefore, all previously disturbed sediments, including the artificial fill, are unlikely to yield scientifically significant paleontological resources and are considered to have a low paleontological sensitivity.⁷

The artificial fill is underlain by Pleistocene old eolian deposits (Qoe) deposits, which are regionally described as poorly consolidated eolian (windblown) deposits of dense to very dense, well-sorted, fine- to coarse-grained sand and silty sand. Locally, Qoe in this unit is described as yellow-brown to reddish-brown, slightly moist to moist, medium dense to very dense sand, silty sand, and clayey sand, with few interlayers of yellow-brown to orange-brown, moist, stiff to hard sandy clay and clay. A review of individual borehole logs recorded during the Geotechnical Report indicate that these deposits are mostly fine-grained, oxidized terrestrial eolian sand depths that extend to at least 14 feet bgs.⁸ While Qoe are of an appropriate age and lithology (e.g., fine-grained sand) to yield fossils, they are unlikely to contain fossils due to the erosion, transportation, deposition, and oxidation of terrestrial sand dune deposits. The physical and chemical processes that organic remains would have been

⁵ As stated in the Paleontological Report, “Recent” in this context is defined as the latest late Holocene that may include both historic and modern ages.

⁶ Leighton Consulting, Inc., Geotechnical Exploration Report Proposed Industrial Development 9000 Airport, City of Los Angeles California (Geotechnical Report), February 22, 2024. See Appendix IS-3.1 of the Project’s Initial Study, included in Appendix A of this Draft EIR.

⁷ Society of Vertebrate Paleontology, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010.

⁸ Leighton Consulting, Inc., Geotechnical Exploration Report Proposed Industrial Development 9000 Airport, City of Los Angeles California (Geotechnical Report), February 22, 2024. See Appendix IS-3.1 of the Project’s Initial Study, included in Appendix A of this Draft EIR

subject to in this depositional setting are un conducive to fossil preservation. Therefore, Qoe has a low paleontological sensitivity, but may overlie geologic units (e.g., older alluvial deposits) capable of preserving fossil at depths of 14 feet bgs or greater.⁹

(2) Paleontological Records Search

On August 13, 2023, a Project-specific paleontological records search was conducted through the Natural History Museum of Los Angeles (NHMLA), also referred to herein as the Los Angeles County Museum of Natural History (LACM), as part of the Paleontology Report, which is included in Appendix E of this Draft EIR. The results of the paleontological records search indicate there are no previously encountered vertebrate fossil localities located within the Project Site. However, as detailed below, multiple LACM localities have been identified from unnamed Pleistocene deposits varying from shallow depths of 14 feet bgs to depths of at least 40 feet bgs, and one fossil locality recorded in the San Pedro Sands at unknown depths.

The closest vertebrate fossil locality LACM VP 3789 was discovered 0.4 miles away from the Project Site at a depth of 14 feet bgs. This locality produced a fossil specimen of a mammoth (*Mammuthus*). LACM VP 4942, was discovered 0.45 miles away from the Project Site at a depth of 16 feet bgs and yielded fossil specimens of a mammoth (*Mammuthus*), bison (*Bison*), and hare (*Lepus*). LACM VP 7332, located 0.55 miles away from the Project Site, produced fossil specimens of a mammoth (*Mammuthus*) approximately 40 feet bgs. LACM VP 3264, located 1.25 miles away from the Project Site, produced fossil specimens of an elephant clade (*Proboscidea*) approximately 25 feet bgs. LACM VP 1170, discovered 2.65 miles away from the Project Site, yielded fossil specimens of sloth (*Megalonyx*), camel (*Camelops*), weasel (*Mustela frenata*), bison (*Bison*), deer (*Odocoileus*), sabertooth cat (*Smilodon*), pronghorn antelope (*Capromeryx*), Mastodon (*Mammut*), peccary (*Platygonus*), horse (*Equus*), coot (*Fulica*), unidentified birds (*Aves*) at an unstated depth.

3. Project Impacts

a. Thresholds of Significance

In accordance with the State CEQA Guidelines Appendix G (Appendix G), 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.*

⁹ Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

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

This section relies upon the Paleontological Report included as Appendix E of this Draft EIR. The Paleontological Report conforms to industry standards as developed by the SVP and best practices in mitigation paleontology. The purpose of the analysis included therein is to (1) determine whether any previously recorded fossil localities occur in the Project Site at the surface or at depth; (2) if so, assess the potential for disturbance of these localities during construction; (3) evaluate the paleontological potential of the Project Site; and (4) evaluate the potential for adverse impacts to previously undiscovered significant paleontological resources that could be present within the Project Site and adversely impacted by implementation of the Project.

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 directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

(1) Impact Analysis

As discussed in Subsection 2.b.(2), according to the records search conducted for the Project Site, there are no previously encountered fossil vertebrate localities located within the Project Site. Additionally, the Project Site is currently developed and has been previously graded. However, the records search documented significant fossil finds nearby from the same sedimentary deposits that occur within the Project Site, at a depth of 14 feet bgs to depths of at least 40 feet bgs. The closest of these was discovered approximately 0.4 mile northeast from the Project Site and was encountered at 14 feet bgs. Further, artificial fill extends to depths of 3 feet to 7.5 feet bgs, overlying Qoe, which likely extends to depths of at least 14 feet bgs based on the results of the Geotechnical Report. Both artificial fill and Qoe have low paleontological potential; however, Qoe may be underlain by older alluvial deposits capable of preserving fossils at 14 feet bgs or greater. The Project would require maximum excavation depths of approximately 10 feet bgs. However, the possibility exists that paleontological artifacts that were not discovered during prior construction or other human activity may be present. Any fossils encountered could be at risk for damage or destruction from construction activities, which would constitute an impact under CEQA. With respect to operational impacts, the Project does not include any activities, such as mining, that would involve continuous groundbreaking and excavation activities during Project operation. With respect to unique geologic features, there are no unique geologic or topographic features (i.e., hilltops, ridges, hillslopes, canons, ravines, rock outcrops, water bodies, streambeds, or wetlands) on the Project Site or vicinity. **Based on the above, the Project would potentially result in significant impacts to paleontological resources during Project construction.**

(2) Mitigation Measures

As analyzed above, the Project would have the potential to result in a significant impact related to paleontological resources during Project construction. Therefore, the following mitigation measures are proposed to reduce this impact:

Mitigation Measure GEO-MM-1: The Project Applicant shall retain a qualified paleontologist (project paleontologist/principal paleontologist), who meets or exceeds the SVP definition, to develop a worker environmental awareness program (WEAP) 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 an unanticipated fossil discovery. This WEAP training should be given to the crew before ground-disturbing work commences and should include handouts to be given to new workers as needed.

Mitigation Measure GEO-MM-2: If an unanticipated fossil discovery occurs during implementation or construction of the Project, the contractor shall immediately cease ground-disturbing activities within a 50-foot-buffer around the discovery. A qualified paleontologist shall be retained by the

Project Applicant to inspect and evaluate the discovery. The qualified paleontologist, or a paleontological monitor working under the supervision of the qualified paleontologist, shall have the authority to temporarily divert work activities away from the discovery as needed to facilitate its evaluation and to determine its significance. If it is determined to be potentially significant, the qualified paleontologist or paleontological monitor shall professionally and efficiently recover the fossil and curate it in an appropriate repository. Work shall not continue within the buffer zone until the qualified paleontologist has finished evaluating and/or salvaging the paleontological resource(s) and has cleared the site. The qualified paleontologist may reassess the need for additional procedures, including but not limited to, presenting additional worker environmental awareness program trainings to on-site project personnel, implementing paleontological monitoring or spot-checking by qualified paleontological monitors, salvaging and curating significant discoveries, and preparing a final paleontological resources monitoring report at the end of the Project.

(3) Level of Significance After Mitigation

Impacts to paleontological resources would be less than significant with the implementation of Mitigation Measures GEO-MM-1 through GEO-MM-2.

e. Cumulative Impacts

(1) Impact Analysis

As indicated in Section III, Environmental Setting, of this Draft EIR, there are four related projects in the vicinity of the Project Site. The related projects comprise a variety of uses, including, but not limited to, residential, commercial, and airport-related uses. With regard to potential cumulative impacts related to paleontological resources, the Project and the related projects are located within an urbanized area that has been disturbed and developed over time. In the event that paleontological resources are uncovered, each related project would be required to comply with applicable regulatory requirements, the City's standard condition of approval for inadvertent findings, or implement mitigation measures as appropriate. Specifically, as part of the environmental review processes for the related projects, project-specific mitigation measures may be established as necessary to address the potential for uncovering paleontological resources. Compliance with regulatory requirements, and implementation of these standard conditions of approval and/or mitigation measures would reduce the potential for adverse effects on paleontological resources individually and cumulatively, and would preserve and maximize the potential of these resources to contribute to the body of scientific knowledge. **Therefore, cumulative impacts to paleontological resources would be less than significant.**

(2) Mitigation Measures

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

(3) Level of Significance After Mitigation

Cumulative impacts 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.