
Appendix F-2

Paleontological Resources Assessment

MEMORANDUM

To: Taylor Morrison
From: Shawna Johnson, MSc, Paleontologist, Dudek
Subject: Delaney Square Residential Project – Paleontological Resources Assessment
Date: October 17, 2025
cc: Brandon Whalen-Castellanos, Dudek
Attachments: A – Figures
B – Confidential Paleontological Records Search Results

Dudek has conducted a paleontological resources assessment pursuant to the requirements of the California Environmental Quality Act (CEQA) and guidelines of the Society of Vertebrate Paleontology (SVP) (2010) to determine the presence of and potential impacts related to paleontological resources associated with construction and operation of the proposed Delaney Square Residential Project (Project or proposed Project), in Azusa, California (Figure 1, Project Location, provided in Attachment A). This technical memorandum provides the results of the paleontological resources assessment and was prepared by Shawna Johnson, MSc, with editorial comments by Sarah Siren, MSc, and Michael Williams, PhD, who are qualified paleontological principal investigators.

To determine the paleontological sensitivity of the Project site, Dudek performed a paleontological resources inventory in compliance with the CEQA and SVP (2010) guidelines. The inventory consisted of a paleontological records search through the Natural History Museum of Los Angeles (NHMLA) and a review of geological mapping and geological and paleontological literature. The NHMLA stated it had no localities within the Project site or within a 1-mile radius buffer. The results of the paleontological literature review were negative for paleontological resources within the Project site and within the 1-mile radius buffer from the same sediments that underlie the Project site on the surface and/or at depth.

1 Project Description and Location

The Delaney Square Residential Project (proposed Project) would construct 128 residential units, including a combination of two-story single-family detached cluster homes and two-story attached triplexes and duplexes. Residential amenities would include private and common open space, parking, a tot lot, barbeque area, shaded gathering space, and a butterfly garden. The existing school buildings and surface parking lot on the Project site would be demolished to accommodate the Project. As the Institutional/School General Plan land use designation and zone does not allow for residential uses, a General Plan Amendment and a Zone Change would be required.

The Project site would be accessible from East Mauna Loa Avenue and North Calera Avenue and internal circulation on the site would be provided by internal streets, driveways, and alleyways. The Project would include a central paseo with a pathway for pedestrian connectivity, landscaping with drought-tolerant plantings and eco-conscious irrigation systems, and energy-efficient utility systems, including electric vehicle charging stations. Electrical utility lines would be converted to below-ground along East Mauna Loa Avenue and North Calera Avenue. Other off-site improvements may be required to connect to existing utilities within existing roadways.

The Project site is located north of East Mauna Loa Avenue and west of North Calera Avenue in Azusa, Los Angeles County, California (Figure 1).

2 Analysis Methodology

The analysis presented herein considers the potential environmental impacts of the proposed Project relative to existing conditions. Establishment of the Project site’s existing paleontological conditions have been informed by reviewing published geological maps and published and unpublished reports to identify geological units located on the Project site and determine their paleontological sensitivity.

A paleontological records search request was sent to the NHMLA on July 14, 2025. The records search area included the Project site and a 1-mile radius buffer. The purpose of the records search was to determine whether there are any known fossil localities in or near the Project site to aid in determining whether a paleontological mitigation program is warranted to avoid or minimize potential adverse effects of construction on paleontological resources.

A pedestrian survey was not conducted as part of this evaluation.

3 Paleontological Resources

Paleontological resources are the remains or traces of plants and animals that are preserved in the earth’s crust and, per SVP (2010) guidelines, are older than written history or older than approximately 5,000 years, which approximates the middle Holocene of Cohen et al. (2024). They are limited, nonrenewable resources of scientific and educational value and are afforded protection under state laws and regulations. This analysis complies with guidelines and significance criteria specified by CEQA and SVP (2010). Table 1, Paleontological Resource Sensitivity Criteria, provides definitions for high, undetermined, low, and no paleontological resource potential, or sensitivity, as set forth in and by the SVP (2010) Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
High	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. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ashes or tephtras), 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 sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
	or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. 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.
Undetermined	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 (see “definitions” section in this document [SVP 2010]) 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.
Low	Reports in the 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.
No Sensitivity	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 nor impact mitigation measures relative to paleontological resources.

Source: SVP 2010.

3.1 Regulatory Framework

The California Environmental Quality Act

This paleontological resources evaluation was completed to satisfy the requirements of CEQA. The CEQA Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental impacts, including effects to paleontological resources. Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under these state guidelines. This study satisfies Project requirements in accordance with CEQA (13 PRC 15000 et seq.).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the “Environmental Checklist Form,” which addresses the potential for adverse impacts

to “unique paleontological resource[s] or site[s] or unique geological feature[s].” This provision covers scientifically significant fossils, which include, but are not limited to, newly discovered species or genera, fossils exhibiting morphological features not previously recognized for a given animal group, fossils that increase the temporal range of the species, fossils discovered from geological units within which they were previously unknown, fossils that expand the biogeographic range of the species, and/or localities that yield fossils significant in their abundance, diversity, and preservation.

California Public Resources Code Section 5097.5

In addition to CEQA’s requirements, Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792) regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.

City of Azusa General Plan

The City of Azusa General Plan Draft Environmental Impact Report considers paleontological resources within the cultural resources section.

Historic and Cultural Policy 1.1, Program HR2 requires that if a historic, prehistoric, or paleontological resource is discovered during development construction, that construction shall be halted within 50 feet of the resource and a qualified archaeologist or paleontologist shall be consulted to evaluate the significance of the resource. With the implementation of this existing General Plan program and CEQA regulations, less-than-significant impacts to historic resources would occur from implementation of the Project and any construction where substantial historic resources may have not yet been identified (Terry A. Hayes Associates 2003).

3.2 Environmental Setting

Geological Literature and Map Review

The Project site lies at the northern edge of the Peninsular Ranges Geomorphic Province, just south of the San Gabriel Mountains. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges separated by long valleys, formed from subparallel faults branching from the San Andreas Fault (CGS 2002; Koordinates 2025). The Project area is also located within the northeastern block of the Los Angeles Basin, which also lies in the northern portion of the Peninsular Ranges Geomorphic Province. This block forms a triangular wedge about 35 miles long. The sedimentary rocks within this portion of the Los Angeles Basin are mainly marine clastic rocks of Cenozoic age that are overlain by Holocene (less than 11,700 years ago) and Pleistocene (11,700–2.58 million years ago) alluvial deposits in low-lying areas (Yerkes et al. 1965).

According to geological mapping by Dibblee (1998) at a 1:24,000 scale and the geological time scale of Cohen et al. (2024), the Project site is underlain by Holocene (11,700 years ago to recent) alluvial gravel, sand, and silt of valley areas (map unit Qa), with isolated outcrops of late Pleistocene (129,000 to 11,700 years ago) old alluvial fan gravel and sand (map unit Qog) mapped nearby and potentially underlying the Project area. The late Pleistocene deposits are likely equivalent to the middle Holocene (8,200 to 4,200 years ago) young alluvial fan deposits of Morton and Miller used in the geotechnical engineering report for the Project (LGC 2025),

The geotechnical engineering report for the Project reported approximately 2 feet of artificial fill, overlying brown, grayish-brown, to olive brown sand, silty sand to clayey sand, to a depth of 10 to 50 feet below ground surface (bgs). All of the sediments encountered within the boreholes were attributed to the young alluvial fan deposits (LGC 2025).

The Holocene alluvial fan/alluvial deposits have low paleontological resource sensitivity at the surface that increases to high sensitivity with depth where the sediments become older.

Paleontological Records Searches

The NHMLA responded to the records search request on July 20, 2025, reporting that it had no records from the Project site or within a 1 mile radius but did have records from further away from the same or similar units that underlie the Project site either at surface or at depth. The closest of these localities is LACM VP (Los Angeles County Museum Vertebrate Paleontology) 1807, located approximately 2.75 miles southwest of the Project, that produced a mastodon from an unknown Pleistocene formation 115 to 120 feet bgs (Confidential Attachment B, Paleontological Records Search Results).

An unofficial records search of literature returned the following localities from the same or similar sediments that underlie the Project site:

- San Bernardino County Museum (SBCM) 5.1.14-5.1.21 locality, located approximately 6.3 miles southwest of the Project site, yielded mastodon, bison, and camel from 5 feet bgs from Pleistocene sediments (Caltrans 2014).
- Approximately 13.37 miles northwest of the Project site, LACM VP 2027 produced a mammoth from an unknown Pleistocene formation (NHMLA 2025).
- Approximately 16.82 miles southwest of the Project site, LACM VP 3363 yielded a fossil horse specimen from an unknown Pleistocene formation (NHMLA 2025).

4 Impact Analysis and Conclusions

4.1 Thresholds of Significance

The thresholds of significance used to evaluate the impacts of the proposed Project related to paleontological resources are based on Appendix G of the CEQA Guidelines. A significant impact under CEQA would occur if the proposed Project would:

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

4.2 Impact Analysis

a) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

No paleontological resources were identified from within the proposed Project site as a result of the paleontological records search and literature review. No localities were reported or found from within the 1-mile radius buffer, but there are several localities nearby, from the same or similar sediments that likely

underlie the Project site at depth, as determined by the desktop geological and paleontological review. In addition, the Project site is not anticipated to be underlain by a unique geological feature. The Holocene alluvial fan/alluvial deposits underlying the Project site have low paleontological resource sensitivity at the surface that transitions to high sensitivity at depth where the sediments become older. Based on the records search and map and literature review results, the Project site has high potential to produce paleontological resources during planned construction activities that occur below the level of fill and previously disturbed sediments and/or below 5 feet. In the event that intact paleontological resources are discovered on the Project site, ground-disturbing activities associated with construction of the Project, such as grading and large diameter drilling during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. The potential for Project activities to damage paleontological resources during construction would result in a potentially significant impact. Mitigation Measure (MM) GEO-1, presented below, would reduce potentially significant impacts to a **less-than-significant** level by requiring preparation of a Paleontological Resources Impact Mitigation Program, which would involve pre-construction worker awareness training as well as paleontological monitoring and discovery protocol, treatment, reporting, and collection management.

MM GEO-1: Prior to commencement of any grading activity on site, the Project applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) 2010 guidelines to prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for pre-construction meeting attendance and worker environmental awareness training; where paleontological monitoring is required within the Project site based on construction plans and/or geotechnical reports; and procedures for adequate paleontological monitoring and discoveries treatment, including paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. The PRIMP shall also include a statement that any fossil lab or curation costs (if necessary due to fossil recovery) are the responsibility of the Project applicant.

In addition, a qualified paleontological monitor shall be on site during all ground-disturbing activities (including augering) below a depth of 5 feet. No paleontological monitoring is necessary during ground disturbance within artificial fill or previously disturbed sediments, if determined to be present. In the event that paleontological resources (e.g., fossils) are unearthed during grading, construction will temporarily halt and/or divert grading activity in that area and wait to allow recovery of paleontological resources by a paleontological monitor. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find.

5 References

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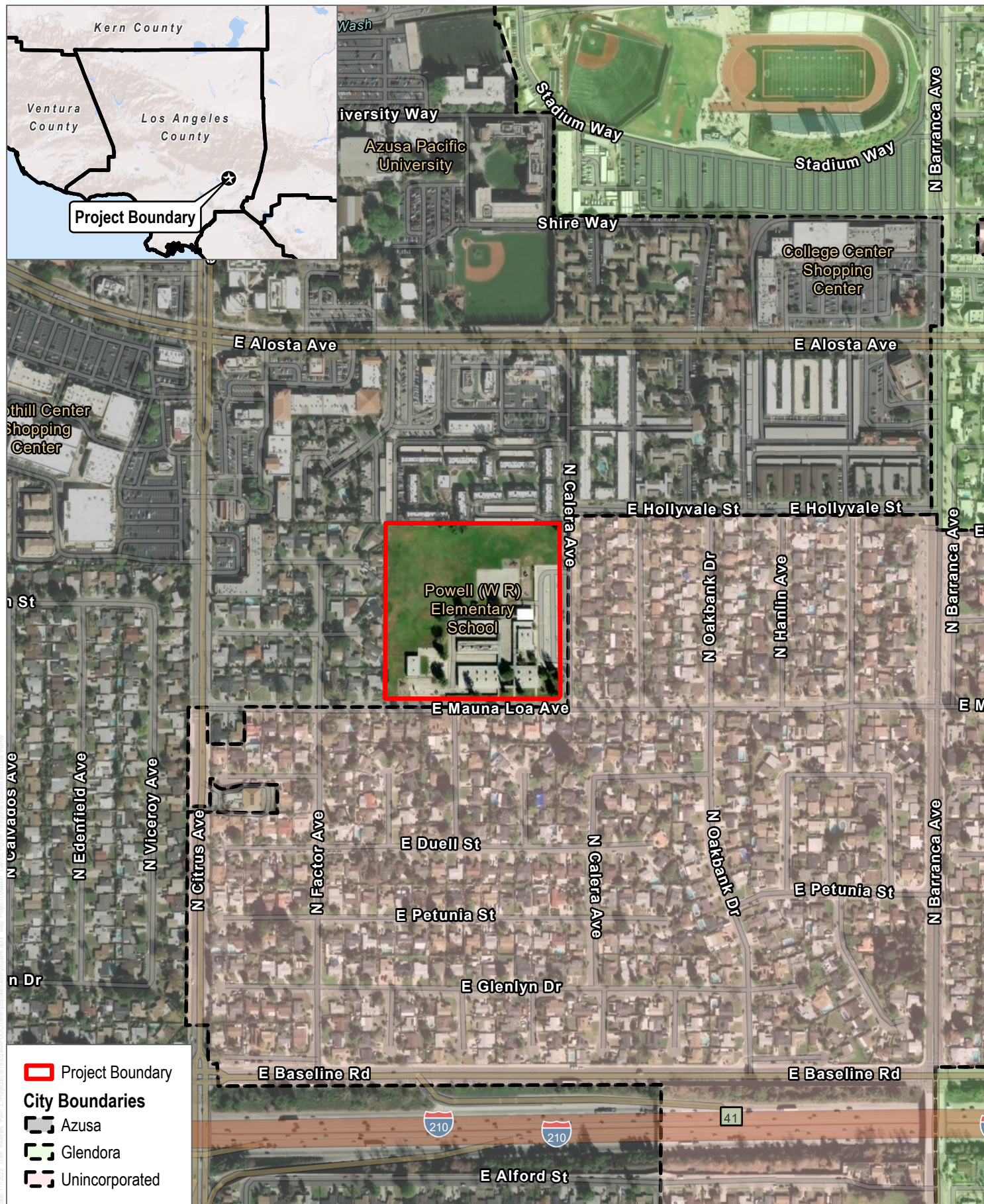
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Attachment A

Figures



SOURCE: World Imagery

DUDEK



0 250 500 Feet

FIGURE 1
Regional Location and Local Vicinity
Delaney Square Residential Project

Confidential Attachment B

Paleontological Records Search Results