

# PALEONTOLOGICAL ASSESSMENT FOR THE PROSPECT AND 17<sup>TH</sup> PROJECT

**CITY OF TUSTIN,  
ORANGE COUNTY, CALIFORNIA**

**APNs 401-401-12 through -17**

**Prepared on Behalf of:**

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**Prepared for:**

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*March 13, 2025*



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## **Paleontological Database Information**

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***Report Date:*** March 13, 2025

***Report Title:*** Paleontological Assessment for the Prospect and 17<sup>th</sup> Project, City of Tustin, Orange County, California (APNs 401-401-12 through -17)

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***Assessor's Parcel Numbers:*** 401-401-12 to -17

***USGS Quadrangle:*** Unsectioned area of Township 5 South, Range 9 West, as shown on the USGS *Orange, California* (7.5-minute) Quadrangle

***Study Area:*** Approximately 8.5 acres

***Key Words:*** Paleontological assessment; Pleistocene old alluvial fan deposits; high sensitivity; monitoring recommended.

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## **I. INTRODUCTION AND LOCATION**

A paleontological resource assessment has been completed for the Prospect and 17<sup>th</sup> Project to comply with the California Environmental Quality Act (CEQA) and City of Tustin environmental requirements. The project is located at 17772, 17782, 17822, 17852, and 17862 East 17<sup>th</sup> Street, situated at the southeastern corner of the intersection of Prospect Avenue and East 17<sup>th</sup> Street in the city of Tustin, California (Figures 1 and 2). The approximately 8.5-acre project consists of six parcels (Assessor's Parcel Numbers [APNs] 401-401-12 to -17) and is situated within an unsectioned area of Township 5 South, Range 9 West, as shown on the United States Geological Survey (USGS) *Orange, California* (7.5-minute) topographic quadrangle map (see Figure 2). A new development is being considered for the project parcels (Figure 3). Currently, the parcels are occupied by an existing business park with five buildings, named the Tustin Financial Plaza.

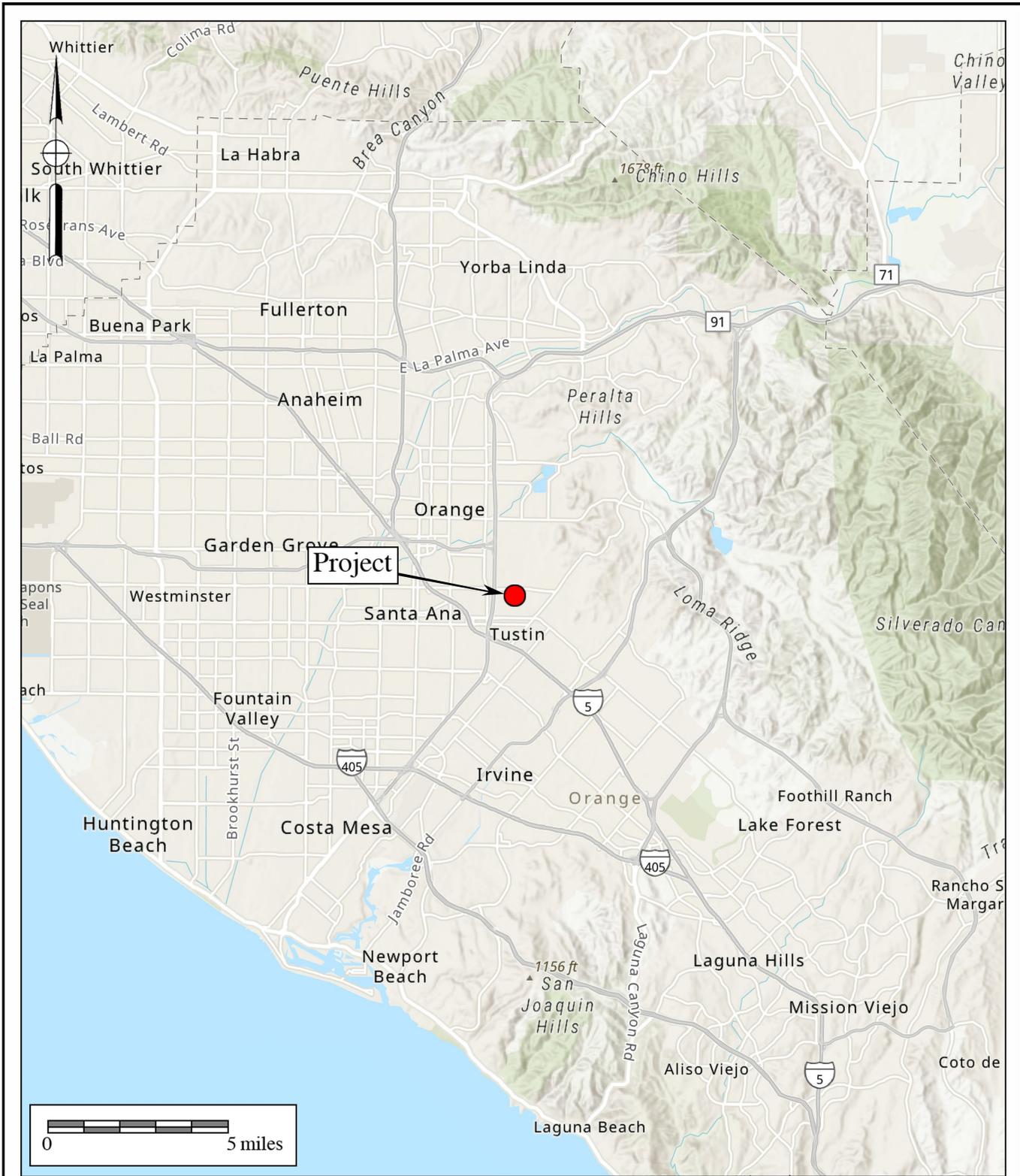
As the lead agency, the City of Tustin has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records in the area, a review of the underlying geology, and recommendations to mitigate impacts to potential paleontological resources, if necessary. A paleontological survey of the project was not performed, since the parcels are completely developed.

## **II. REGULATORY SETTING**

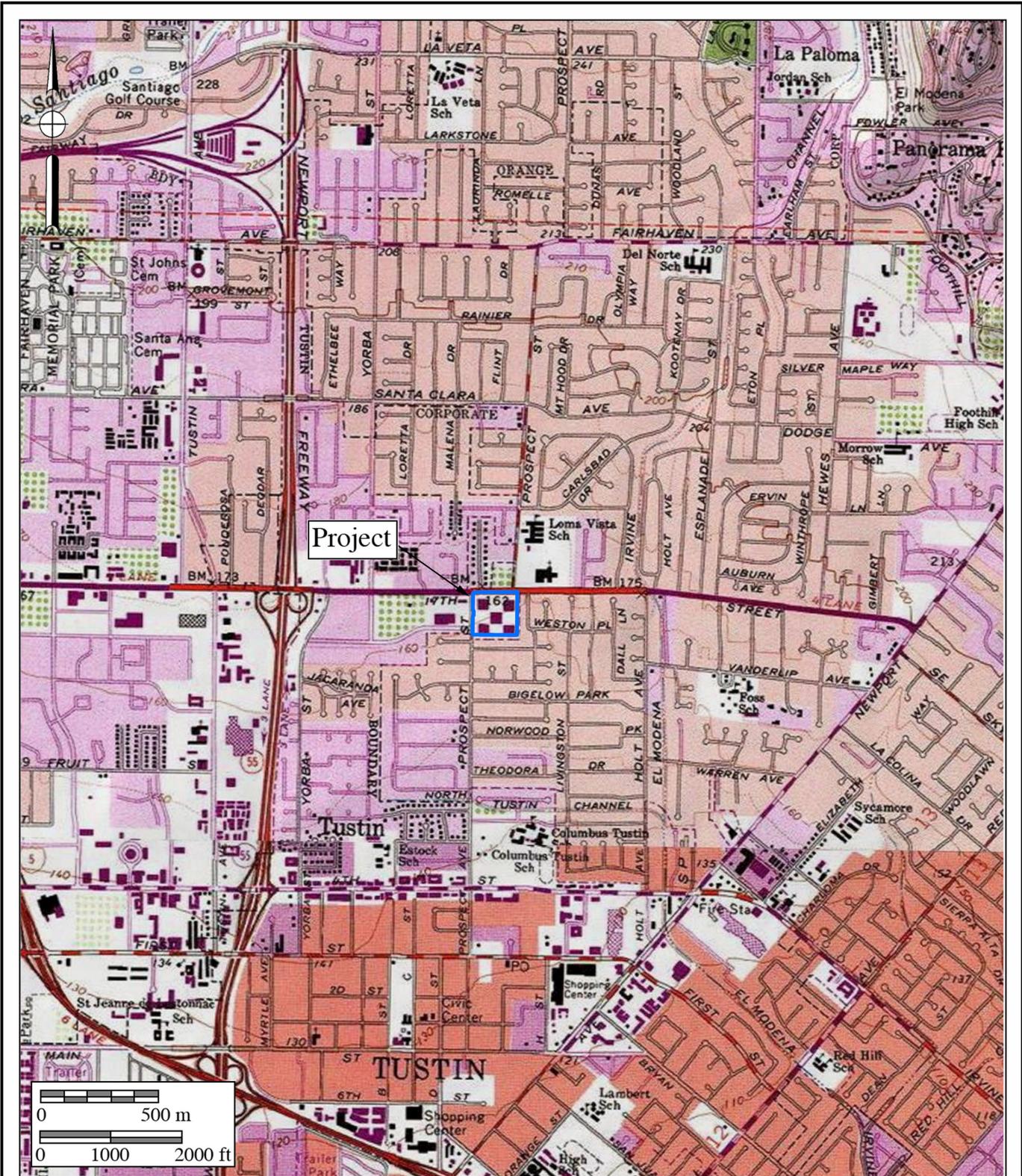
CEQA, which is patterned after the National Environmental Policy Act, is the overriding regulation that sets the requirement for protecting California's cultural and paleontological resources. CEQA mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection 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 to the environment, assess whether the impacts are significant, and if necessary, provide recommendations.



**Figure 1**  
**General Location Map**  
The Prospect and 17th Project  
ESRI World Topographic Map



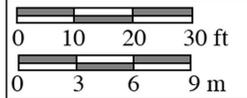
Project



**Figure 2**  
**Project Location Map**  
 The Prospect and 17th Project  
 USGS Orange Quadrangle (7.5-minute series)



**Legend**  
 Project Boundary



**Figure 3**  
**Conceptual Site Plan Map**  
 The Prospect and 17th Project

### City of Tustin

The General Plan of the City of Tustin recognizes that paleontological resources are a significant, nonrenewable resource (2018). The General Plan contains the following policies related to preserving paleontological resources:

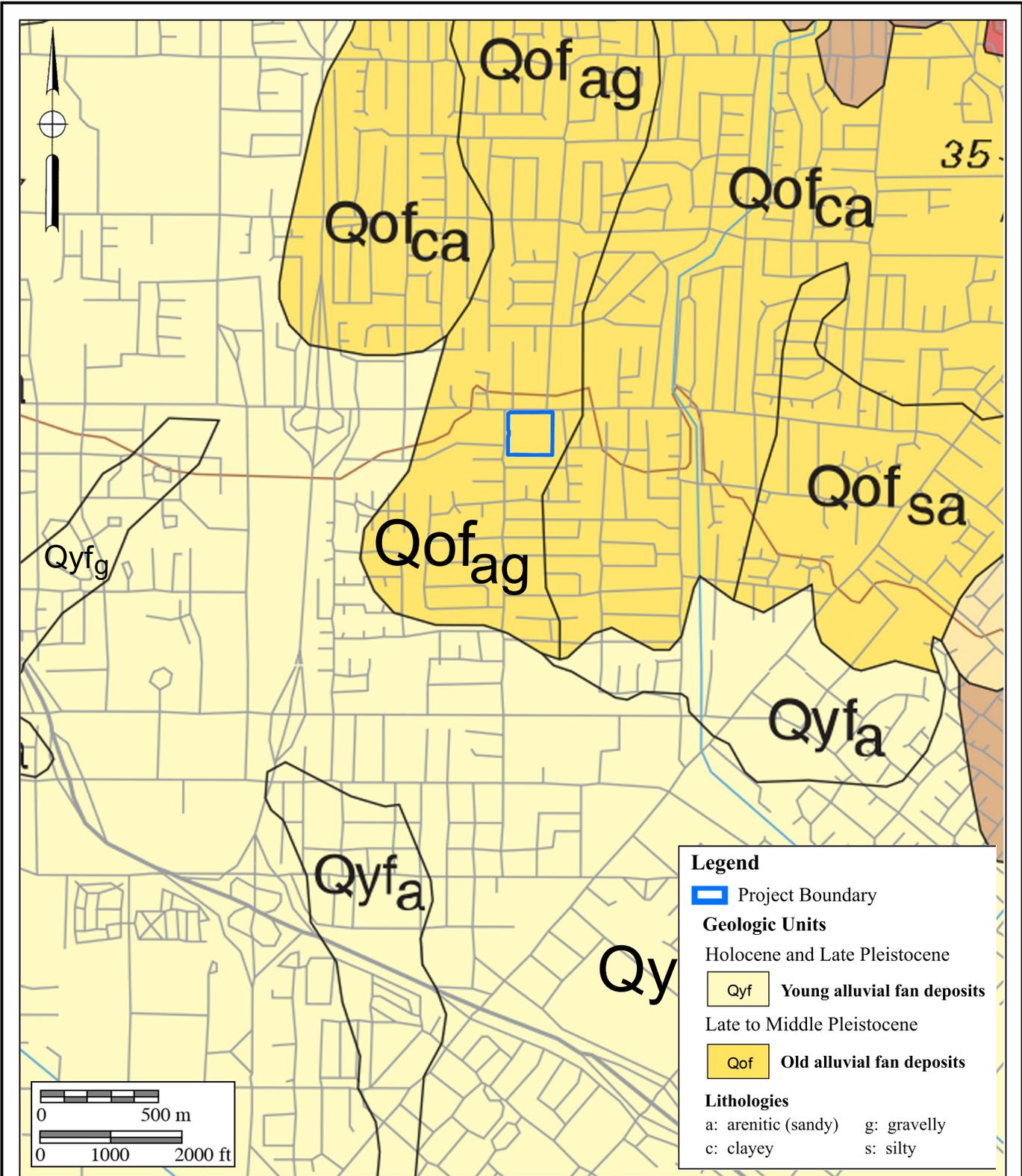
- Policy 12.2: Retain and protect significant areas of archaeological, paleontological, or historical value for education and scientific purposes.
- Policy 13.1: Require a site inspection by certified archaeologists or paleontologists for new development in designated sensitive areas.
- Policy 13.2: Require mitigation measures where development will affect archaeological or paleontological resources.

Furthermore, the General Plan includes an “Implementation Program,” which consists of “a series of actions, procedures, and techniques that carry out the Element policy through implementing a standard or program. The City Council, by incorporating the Implementation Program into the General Plan, recognizes the importance of long range planning considerations in day-to-day decision-making, subject to funding constraints” (City of Tustin 2018). Paleontological concerns under the Implementation Program are below:

30. Preserve Archaeologic and Paleontologic Resources: Preserve archaeological and paleontologic resources within the City by: a) requiring developers to perform archaeological and paleontological surveys prior to grading in areas known or suspected to contain such resources; and b) enforcing provisions of the California Environmental Quality Act regarding preservation or salvage of significant historic, archaeological and paleontological sites discovered during construction activities.

### **III. GEOLOGY**

Geologically, the surficial sediments across the project are mapped as middle to early Pleistocene-aged old alluvial fan deposits, characterized as moderately to well-consolidated silt, sand, and gravel (amber areas labeled “Qof” on Figure 4) (Morton and Miller 2006).



**Figure 4**  
**Geologic Map**

The Prospect and 17th Project  
Geology after Morton and Miller (2006)



## **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 2010) but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat. Fossils are considered a nonrenewable resource under state and local guidelines (see Section II of this report).

### Paleontological Resource Records Search

A paleontological locality and records search was conducted by the OC Parks Division of Orange County for a prior nearby project located at 17802 Irvine Boulevard in Tustin, less than one mile to the south of the current project (Richards 2022). The records search indicates that no fossil localities were identified within the project boundaries or near either project. The closest known fossil localities are located about five miles southeast of the Prospect and 17<sup>th</sup> Project, which consist of Pleistocene-aged marine invertebrate fossils and fish remains.

A review of published and unpublished literature was conducted for potential paleontological resources known in the vicinity of the project. Data reported in Miller (1971) and Jefferson (1991) indicates there are no known nearby fossil localities.

## **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 the 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 thus typically assigned a low paleontological sensitivity. Pleistocene (greater than 11,700 years old) alluvial and terrace deposits in the Orange County region, however, often 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). These Pleistocene sediments are accorded a high paleontological resource sensitivity.

### Professional Standards

The Society of Vertebrate Paleontology (2010) 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 upon these criteria, the Pleistocene deposits mapped at the project have a high potential to contain paleontological resources.

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

While there are no known records of fossil localities in the vicinity of the project, the Pleistocene old alluvial fan deposits mapped at the project have the potential to yield significant paleontological resources, based upon age, depositional environment, and regional fossil records. Therefore, paleontological monitoring is recommended during earth disturbance activities within undisturbed old alluvial fan deposits, starting at the surface. Monitoring of artificial fill or disturbed deposits that may be present is not recommended.

Based upon the conclusions and recommendations above, a Paleontological Resource Impact Mitigation Program (PRIMP) is warranted. The following PRIMP is suggested and, when approved by the City of Tustin and implemented, would reduce adverse impacts to potential paleontological resources to a level below significant.

### Suggested PRIMP

1. All mitigation programs shall be performed by a qualified professional (project) paleontologist, defined as an individual with a master's or doctorate in paleontology or geology who has proven experience and is knowledgeable in professional paleontological procedures and techniques. Fieldwork may be conducted by a qualified paleontological monitor, defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor shall always work under the direction of a qualified paleontologist.

2. Starting at the surface, monitoring shall be conducted full-time in areas of grading or excavation within undisturbed Pleistocene old alluvial fan deposits. Monitoring of artificial fill or disturbed deposits that may be present is not required.
3. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or, if present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources. The monitor shall notify the project paleontologist, who will then notify any concerned parties of the discovery.
4. Paleontological salvage during trenching and boring activities is typically from the generated spoils and will not delay trenching or drilling activities. Fossils will be collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Before the site is vacated and the fossils are moved to a safe place, notes are taken on the map location and stratigraphy of the site. On mass grading projects, discovered fossil sites are protected by flagging to prevent them from being overrun by earthmovers (scrapers) before salvage begins. Fossils will be collected in a similar manner, with notes and photographs being taken before removing the fossils. Precise location of the site is determined through use of handheld Global Positioning System units. If a large terrestrial vertebrate, such as a large bone or a mammoth tusk, is too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find(s), encase the find(s) within a plaster and burlap jacket, and remove the find(s) after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help move the jacket to a safe location.
5. In alluvial deposits, small invertebrate fossils typically represent multiple specimens of a limited number of species, and a scientifically suitable sample can be obtained from one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry screen the sediment in the field, a concentrated sample may consist of one or two buckets of material to check for the presence of invertebrates
6. In accordance with the "Microfossil Salvage" section of the Society of Vertebrate Paleontology guidelines (2010:7), bulk sampling and screening of fine-grained sedimentary (alluvial) deposits (including carbonate-rich paleosols) must be performed if the deposits are identified to possess indications of producing fossil "microvertebrates" to test the feasibility of the deposit to yield fossil bones and teeth. If indicators of potential microvertebrate fossils are found, screening of a test sample (approximately 600 pounds) is recommended, according to the Society of Vertebrate Paleontology guidelines. If feasible, wet screening shall be conducted on the project site. If screening yields significant fossils, then removing and processing a "standard

- sample” of 6,000 pounds shall be performed.
7. In the laboratory, individual fossils will be cleaned of extraneous matrix, any breaks will be repaired, and the specimen, if needed, will be stabilized by soaking in an archivally approved acrylic hardener (*e.g.*, a solution of acetone and Paraloid B-72).
  8. Recovered specimens will be prepared to a point of identification and permanent preservation (not display), including screen-washing sediments to recover small invertebrates and vertebrates. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
  9. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Los Angeles County Museum of Natural History or the Orange County Parks’ Cooper Center) shall be conducted. The paleontological program should include a written repository agreement prior to initiating mitigation activities. Prior to curation, the lead agency (the City of Tustin) will be consulted on the repository/museum to receive the fossil material.
  10. A final report of findings and significance will be prepared, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to and accepted by the appropriate lead agency, will signify satisfactory completion of the project program to mitigate impacts to any potential nonrenewable paleontological resources (*i.e.*, fossils) that might have been lost or otherwise adversely affected without such a program in place.

## **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.



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Todd A. Wirths, M.S., P.G.  
Principal Paleontologist  
California Professional Geologist No. 7588

March 13, 2025

Date

## **VIII. REFERENCES**

City of Tustin. 2018. City of Tustin General Plan. <https://www.tustinca.org/DocumentCenter/View/713/City-of-Tustin-General-Plan-PDF>

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.

Miller, W.E. 1971. Pleistocene vertebrates of the Los Angeles Basin and vicinity (exclusive of Rancho La Brea). Bulletin of the Los Angeles County Museum of Natural History; Science, Number 10, 124 pp.

Morton, D.M. and Miller, F.K. 2006. Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey Open-File Report 06-1217, scale 1:100,000.

Richards, M.M. 2022. Untitled paleontological records search letter for the 17802 Irvine Boulevard Project, for Brian F. Smith and Associates, Inc., Poway, California, by OC Parks, Irvine, California.

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: [https://vertpaleo.org/wp-content/uploads/2021/01/SVP\\_Impact\\_Mitigation\\_Guidelines.pdf](https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf).

**APPENDIX A**

**Qualifications of Key Personnel**

# Todd A. Wirths, MS, PG No. 7588

## Principal Paleontologist

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## Education

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

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

## Professional Certifications

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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

## Professional Memberships

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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

## Experience

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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 BFSA, 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.

## Selected Recent Reports

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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.