

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 site or unique geologic feature. This analysis is in part based on a paleontological records search conducted by the Natural History Museum of Los Angeles County (NHMLA) on August 17, 2018,¹ which is included as Appendix F of this Draft EIR. The other geology and soils issues set forth in Appendix G of the State CEQA Guidelines (i.e., fault rupture, strong seismic ground shaking, seismic related ground failure, liquefaction, landslides, soil erosion/loss of topsoil, unstable geologic units, expansive soils, and soils incapable of supporting septic tanks or alternative wastewater disposal systems) were fully analyzed in the Initial Study prepared for the Project, included as Appendix A of this Draft EIR.

It is noted that the 2018 Initial Study for the Project, included as Appendix A of this Draft EIR, concluded that the Project may result in potentially significant impacts associated with several environmental issues (including paleontological resources) and therefore would require further evaluation in an EIR. The Initial Study analyses were based on the questions contained in Appendix G of the CEQA Guidelines that were in effect at the time of preparation of the Initial Study, and therefore used by the City at the time the Project's NOP was distributed in August 2018. On December 28, 2018, the update approved to CEQA by the Governor's Office of Planning and Research and the California Natural Resources Agency was formally approved by the Office of Administrative Law. This update resulted in changes or additions to nearly 30 different sections of the State CEQA Guidelines, added two sections, and amended several appendices including Appendix G, which includes the Initial Study "checklist." This included moving the discussion of paleontological resources in Appendix G of the CEQA Guidelines from Cultural Resources to Geology and Soils. This Draft EIR, including this section, incorporates the CEQA updates, as applicable, in the analysis of Project impacts (i.e., in this case, evaluating paleontological resources here in Geology and Soils).

¹ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

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
- General Plan Conservation Element

(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,

² Society of Vertebrate Paleontology, *Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources*, 2010, accessed September 27, 2022.

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.

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, ecologic, 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].

Based on the significance definitions of the SVP⁵, 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.”

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.

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.

(b) *California PRC Section 5097.5*

California PRC Section 5097.5 provides protection for paleontological resources on public lands, where 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*

(i) *Conservation Element*

The City's General Plan Conservation Element 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, adopted in September 2001, 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

Paleontology is the study of fossils, which are the remains of ancient life forms. The Project Site is currently developed and was previously graded. According to the paleontological records search conducted for the Project by the NHMLA, the entire Project area has surface deposits that consist of younger Quaternary Alluvium, derived as fluvial deposits from the flood plain of the Los Angeles River that currently flows in a concrete channel immediately to the east, underlain by older Quaternary deposits.⁶ According to

⁶ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018. Included as Appendix F of this Draft EIR.*

SVP criteria, fill and disturbed soil have low sensitivity for paleontological resources. In addition, according to the NHMLA, while the younger Quaternary deposits in the Los Angeles Basin do not contain significant fossil vertebrates, at least in the upper layers, the underlying older Quaternary deposits found at varying depths may well contain significant vertebrate fossils.⁷

On August 17, 2018, a Project-specific paleontological records search was conducted through the NHMLA to determine the potential impacts of the Project on paleontological resources.⁸ The results of the paleontological records search, which are included in Appendix F of this Draft EIR, indicate there are no previously recorded fossil vertebrate localities located within the Project Site or immediate vicinity.⁹ The records search indicates that there are fossil localities in the greater vicinity found within the same sedimentary deposits that occur subsurface at the Project Site.¹⁰ Specifically, the closest vertebrate fossil locality from these older Quaternary deposits is LACM 1755, located approximately 2.0 miles west-northwest of the Project near the intersection of Hill Street and 12th Street, which produced a fossil specimen of horse (*Equus*) at a depth of 43 feet below the street. The next closest vertebrate fossil locality from older Quaternary deposits beneath the younger Quaternary Alluvium is LACM 2032, located approximately 2.2 miles north-northeast of the Project Site near the intersection of Mission Road and Daly Street around the Golden State Freeway (I-5), that produced fossil specimens of pond turtle (*Clemmys mamorata*), ground sloth (*Paramylodon harlani*), mastodon (*Mammuthus americanum*), mammoth (*Mammuthus imperator*), horse, (*Equus*), and camel (*Camelops*), at a depth of 20 to 35 feet below the ground surface (bgs). In addition, locality LACM 1023, approximately 2.4 miles north-northwest of the Project Site near the intersection of Workman Street and Alhambra Avenue, recovered fossil specimens of turkey (*Meleagris californicus*), sabre-toothed cat (*Smilodon fatalis*), horse (*Equus*), and deer (*Odocoileus*), at unstated depth.¹¹

⁷ Natural Historic Museum of Los Angeles County, *Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

⁸ Natural Historic Museum of Los Angeles County, *Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

⁹ Natural Historic Museum of Los Angeles County, *Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

¹⁰ Natural Historic Museum of Los Angeles County, *Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

¹¹ Natural Historic Museum of Los Angeles County, *Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

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 related 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., fault rupture, strong seismic ground shaking, 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 or have no impact, and therefore are not addressed further in this section.

For this analysis, the Appendix G Thresholds listed above are 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 questions.

The *L.A. CEQA Thresholds Guide* identifies the following criteria to evaluate impacts related 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 associated with paleontological resources, a formal records search was conducted by the NHMLA to assess the paleontological sensitivity of the Project Site and vicinity.¹² The records search is included as Appendix F of this Draft EIR. In addition, an evaluation of existing conditions and previous disturbances within the

¹² *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

Project Site, the geology of the Project Site, and the anticipated depth of grading were evaluated to determine the potential for uncovering 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 directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

(1) Impact Analysis

(a) Paleontological Resource or Site

As previously discussed, the NHMLA records search conducted for the Project Site indicates there are no previously recorded fossil vertebrate localities located within the Project Site or immediate vicinity. The closest such locality is LACM 1755 located approximately 2.0 miles west-northwest of the Project near the intersection of Hill Street and 12th Street which produced a fossil specimen of horse (*Equus*) at a depth of 43 feet below the street.¹³ Therefore, the Project would not impact previously recorded paleontological localities.

As previously discussed, the Project Site is currently developed and has been previously graded. According to the paleontological records search conducted for the Project by the NHMLA, the entire Project area has surface deposits that consist of younger Quaternary Alluvium, derived as fluvial deposits from the flood plain of the Los Angeles River that currently flows in a concrete channel immediately to the east, underlain by older Quaternary deposits.¹⁴ According to SVP criteria, fill and disturbed soil have low sensitivity for paleontological resources. In addition, according to the NHMLA, while the younger Quaternary deposits in the Los Angeles Basin do not contain significant fossil vertebrates, at least in the upper layers, the underlying older Quaternary deposits found at varying

¹³ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

¹⁴ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

depths may contain significant vertebrate fossils.¹⁵ Specifically, as indicated by the NHMLA:

*Shallow excavations in the younger Quaternary Alluvium exposed throughout the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into the older Quaternary sediments, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be closely monitored to quickly and professionally recover any potential vertebrate fossils without impeding development.*¹⁶

As described in Section II, Project Description, of this Draft EIR, the Project would require excavation up to 42 feet below ground surface. Based on the above, Project excavations into the fill and disturbed soil at the surface of the Project Site would not have the potential to encounter paleontological resources. However, based on the above, if Project excavations were to reach the older Quaternary Alluvium deposits underlying the Project Site, they could potentially disturb significant vertebrate fossil remains if such remains are present. As such, the possibility exists that paleontological resources that were not discovered during prior construction and other human activity on the Project Site could be encountered during Project excavation activities. **Therefore, the Project could potentially result in significant impacts to paleontological resources.**

(b) Unique Geologic Features

There are no unique geologic features on the Project Site. The Project Site has been previously disturbed/developed and does not contain unique geologic features (e.g., geologic rock formations, bluffs, rock outcropping, etc.). In addition, properties surrounding the Project Site are fully developed with urban uses. As a result, there are no unique geologic features that the Project could impact. **Therefore, the Project would not directly or indirectly destroy a unique geologic feature, and impacts to unique geologic features would be less than significant.**

(2) Mitigation Measures

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

¹⁵ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

¹⁶ *Natural Historic Museum of Los Angeles County, Paleontological resources for the proposed 2159 Bay Street Project, August 17, 2018.*

Mitigation Measure GEO-MM-1: The services of a qualified paleontologist shall be retained prior to earthmoving activities associated with the Project in order to develop a site-specific Paleontological Resource Mitigation and Treatment Plan. The plan shall specify the levels and types of mitigation efforts based on the types and depths of earthmoving activities and the geologic and paleontological sensitivity of the Project area. This plan shall be written in conformance with the guidelines of the Society of Vertebrate Paleontology and prepared to the satisfaction of the curatorial staff of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County. If artificial fill, significantly disturbed deposits, or younger deposits too recent to contain paleontological resources are encountered during construction, the Project paleontologist may reduce or curtail monitoring in the affected areas, after consultation with the proponent and the City of Los Angeles. The plan shall also include a description of the professional qualifications required of key staff, communication protocols to be followed during construction, fossil-recovery protocols, sampling protocols for microfossils (if required), laboratory procedures, reporting requirements, and curation provisions for any collected fossil specimens.

Mitigation Measure GEO-MM-2: Prior to the start of any ground-disturbing activities, a preconstruction meeting shall take place during which the qualified paleontologist shall provide all construction personnel with paleontological sensitivity training via a Worker Environmental Awareness Program (WEAP). This training program will provide information regarding the potential to encounter subsurficial paleontological resources during grading and excavation activities and the need to protect such resources. The training will inform construction personnel of the location(s) and boundaries of any areas with a high paleontological resource potential. Instruction will be provided as to the appropriate procedures and notifications to be undergone should paleontological resources be discovered during Project construction. The training will also emphasize that unauthorized collections or disturbances of protected fossils on or off the Project area are prohibited and may result in criminal penalties and fines. The qualified paleontologist or qualified paleontological monitor may attend tailgate meetings to brief the construction crew on paleontological monitoring protocols.

Mitigation Measure GEO-MM-3: A qualified professional paleontologist should attend any pre-construction meetings to consult with grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. Communication protocols will be established to ensure that all grading and excavation activities are monitored and assessed to comply with the Paleontological Resource Mitigation Plan.

A paleontological monitor shall be on-site at all times during excavation where the original cutting of previously un-disturbed deposits of high paleontological resource potential (e.g., Quaternary old alluvial fan deposits) may occur to inspect exposures for contained fossils. The paleontological monitor will work under the direction of a qualified professional paleontologist. Screening of sediments may be required onsite at the discretion of the paleontological monitor or qualified professional paleontologist.

If paleontological resources are discovered during construction, the monitor will have the authority to temporarily divert or direct ground-disturbing activities in the immediate vicinity around the find until they are assessed for scientific significance and recovered (i.e., collected). Work may continue outside the buffer area.

Mitigation Measure GEO-MM-4: The paleontological monitor shall collect all significant paleontological resources encountered during monitoring, which will then be prepared in a properly equipped fossil-preparation laboratory. Preparation will include the removal of rock matrix from fossil materials as well as the stabilization, consolidation, and repair of specimens, as necessary. Fossil preparation will be done to the point that specimens are ready for curation. Specimens will be identified to the finest taxonomic level that is reasonably feasible before being sorted and catalogued as part of the mitigation program.

Once prepared, fossils should be deposited (as a donation) with an appropriate public, nonprofit scientific institution with permanent paleontological collections (such as a natural-history museum), along with copies of all pertinent field notes, photographs, and maps. The cost of curation and accession of fossil specimens at such a repository will be the responsibility of the Project owner and is required for compliance with the mitigation program.

Mitigation Measure GEO-MM-5: At the conclusion of paleontological monitoring effort, the qualified professional paleontologist shall prepare a final report detailing the paleontological resources recovered, their significance, treatment, and arrangements made for their curation in a manner that meets the standards published by the Society of Vertebrate Paleontology. The final report shall be filed with the Applicant, the lead agency, and the curatorial staff of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County.

Project-level impacts with regard to unique geological features would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts to paleontological resources would be reduced to less than significant with implementation of Mitigation Measure GEO-MM-1 through Mitigation Measure GEO-MM-5.

Project-level impacts related to unique geologic features 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

e. Cumulative Impacts

(1) Impact Analysis

Impacts to paleontological resources and unique geologic features are generally site-specific since the potential for discovery of such resources relate to the particular underlying conditions of a specific site. Also, the Project Site vicinity is highly urbanized and has been substantially disturbed and developed over time. In addition, while the paleontological records search indicates that a vertebrate fossil (LACM 1755) was recorded approximately 2.0 miles west-northwest of the Project Site, near the intersection of Hill Street and 12th Street, and while this suggests that other future development in the vicinity of the Project Site could impact paleontological resources, the Project would not contribute to any such impacts. This is because the Project would not include excavation/grading activities on adjacent properties (e.g., no combined impacts would occur), and would not result in significant Project-level impacts to paleontological resources with implementation of the proposed mitigation measures. Furthermore, as part of the environmental review processes for the related projects, record searches with the NHMLA and/or other site-specific technical analyses would be conducted that would identify the potential for discovery of paleontological resources. If there would be a potential for the discovery of paleontological resources within a related project site, that related project, like the Project, would be subject to either the City's standard condition of approval for paleontological resources or site-specific mitigation measures. Similarly, mitigation measures would be identified to address any potential impacts to unique geologic features. Finally, as indicated in the Project-level analysis above, the Project would result in less than significant impacts to paleontological resources with implementation of the proposed mitigation measures. **Therefore, the Project's contribution to cumulative impacts on paleontological resources or unique geologic features would not be cumulatively considerable, and cumulative impacts would be less than significant.**

(2) Mitigation Measures

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

(3) Level of Significance After Mitigation

Cumulative impacts with regard to paleontological resources and unique geologic features were determined to be less than significant without mitigation.