# Appendix “F”

*Paleontological Assessment for the TR38605 Project*

# PALEONTOLOGICAL ASSESSMENT FOR THE TR38605 PROJECT

## NORTHERN LAKE MATHEWS AREA RIVERSIDE COUNTY, CALIFORNIA

## TTM 38605

**APNs 270-070-005, -006, and -007, and 270-160-005**

***Prepared for:***

**Adkan Engineers**
**6879 Airport Drive**
**Riverside, California 92504**

***Submitted to:***

**Riverside County Planning Department**
**4080 Lemon Street, 12th Floor**
**Riverside, California 92501**

***Prepared by:***

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***May 31, 2023***

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# Paleontological Database Information

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| ***Report Date:*** | May 31, 2023 |
| ***Report Title:*** | Paleontological Assessment for the TR38605 Project, Northern Lake Mathews Area, Riverside County, California (TTM 38605) |
| ***Prepared for:*** | Adkan Engineers<br>6879 Airport Drive<br>Riverside, California 92504 |
| ***Submitted to:*** | Riverside County Planning Department<br>4080 Lemon Street, 12th Floor<br>Riverside, California 92501 |
| ***USGS Quadrangle:*** | Section 32 and 33, Township 3 South, Range 5 West, *Lake Mathews, California* (7.5-minute) |
| ***Assessor's Parcel Numbers:*** | 270-070-005, -006, and -007, and 270-160-005 |
| ***Study Area:*** | 95.96 acres |
| ***Key Words****:* | Paleontological assessment; Cretaceous plutonic rocks; no monitoring recommended. |

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# I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the TR38605 Project, located north of El Sobrante Road, north of Lake Matthews, in Riverside County, California (Figures 1 and 2). The 95.96-acre project is situated in Sections 32 and 33, Township 3 South, Range 5 West, of the San Bernardino Baseline and Meridian, as shown on the United States Geological Survey (7.5-minute) 1:24,000-scale *Lake Matthews, California* topographic quadrangle map. The project parcels (Assessor's Parcel Numbers 270-070-005, -006, and -007, and 270-160-005) are being considered for development as a 163-lot residential subdivision with streets, parks, storm water detention basins, and associated infrastructure.

As the lead agency, the County of Riverside 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 for a previous project in the area; a review of the underlying geology; and recommendations to mitigate impacts to potential paleontological resources, if necessary.

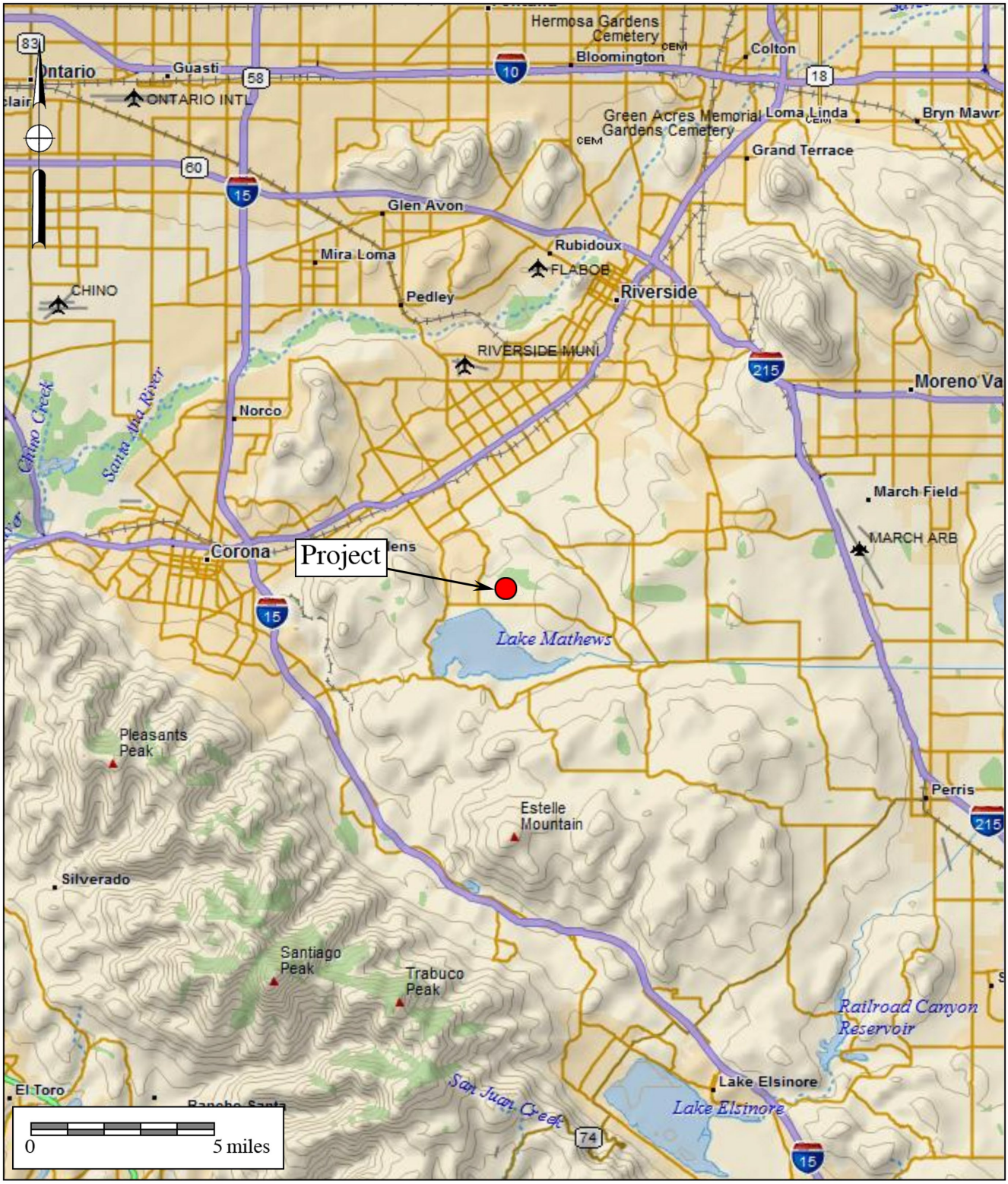
# II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental regulation that sets the requirement for protecting California's 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, whether the impacts are significant, and provide recommendations, if necessary.

In CEQA's Environmental Checklist Form, one of the questions to answer 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:

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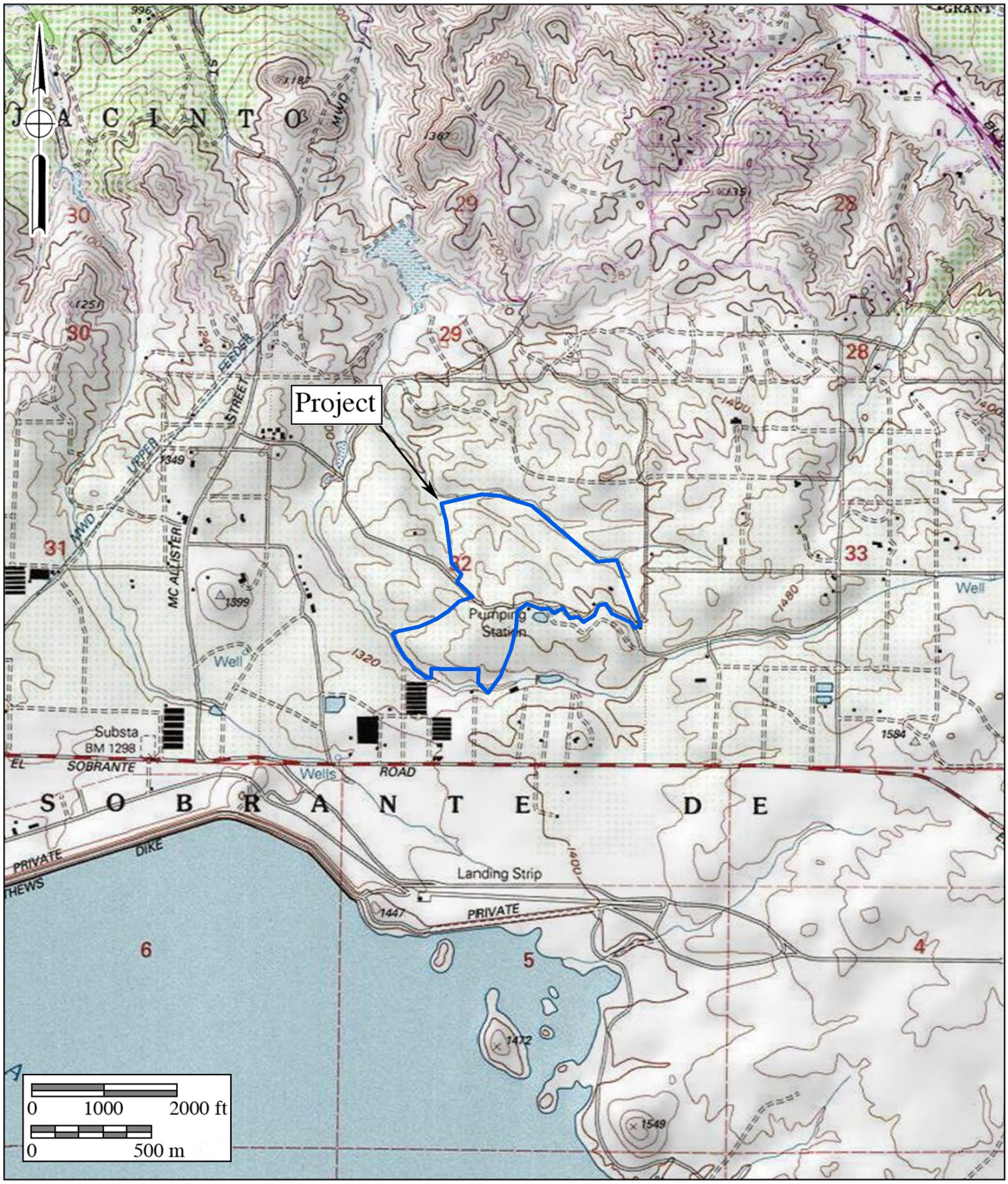
# Figure 1

## General Location Map

The TR38605 Project

DeLorme (1:250,000 series)

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# Figure 2

## Project Location Map

The TR38605 Project

USGS *Lake Mathews* Quadrangle (7.5-minute series)

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.

*County of Riverside*

For Riverside County, policies concerning paleontological resources are addressed under the 2015 Multipurpose Open Space Element of the Riverside County General Plan, and are as follows:

OS 19.6 Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.

OS 19.7 Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.

OS 19.8 Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.

OS 19.9 Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet. (County of Riverside 2015a)

A comprehensive review of paleontological resources, including regulatory background, permitting conditions, significance thresholds, and procedures for the treatment of discovered resources, can be found in the County's draft environmental impact report (County of Riverside 2015b).

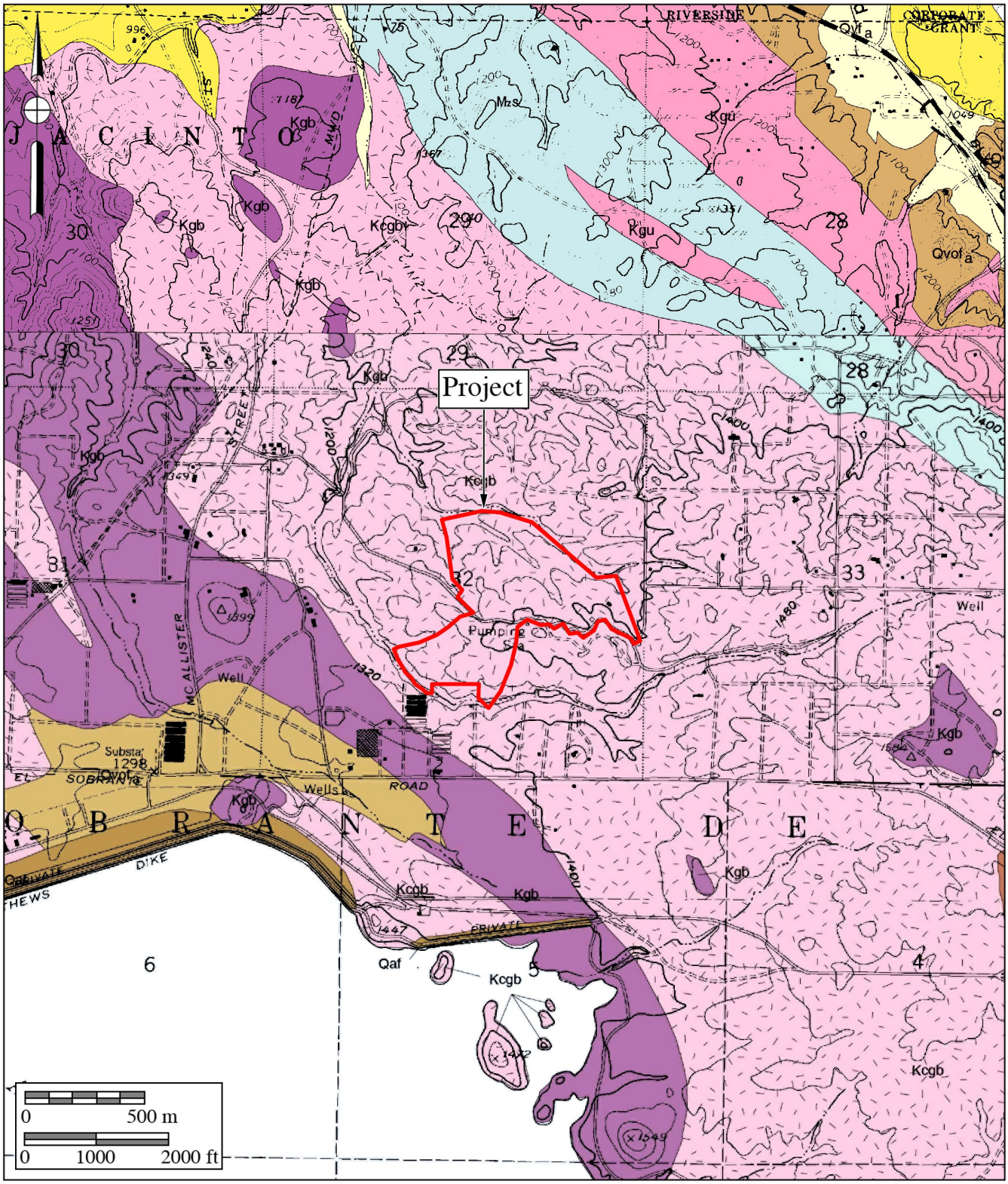
# III. GEOLOGY

Geologically, the project is mapped as being underlain by undifferentiated Cretaceous-aged gabbro granodiorite and gabbro (labeled as "Kcgb", shown in pink on Figure 3; after Morton and Cox 2001; Morton and Weber 2001).

# 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 guidelines (see Section II).

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# Figure 3
## Geologic Map

The TR38605 Project

Geology after Morton and Weber (2001) and Morton and Cox (2001)

*Fossil Locality Record Search*

A paleontological literature review and collections and locality records search was conducted for the project using records collected from prior Brian F. Smith and Associates, Inc. projects from the Division of Geological Sciences at the San Bernardino County Museum (SBCM), the Western Science Center (WSC) in Hemet, and the Los Angeles County Museum of Natural History (LACM), as well as data from published and unpublished paleontological literature (Jefferson 1991, 2009). The closest-known fossils are from Miocene-aged deposits consisting of mammalian remains located just south of Lake Matthews, about three miles to the south (Woodford et al. 1971; Lander 2008). These fossils are held by the LACM (locs. 1541 B and 1541 C). The next-closest known fossil locality listed by the LACM is about six-to-seven miles west of the current project, between Lincoln Avenue and Main Street, north of Highway 91, in the city of Corona, and consists of the remains of a deer from Pleistocene alluvial deposits (LACM loc. 1207; Jefferson 1991). Farther south in Corona, in the Chase Ranch neighborhood, a large collection of over 1000 fossil leaves from about 16 species were recovered from Pleistocene deposits assigned as "older alluvium" (Fisk and Peck 2004; Jefferson 2009). Jefferson (1991) also listed a late Pleistocene, University of California, Riverside fossil locality (loc. 8601) from "Corona, Santa Ana River," consisting of the fossil remains of fish, lizard, rabbit, vole, mammoth, horse, camel, and bison. The SBCM and the WSC have no known fossil localities in the vicinity of the project.

# 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 might 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 (more than 11,700-year-old) alluvial and alluvial fan deposits in western Riverside County, however, often yield important Ice Age terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, camel, saber-toothed cats, and others (Jefferson 1991). These Pleistocene sediments are thus accorded a high paleontological resource sensitivity. Plutonic rocks, such as the gabbro and granodiorite mapped at the project, do not yield fossils and therefore have no paleontological resource sensitivity.

*Professional Standards*

The Society of Vertebrate Paleontology (SVP 2010) has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed 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.

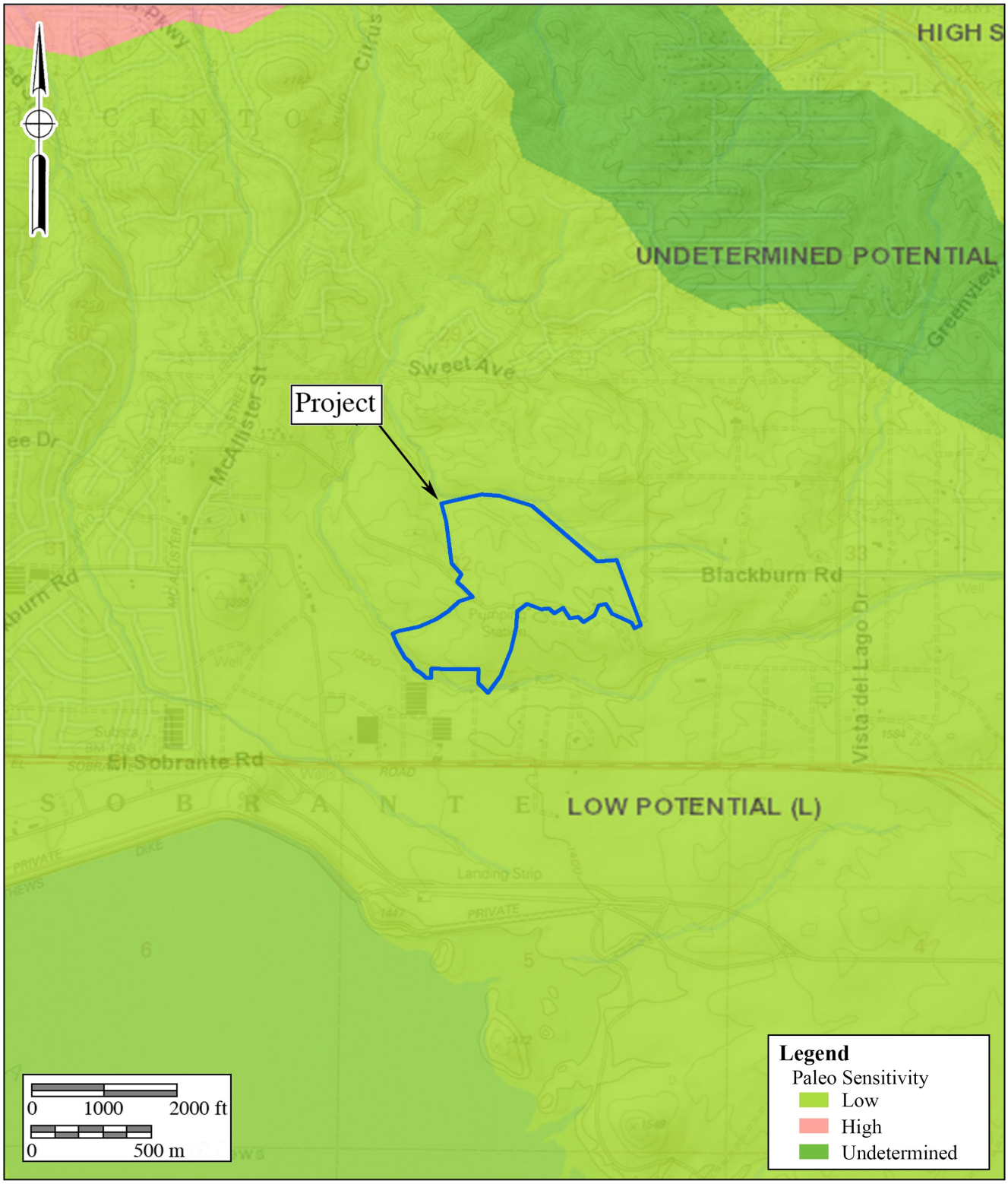
Using these criteria, the gabbroic rocks mapped at the project area have no potential to yield paleontological resources.

*Riverside County Sensitivity*

A paleontological sensitivity map generated by the County of Riverside Land Information System ranks the plutonic rocks mapped at the project as having a "low" paleontological sensitivity (shown in green tint on Figure 4). Riverside County defines geologic formations with a "low" potential to yield paleontological resources as:

> Following a literature search, records check and a field survey, areas may be determined by a qualified vertebrate paleontologist as having low potential for containing significant paleontological resources subject to adverse impacts. (County of Riverside Land Information System 2023)

The category "low" indicates that fossils are not likely to be encountered and during excavation by construction activities, and therefore, are not likely to be significantly impacted. A paleontological survey is not recommended for the project, since the plutonic rocks mapped there do not yield fossils.

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# Figure 4

## Paleontological Sensitivity Map

The TR38605 Project

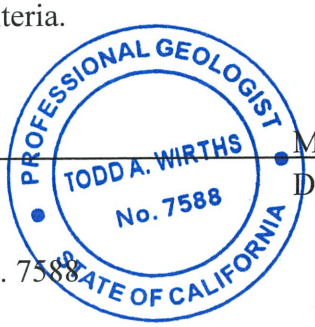
After County of Riverside Land Information System (2023)

## VI. CONCLUSIONS AND RECOMMENDATIONS

Research has confirmed the presence of Cretaceous gabbro and granodiorite mapped at the project. Paleontological resources do not occur in plutonic rocks such as those mapped at the project; therefore, monitoring for potential paleontological resources during earth disturbance activities is not recommended. A paleontological resource impact mitigation program for the project is not warranted.

## 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.




May 31, 2023

Todd A. Wirths
Senior Paleontologist
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Date

## VIII. REFERENCES

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# APPENDIX A

**Qualifications of Key Personnel**

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


## Senior Paleontologist

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## Education

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

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

## Professional Certifications

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

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

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

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.