

March 24, 2023

14391

RIVERSIDE PROPERTY OWNER LLC.  
136 Calle de Los Molinos  
San Clemente, CA 92672  
Contact: Jamie Chapman**Subject: Paleontological Resources Inventory Memorandum for the 5261 Arlington Avenue Project, City of Riverside, Riverside County, California**

Dear Jamie Chapman:

This letter documents the results of the paleontological resources inventory conducted by Dudek in support of the proposed 5261 Arlington Avenue Mixed-Use Project (project) in the city of Riverside (City), California. The approximately 17.43-gross-acre project site is located at the northeast corner of Arlington Avenue and Streeter Avenue. (Figure 1 – Project Location Map). The project site consists of assessor parcel number (APN) 226-180-015-1; specifically located at 5261 Arlington Avenue, Riverside CA 92506. Project parcel throughout this document is based upon net acreage of 17.37 acres. The Project also includes approximately 1.5 miles of offsite impacts.

To determine the paleontological sensitivity of the project site, Dudek performed a paleontological resources inventory for the project to comply with the California Environmental Quality Act (CEQA) and Society of Vertebrate Paleontology (SVP 2010) guidelines for successful paleontological mitigation. The inventory consisted of a Natural History Museum of Los Angeles County (LACM) and Western Science Center (WSC) paleontological records search and review of geological mapping and geological and paleontological literature. The results of the paleontological records searches were negative for paleontological resources within the project site; however, the LACM reported six fossil localities near the project site, and the WSC reported numerous fossil localities across Southern California from Pleistocene geological units.

## 1 Project Description

The project would include the demolition of the existing vacant 192,139 square foot (sf) former Sears buildings (Sears building and all appurtenances) and remove existing vegetation including trees. Sears Auto Center is a 13,713-sf structure. The 178,426 sf Sears structure consists of a 90,526 sf basement and 87,900 sf ground level. A protection fence with windscreen material will be installed around the site during demolition to obscure views of the site.

The project proposes development of approximately 576,203 sf of residential and commercial-retail uses and provide several amenities including: onsite leasing office, tuck-under garages, carports, public dog park, outdoor resort style pool and spa, fitness area, clubhouse, shade structures with barbeques and tables, multi-use turf areas, outdoor gaming and play spaces. The project also proposes a variety of rooftop and carport solar panels with a fixed tilt of 10 degrees with no rotation, and an orientation of 90 degrees.

The residential portion of the project site will be surrounded by a 6-foot-high tubular steel fence, 6 foot high block wall, or combination block wall/steel fence. The project includes details for walls and fences within the site and around the perimeter of the site as well as sign plans, fountain wall, dog park gates, vehicular gates, and access gates for residential access.

Grading of the site would be accomplished with scrapers, motor graders, water trucks, dozers, and compaction equipment. It is anticipated Building materials would be off-loaded and installed using small cranes, boom trucks, forklifts, rubber-tired loaders, rubber-tired backhoes, and other small- to medium-sized construction equipment as needed.

The project will also be required to trench approximately 1.5 miles offsite to connect to existing riverside Public Utilities electric facilities. Trenching will occur within existing ROW and will include approximately 0.5 miles in Streeter Avenue from Arlington Avenue to Central Avenue; approximately 0.5 miles in Central Avenue from Streeter Avenue to Hillside Avenue; and approximately 0.5 miles in Hillside Avenue Central Avenue to Mountain View Avenue. It is anticipated that trenching may be as deep as 7 to 8 feet below ground. There is some existing conduit and vaults within this alignment but in order to connect to existing facilities, the project will be required to provide areas of new 6.5-inch conduit and approximately 10 electric vaults sized at 8 feet by 14 feet.

## 2 Paleontological Resources

Paleontological resources are the remains or traces of plants and animals that are preserved in earth's crust, and per the Society of Vertebrate Paleontology ([SVP] 2010) guidelines, are older than written history or older than approximately 5,000 years. They are limited, nonrenewable resources of scientific and educational value and are afforded protection under state laws and regulations. This study satisfies requirements in accordance with state guidelines (13 California Public Resources Code [PRC], 21000 et seq.) and PRC Section 5097.5 (Stats 1965, c 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by SVP (2010). Table 1 provides definitions for high, undetermined, low, and no paleontological resource potential, or sensitivity, as set forth in and by the SVP (2010) Guidelines for Determining Significance: Paleontological Resources.

**Table 1. Paleontological Resource Sensitivity Criteria**

Resource Sensitivity / Potential	Definition
High	<p>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 volcaniclastic 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 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.</p>
Undetermined Potential	<p>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) 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.</p>
Low Potential	<p>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.</p>
No Potential	<p>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.</p>

Source: SVP (2010)

## 2 Regulatory Framework

### 2.1 California Environmental Quality Act

The CEQA Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, 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 [Public Resources Code], 21000 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 fossils of signal importance – remains of species or genera new to science, for example, or fossils exhibiting features not previously recognized for a given animal group – as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth.

### 2.2 PRC Section 5097.5

The PRC 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.

## 3 Methods

### 3.1 Geological Map Review, Literature Review, and Paleontological Records Search

Published geological maps and published and unpublished reports were reviewed to identify geological units on the site and determine their paleontological sensitivity.

A paleontological records search request was sent to the LACM and WSC on February 8, 2023. The purpose of the records searches 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.

## 4 Results

### 4.1 Geological Map Review, Literature Review, and Paleontological Records Search

The project site lies within the northernmost Peninsular Ranges Geomorphic Province, which extends from the tip of the Baja California Peninsula to the Transverse Ranges (the San Gabriel and San Bernardino Mountains) and includes the Los Angeles Basin, offshore islands (Santa Catalina, Santa Barbara, San Nicholas, and San Clemente), and continental shelf. The eastern boundary is the Colorado Desert Geomorphic Province (California Geological Survey 2002; Morton and Miller 2006). The ancestral 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 latter portion of the Mesozoic era (approximately 125 to 90 million years ago) (Abbott 1999).

According to the published geological mapping at a scale of 1:24,000 by Dibblee and Minch (2004), the project site is underlain by Pleistocene (approximately 11,700 years ago to 2.6 million years ago; Cohen et al. [2022]) alluvial fan deposits (map unit Qoa). The geotechnical report indicated the project site is immediately underlain by artificial fill to a maximum depth of 6.5 feet below the ground surface (bgs), followed by Holocene alluvial deposits to a maximum depth of 20 feet bgs, and Pleistocene alluvial deposits underlying the Holocene alluvial deposits (Alta California Geotechnical 2020). According to the test pits and geotechnical borings, the depth of Pleistocene alluvial deposits is variable across the project site, with the northern portion of the project site containing Pleistocene alluvial deposits immediately underlying the thin veneer of artificial fill.

While Holocene alluvial deposits are generally too young to yield significant paleontological resources, Pleistocene alluvial deposits are known to produce significant fossils in this part of Riverside County. Jefferson (1991) reported a fossil mammoth (*Mammuthus* sp.) from Riverside and fossil fish (Osteichthyes), reptile (Sauria), rabbit (Lagomorpha), rodent, (*Microtus* sp.), deer (*Odocoileus* sp.), mastodon (*Mammut* sp.), horse (*Equus* sp.), camel (cf. *Camelops* sp.), and bison (*Bison* sp.) from Corona.

The LACM and WSC records search results letters were received on February 19, 2023 and March 3, 2023, respectively. No records of fossil localities were found within the boundaries of the project site; however, the LACM reported six fossil localities in the vicinity of project site, and the WSC reported numerous fossil localities from Pleistocene geological units across Southern California (Confidential Attachment A). The fossil localities are summarized in Table 2 below.

**Table 2. LACM Paleontological Records Search Results**

Locality Number	Location	Formation or Unit	Taxa	Depth (ft bgs)
LACM VP 4619	Wineville Avenue in Eastvale	Unknown Pleistocene unit	Mammoth ( <i>Mammuthus</i> )	100
LACM VP 7811	West of Orchard Park in Chino Valley	Unknown Pleistocene unit	Whip snake ( <i>Masticophis</i> )	9 to 11
LACM VP 7268 and 7271	South of Los Serranos Golf Course	Unknown Pleistocene unit	Horse ( <i>Equus</i> )	Unknown

**Table 2. LACM Paleontological Records Search Results**

Locality Number	Location	Formation or Unit	Taxa	Depth (ft bgs)
LACM VP 1207	One mile north-northwest of Corona	Unknown Pleistocene unit	Bovidae	Unknown
LACM VP 4550	San Jacinto Valley	Unknown Pleistocene unit	Horse (Equidae)	Unknown

VP, Vertebrate Paleontology; bgs below the ground surface

## 5 Summary and Management Recommendations

No paleontological resources were identified within the project site as a result of the institutional records search, desktop geological review. The paleontological records searches conducted by the LACM revealed six nearby fossil localities, and the WSC reported numerous fossil localities from similar Pleistocene geological units across Southern California. Pleistocene alluvial deposits immediately underlying the artificial fill in the northern portion of project site and at variable depths within the central and southern portions of the project site, have high paleontological sensitivity; Holocene alluvial deposits have low paleontological sensitivity on the surface, increasing with depth; and artificial fill has no paleontological sensitivity. Based on the records search results and map and literature review, the project site has high potential to produce paleontological resources during planned construction activities in areas underlain by Pleistocene alluvial deposits. 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. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. With implementation of the following recommended mitigation measure (MM), impacts would be reduced to below a level of significance. Impacts of the project are considered less than significant with mitigation incorporated during construction.

**MM GEO-1:** Paleontological Resources Impact Mitigation Program and Paleontological Monitoring. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (2010) guidelines. The qualified paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the project that shall be consistent with the SVP (2010) guidelines and outline requirements for preconstruction meeting attendance and worker environmental awareness training, where paleontological monitoring is required within the project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. A qualified paleontological monitor shall be on site during initial rough grading and other significant ground-disturbing activities (including augering) in areas underlain by Pleistocene alluvial deposits and below a depth of five feet below the ground surface in areas underlain by Holocene alluvium to determine if they are old enough to preserve scientifically significant paleontological resources. No paleontological monitoring is necessary during ground disturbance within artificial fill. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow

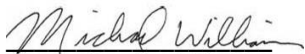
To: Jamie Chapman  
Subject: Paleontological Resources Inventory Memorandum for the 5261 Arlington Avenue Project, City of Riverside,  
Riverside County, California

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recovery of paleontological resources. 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.

Should you have any questions relating to this report and its findings please contact Michael Williams ([mwilliams@dudek.com](mailto:mwilliams@dudek.com)) or Sarah Siren ([ssiren@dudek.com](mailto:ssiren@dudek.com)).

Respectfully Submitted,



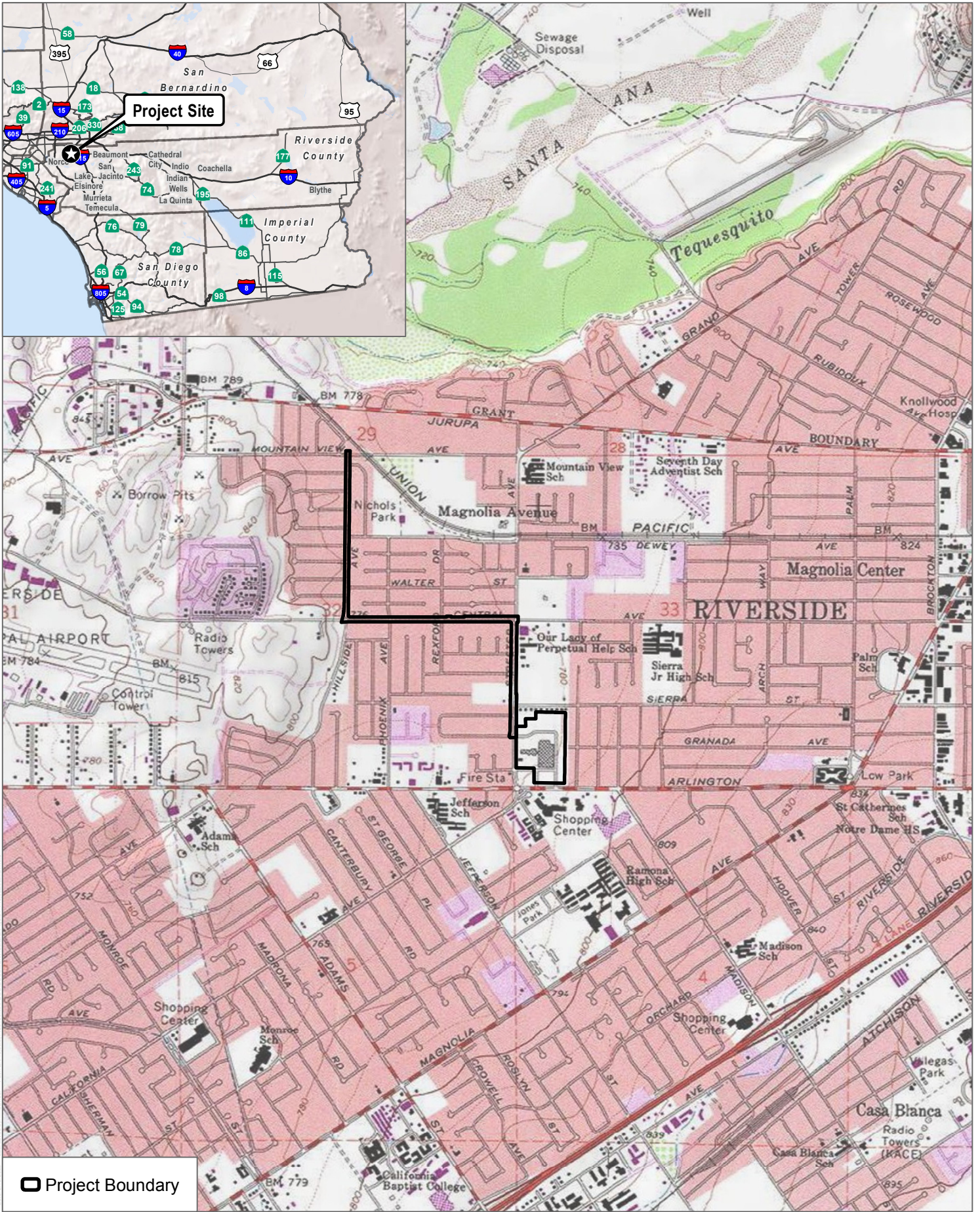
**Michael Williams, Ph.D.**  
Senior Paleontologist  
Mobile: 225.892.7622  
Email: [mwilliams@dudek.com](mailto:mwilliams@dudek.com)


Att.: *Figure 1, Regional Location Map*  
*Attachment A, Confidential Paleontological Records Search Results*

cc: *Sarah Siren, Dudek*

## 6 References

- Abbott, P.L. 1999. "The Rise and Fall of San Diego: 150 Million Years of History Recorded in Sedimentary Rocks." San Diego, California: Sunbelt Publications.
- Alta California Geotechnical, Inc. 2020. Geotechnical Investigation, 5261 Arlington Avenue, City of Riverside, California. Prepared for Foulger-Pratt.
- California Geological Survey. 2002. California Geomorphic Provinces: Note 36. 4 pp.
- Dibblee, T.W. and J.A. Minch. 2004. Geologic map of the Riverside West / South ½ of Fontana Quadrangles, San Bernardino and Riverside Counties, California, Dibblee Geological Foundation, Dibblee Foundation Map DF-128, 1:24,000.
- Jefferson, G.T. 1991. A Catalog of Late Quaternary Vertebrates from California. Natural History Museum of Los Angeles County, Technical Reports 7:1-174. Unpublished revision: 18 May 2012.
- Morton, D.M., and F.K. Miller. 2006. Geologic Map of the San Bernardino and Santa Ana 30-minute x 60-minute quadrangles, California, Geology and Description of Map Units, Version 1.0: U.S. Geological Survey, Open-File Report OF-2006-1217. 194 pp.
- SVP (Society of Vertebrate Paleontology). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. [https://vertpaleo.org/Membership/Member-Resources/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](https://vertpaleo.org/Membership/Member-Resources/SVP_Impact_Mitigation_Guidelines.aspx).



 Project Boundary

SOURCE: USGS 7.5-Minute Series Riverside West Quadrangle  
 Township 2S; Range 5W; Sections 33, Township 3S; Range 5W; Sections 04



**FIGURE 1**  
 Project Location  
 5261 Arlington Avenue



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# **Attachment A**

Paleontological Records Search Results (Confidential)

Natural History Museum  
of Los Angeles County  
900 Exposition Boulevard  
Los Angeles, CA 90007

tel 213.763.DINO  
www.nhm.org

Research & Collections

e-mail: [paleorecords@nhm.org](mailto:paleorecords@nhm.org)

February 19, 2023

Dudek

Attn: Michael Williams

re: Paleontological resources for the Arlington Mixed-Use Project (PN: 14391) Project

Dear Michael:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Arlington Mixed-Use project area as outlined on the portion of the Riverside West USGS topographic quadrangle map that you sent to me via e-mail on February 8, 2023. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

<b>Locality Number</b>	<b>Location</b>	<b>Formation</b>	<b>Taxa</b>	<b>Depth</b>
LACM VP 4619	Wineville Ave, Eastvale, CA	Unknown Formation (Pleistocene)	Mammoth ( <i>Mammuthus</i> )	100 feet bgs
LACM VP 7811	W of Orchard Park, Chino Valley	Unknown formation (eolian, tan silt; Pleistocene)	Whip snake ( <i>Masticophis</i> )	9-11 feet bgs
LACM VP 7268, 7271	Sundance Condominiums, S of Los Serranos Golf Course	Unknown (Pleistocene)	Horse ( <i>Equus</i> )	Unknown
LACM VP 1207	Hill on east side of sewage disposal plant; 1 mile N-NW of Corona	Unknown formation (Pleistocene)	Bovidae	Unknown
LACM VP 4540	Junction of Jackrabbit Trail & Gilman Springs Road; San Jacinto Valley	Unnamed Formation (Pleistocene, gravel pit)	Horse Family (Equidae)	Unknown

*VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface*

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As

such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

A handwritten signature in black ink that reads "Alyssa Bell". The signature is written in a cursive style and is set against a light beige rectangular background.

Alyssa Bell, Ph.D.  
Natural History Museum of Los Angeles County

enclosure: invoice



March 3<sup>rd</sup>, 2023

DUDEK  
Michael Williams  
605 Third Street  
Encinitas, CA 92024

Dear Mr. Williams,

This letter presents the results of a record search conducted for Arlington Mixed-Use Project located in the city of Riverside, Riverside County, CA. The project site is located north of Arlington Avenue, south of Sierra Street, east of Streeter Avenue, and west of Capistrano Way on Section 33 of Township 2 South, Range 5 West on the *Riverside West, CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as alluvial fan deposits of sand and gravel from the Pleistocene epoch (Dibblee and Minch 2004). Pleistocene units are considered to be fossiliferous and highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a one mile radius, but does have localities from similar mapped units across Southern California.

Any fossil specimens recovered from Arlington Mixed-Use Project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils from the study area.

If you have any questions please feel free to contact me at [bstoneburg@westerncentermuseum.org](mailto:bstoneburg@westerncentermuseum.org).

Sincerely,

A handwritten signature in black ink, appearing to read 'Brittney Stoneburg', written in a cursive style.

Brittney Elizabeth Stoneburg, MSc  
Collections Manager