

PALEONTOLOGICAL ASSESSMENT FOR THE VERDEMONT HEIGHTS (TTM 20707) PROJECT

**CITY OF SAN BERNARDINO
SAN BERNARDINO COUNTY, CALIFORNIA**

APNs 0261-011-02, -03, -10, 0348-121-14, -27, and -28

Prepared on Behalf of:

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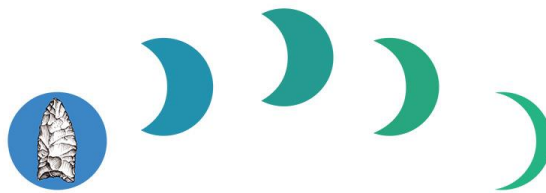
Submitted to:

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290 North D Street
San Bernardino, California 92401**

Prepared by:

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August 14, 2024



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Paleontological Database Information

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Report Date: August 14, 2024

Report Title: Paleontological Assessment for the Verdemont Heights (TTM
20707) Project, City of San Bernardino, San Bernardino County,
California

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USGS Quadrangle: Section 36, Township 2 North, Range 5 West, and Section 1,
Township 1 North, Range 5 West, of the *San Bernardino North*,
California USGS 7.5' topographic quadrangle map

Study Area: 107.7 acres

Assessor's Parcel Numbers: 348-121-14, -27, and -28; 261-011-02, -03, and -10

Key Words: Paleontological assessment; Pleistocene and Holocene alluvial
fan (debris flow) deposits; low paleontological resource
sensitivity; monitoring not recommended.

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I. INTRODUCTION AND LOCATION

This paleontological resource assessment has been completed for the Verdemont Heights (Tentative Tract Map [TTM] 20707) Project, located at the northern corner of the city of San Bernardino, San Bernardino County, California (Figures 1 and 2). The Verdemont Heights (TTM 20707) Project is situated at the northeast corner of the intersection of Verdemont Drive and Antique Street. The 107.7-acre project consists of six parcels (Assessor's Parcel Numbers [APNs] 0261-011-02, -03, -10, 0348-121-14, -27, and -28) situated within Section 36 in Township 2 North, Range 5 West, and in Section 1 in Township 1 North, Range 5 West, of the *San Bernardino North, California* United States Geological Survey (USGS) 7.5' topographic quadrangle map (Figure 2). Plans for the project consist of the construction of a 115-lot residential subdivision, including open space trails, debris catchment basins, and storm water runoff basins. The northernmost portion of the project parcels are not planned for development. The southern project area is characterized by relatively flat land that was previously used as farmland, while the northern portion of the project has remained relatively undeveloped and contains steep slopes, dense vegetation, and bedrock outcrops.

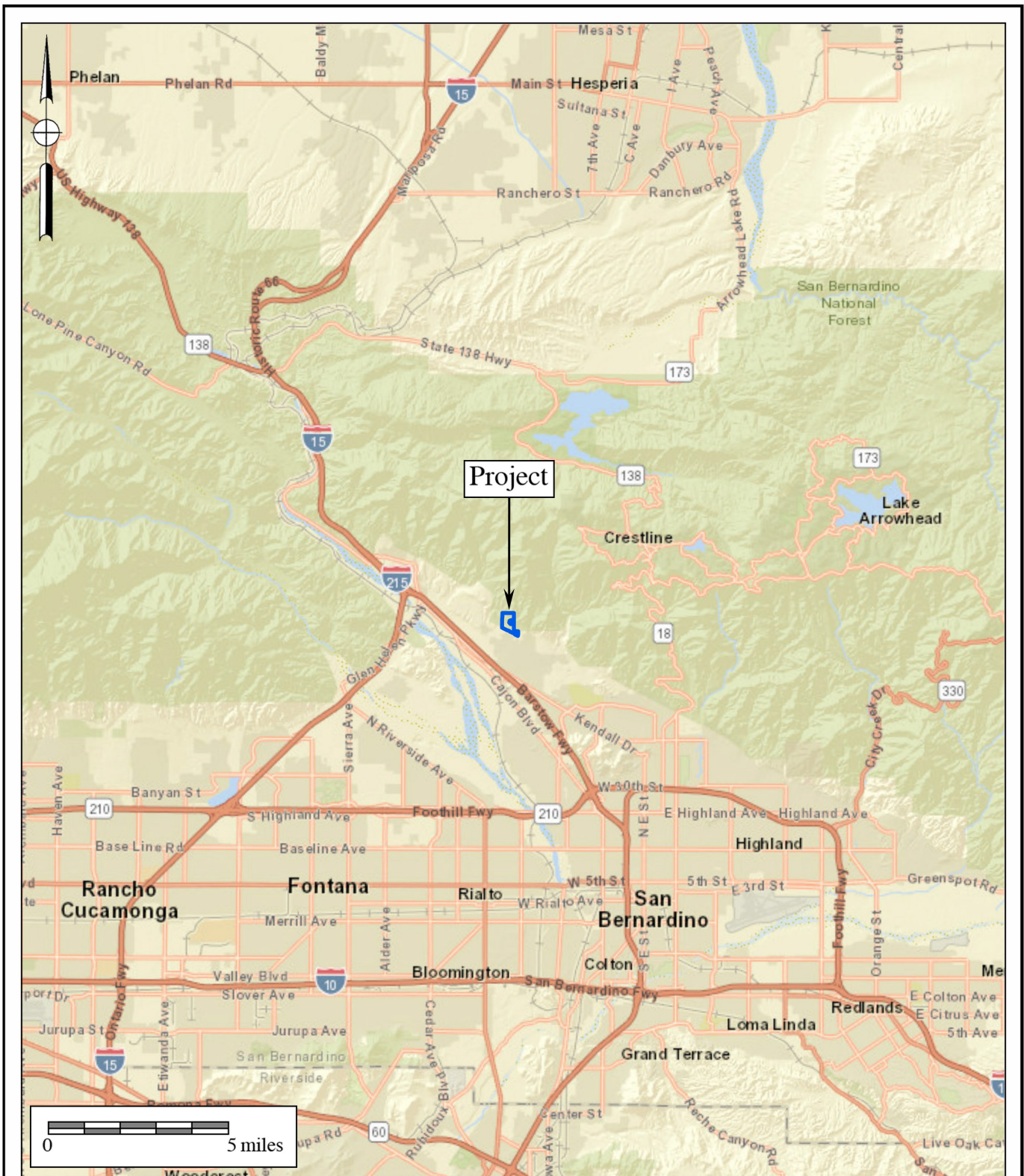
As the lead agency, the City of San Bernardino required preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records in the area, a review of the underlying geology, and recommendations to mitigate impacts to potential paleontological resources, if necessary.

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding regulation that sets the requirement for protecting California's cultural and paleontological resources. CEQA does not establish specific rules that must be followed but mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

State of California

Under "Guidelines for Implementation of the California Environmental Quality Act," as amended in December 2018 (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3, Sections 15000 et seq.), procedures define the types of activities, persons, and public agencies required to comply with CEQA. Section 15063 of the CCR provides a process by which a lead agency may review a project's potential impact on the environment, assess whether the impacts are significant, and provide recommendations, if necessary.



BFS Environmental Services
A Perennial Company

Figure 1 General Location Map

The Verdernont Heights Project
ESRI Street Map

In CEQA's Environmental Checklist Form, a question to respond to is, "would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (Appendix G, Section VII, Part f). This is to ensure compliance with California Public Resources Code Section 5097.5, the law that protects nonrenewable resources including fossils, which is paraphrased below:

- a) A person shall not 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 such lands.
- b) As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.
- c) A violation of this section is a misdemeanor.

City of San Bernardino

The City of San Bernardino does not have goals or policies related to paleontological resources in their General Plan (City of San Bernardino 2005). However, the City recognizes that paleontological resources are "important assets for City residents," under CCCI-2, Historic Structures, Districts and the Depot (City of San Bernardino 2005: Appendix 7: 6). According to the City's website, an update of their general plan is currently ongoing.

III. GEOLOGY

The Verdemon Heights (TTM 20707) Project is situated near Cajon Pass, the divide between the San Gabriel Mountains and the San Bernardino Mountains of the greater Transverse Ranges in southern California. The project lies at the foot of the southern slopes of the San Bernardino Mountains. Cajon Pass is a geomorphic expression of the San Andreas Fault.

As shown on Figure 3 (after Miller et al. 2001; Morton and Matti 2001), the geology of the project is mapped as alluvial fan deposits with various depositional ages. The oldest alluvial fan deposits are very old from the early Pleistocene (brown areas labeled "Qvof₁" in Figure 3), followed by late Pleistocene old alluvial fan deposits (amber areas labeled "Qof₃"), and finally by early Holocene and late Pleistocene ("Qyf₁"), early Holocene ("Qyf₂"), and late and middle Holocene young alluvial fan deposits ("Qyf₃"). The younger fan deposits consist of sand and pebble to boulder-sized gravels that have unsorted clast and matrix-supported debris-flow fabrics; the old alluvial fan deposits (Qof₃) are similar to the younger deposits but are capped with pedogenic horizons as well as display matrix-supported debris-flow fabrics. The very old alluvial

fan deposits (Qvof₁) consist of consolidated and indurated sandy gravels and gravely sands that rarely have the fan morphology preserved (Miller et al. 2001). The rocks and gravels are derived from the slopes of the mountains north of the project, mostly comprised of various Mesozoic plutonic and metamorphic rocks. Bedrock composed of a mix of Mesozoic-aged metamorphic and plutonic rocks are mapped within the northeast portion of the project (white area with red dashes labeled “Mzdc”). Strands of the San Andreas Fault cross the northern portion of the project. Plans for the project development do not extend northward into areas mapped as Mesozoic bedrock.

IV. PALEONTOLOGICAL RESOURCES

Definition

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains (including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology [SVP] 2010) but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat, for example. Fossils are considered a nonrenewable resource under state and local guidelines (see Section II of this report).

Paleontological Resource Record Search

A prior paleontological literature review and collections and records search was conducted for the nearby San Bernardino Trailer Facility Project by the Los Angeles County Museum of Natural History (Bell 2021). The San Bernardino Trailer Facility Project is located about one mile southwest of the Verdemont Heights (TTM 20707) Project. The records search indicates that no known fossil localities are present within the San Bernardino Trailer Facility Project boundaries or within several miles of that project, and therefore, the Verdemont Heights (TTM 20707) Project.

Based on another prior paleontological records search conducted for the Casmalia and Linden Project, situated about five miles to the south, the San Bernardino County Museum (SBCM) recorded a fossil locality located approximately six miles to the southeast of the Verdemont Heights (TTM 20707) Project. The fossil locality, consisting of the remains of a mammoth, was recovered from Pleistocene old alluvial deposits during freeway construction work (SBCM locality [loc.] 1.102.1) (Kottkamp 2022; *San Bernardino County Sun* 1958). No other localities held by the SBCM are known within five miles of either project. A search of published literature also indicated there are no known nearby fossil localities (Jefferson 1986, 1991).

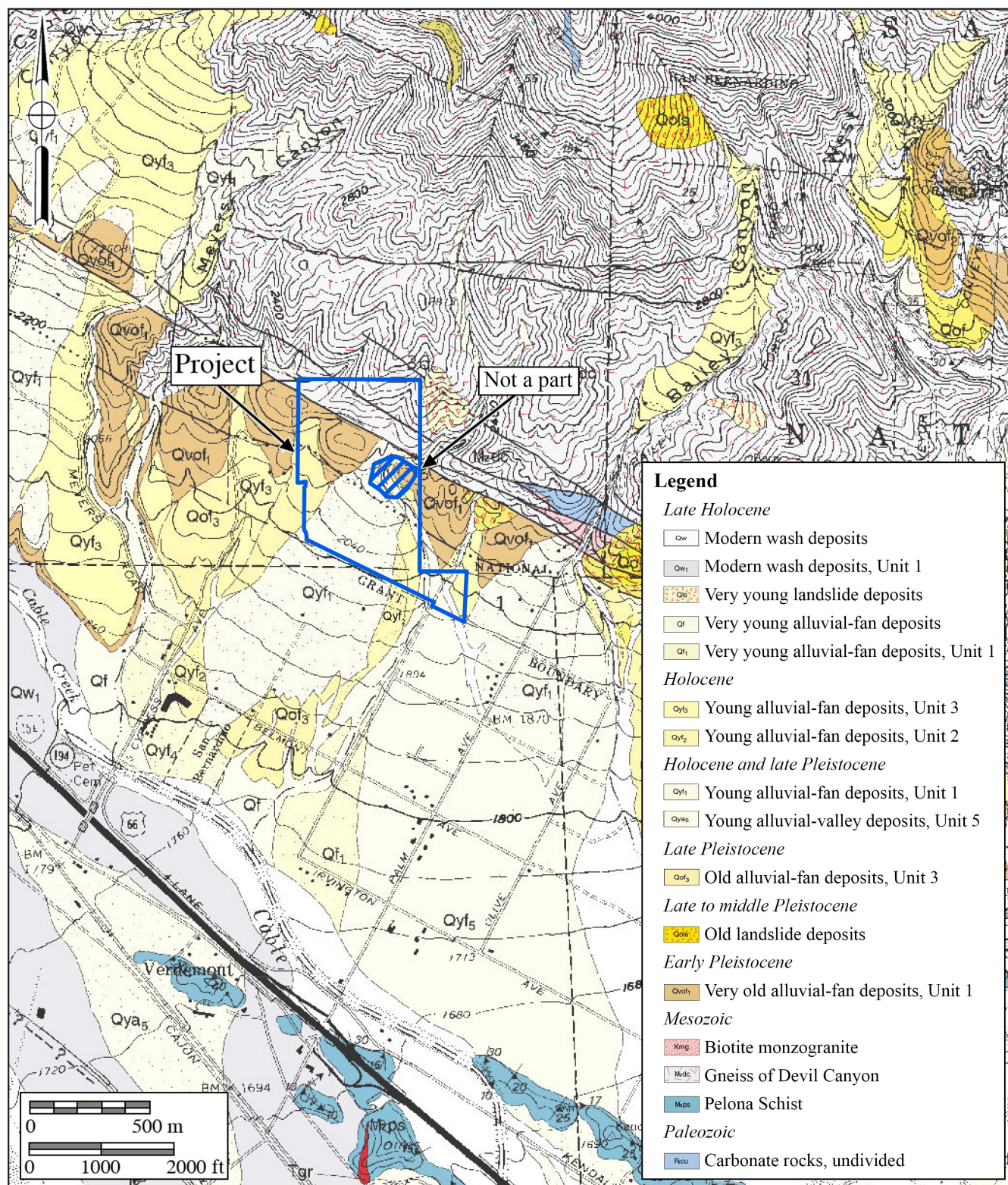


Figure 3
Geologic Map

The Verdemon Heights Project
Geology after Miller et al. (2001)

Field Survey

Staff from BFSA Environmental Services, a Perennial company (BFSa), under the supervision of BFSa paleontological Principal Investigator Todd A. Wirths, conducted a site visit on July 16 and 17, 2024. The field methodology employed for the project included walking evenly spaced survey transects set approximately 10 meters apart, oriented north to south in the eastern half of the project, and east to west in the western half, while visually inspecting the ground surface. Ground visibility was generally good in the southern half of the project (approximately 80 to 90 percent ground visibility) and poor in the northern half of the project (approximately 10 percent ground visibility). The southern half of the project was grubbed and cleared, therefore, vegetation within this portion of the project was sparse and limited to low-lying scrubs and grasses. Vegetation in the northern portion of the project was dense and consisted of inland sage scrub. Disturbed surface soils were the only earthen materials visible. No paleontological resources, or evidence of paleontological resources, were identified as a result of the survey.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to an accumulation of organic remains that may have become fossilized over time. Holocene alluvium is generally considered to be geologically too young to contain significant nonrenewable paleontological resources (*i.e.*, fossils) and is therefore typically assigned a low paleontological sensitivity. Pleistocene (greater than 11,700 years old) alluvial and alluvial fan deposits in the Inland Empire, however, are known to yield important “Ice Age” terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, and camel, saber-toothed cats, and others (Jefferson 1991). Therefore, these Pleistocene sediments are typically accorded a high paleontological resource sensitivity.

Professional Standards

The SVP has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as paraphrased below:

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment,

and that further study is needed to determine the potential of the rock unit.

- Low Potential: Rock units that are poorly represented by fossil specimens in institutional collections or based on a general scientific consensus that only preserve fossils in rare circumstances.
- No Potential: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Based on these criteria, the Holocene and Pleistocene alluvial fan (debris flow) deposits at the project have a low potential to yield significant paleontological resources. The nearest known Pleistocene-aged fossils are several miles away in flood plain deposits in San Bernardino Valley. Holocene alluvial deposits are generally too young to contain fossils.

VI. CONCLUSIONS AND RECOMMENDATIONS

While the Pleistocene-aged old and very old alluvial fan deposits are of sufficient geologic age to potentially contain fossils, their sedimentological structure and geologic context strongly suggest that their paleontological potential is low. These deposits, including the younger Holocene sequences, are likely the result of instantaneous, catastrophic flows of coarse, bouldery debris that originated from the mountain flanks during intense storm events. While a relatively rapid burial in fine-grained sediments is usually the typical scenario for preserving animal bones to become future fossils (on the order of months of time), debris flow deposits with cobbles and boulders would probably destroy any bones that happened to be present on the surface.

Based on the data and conclusions presented, monitoring for paleontological resources at the project is not recommended. A paleontological resource impact mitigation program (PRIMP) is not warranted for the project.

VII. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.



Todd A. Wirths
Senior Paleontologist
California Professional Geologist No. 7588

August 14, 2024

Date

VIII. REFERENCES

- Bell, A. 2021. Paleontological resources for the San Bernardino Trailer Facility Project. Unpublished letter for Brian F. Smith and Associates, Inc., Poway, California, by the Los Angeles County Museum of Natural History, Los Angeles, California.
- City of San Bernardino. 2005. San Bernardino General Plan, Appendix 7: Issues Report; <https://www.sbcity.org/civicax/filebank/blobdload.aspx?blobid=26199>.
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- Jefferson, G.T. 1991. A catalogue of late Quaternary vertebrates from California: Part two, mammals. Natural History Museum of Los Angeles County, Technical Reports, no. 7: i-v + 1-129.
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- Morton, D.M., and Matti, J.C. 2001. Geologic map of the Devore 7.5' quadrangle, San Bernardino County, California: USGS open-file report 01-173, v. 1.0.
- San Bernardino County Sun*. 1958. Workmen unearth relics. Page 11. June 21.
- Society of Vertebrate Paleontology. 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources; by the SVP Impact Mitigation Guidelines Revision Committee: Electronic document, https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf.

APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

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E ducation

Master of Science, Geological Sciences, San Diego State University, California 1995

Bachelor of Arts, Earth Sciences, University of California, Santa Cruz 1992

P rofessional C ertifications

California Professional Geologist #7588, 2003

Riverside County Approved Paleontologist

San Diego County Qualified Paleontologist

Orange County Certified Paleontologist

OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

P rofessional M emberships

Board member, San Diego Geological Society

San Diego Association of Geologists; past President (2012) and Vice President (2011)

South Coast Geological Society

Southern California Paleontological Society

E xperience

Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSAE nvironmental Services, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

S elected R ecent R eports

2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

- 2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Impact Mitigation Program for the Sunset Crossroads Project, Banning, Riverside County.* Prepared for NP Banning Industrial, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Assessment for the Ortega Plaza Project, Lake Elsinore, Riverside County.* Prepared for Empire Design Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Record Search Update for the Green River Ranch III Project, Green River Ranch Specific Plan SP00-001, City of Corona, California.* Prepared for Western Realco. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Assessment for the Cypress/Slover Industrial Center Project, City of Fontana, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Monitoring Report for the Imperial Landfill Expansion Project (Phase VI, Segment C-2), Imperial County, California.* Prepared for Republic Services, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Assessment for the Manitou Court Logistics Center Project, City of Jurupa Valley, Riverside County, California.* Prepared for Link Industrial. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Resource Impact Mitigation Program for the Del Oro (Tract 36852) Project, Menifee, Riverside County.* Prepared for D.R. Horton. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Assessment for the Alessandro Corporate Center Project (Planning Case PR-2020-000519), City of Riverside, Riverside County, California.* Prepared for OZI Alessandro, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Monitoring Report for the Boardwalk Project, La Jolla, City of San Diego.* Prepared for Project Management Advisors, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.