

PALEONTOLOGICAL ASSESSMENT FOR THE SOUTH KIRBY STREET PROJECT

CITY OF HEMET,
RIVERSIDE COUNTY, CALIFORNIA

APN 456-030-020

Prepared for:

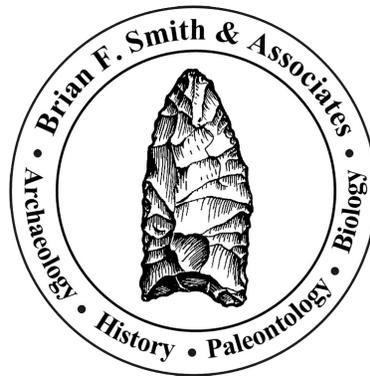
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Submitted to:

City of Hemet
445 East Florida Avenue
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Prepared by:

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May 18, 2023

Paleontological Database Information

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Report Date: May 18, 2023

Report Title: Paleontological Assessment for the South Kirby Street Project,
City of Hemet, Riverside County, California (APN 456-030-020)

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USGS Quadrangle: Section 17, Township 5 South, Range 1 West of the *Winchester*
and *Hemet, California* (7.5-minute) Quadrangles

Study Area: 43.5 acres

Key Words: Paleontological assessment; Pleistocene alluvial fan deposits;
mammalian fossil bones; high sensitivity; full-time monitoring
below five feet; City of Hemet.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the South Kirby Street Project, located southeast of the intersection of Acacia Avenue and Kirby Street, just north of the Salt Creek Channel, in the city of Hemet in Riverside County, California (Figures 1 and 2). On the U.S. Geological Survey 7.5-minute, 1:24,000-scale *Winchester* and *Hemet, California* topographic quadrangle maps, the project is located in Section 17, Township 5 South, Range 1 West of the San Bernardino Baseline and Meridian (Figure 2) and consists of one parcel (Assessor's Parcel Number 456-030-020). The 43.5-acre project is being proposed for development. The parcel was previously used for agriculture and is currently vacant.

As the lead agency, the City of Hemet 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.

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 by which protects nonrenewable resources including fossils, which is paraphrased below:

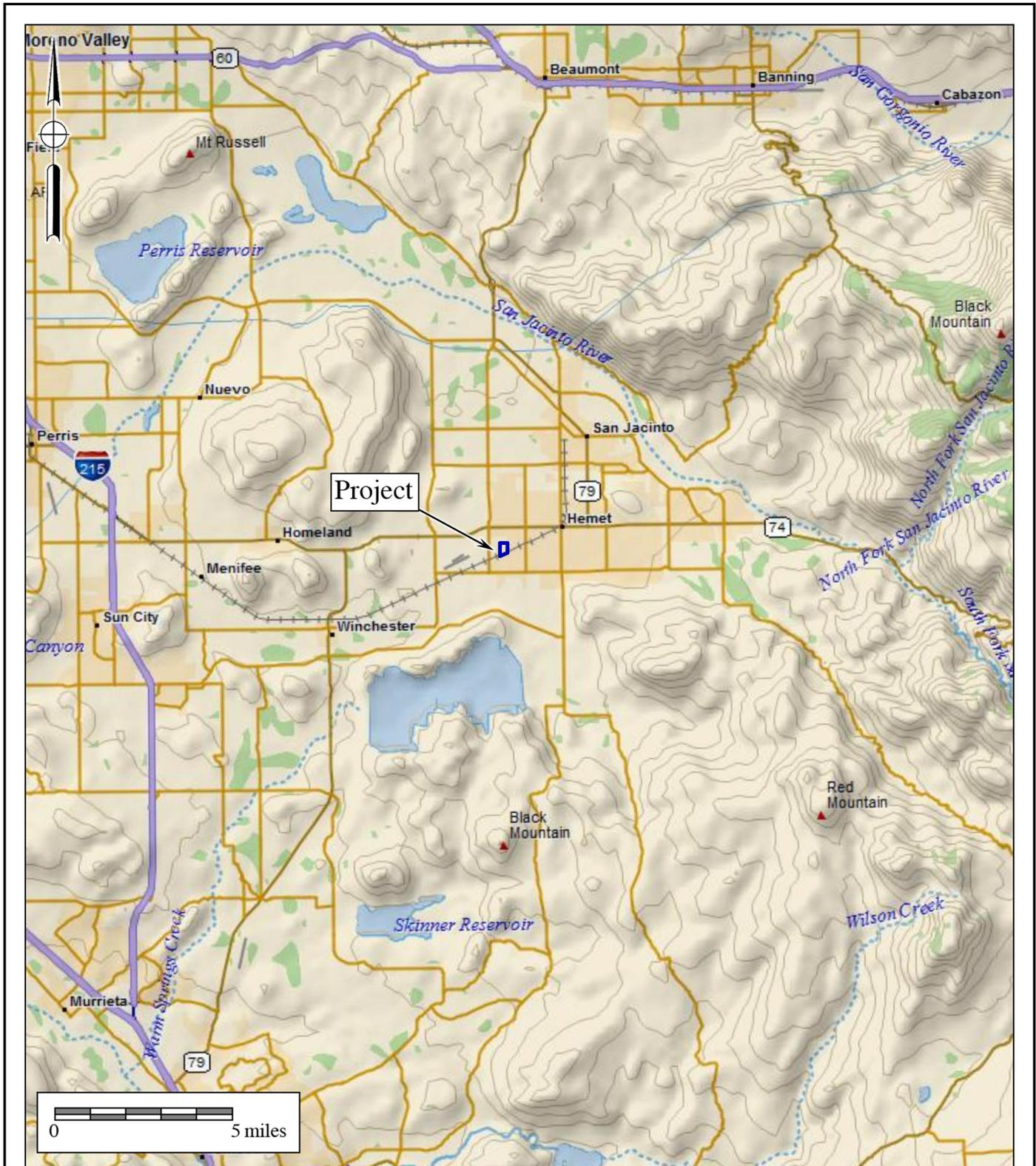


Figure 1
General Location Map
 The South Kirby Street Project

DeLorme (1:250,000)



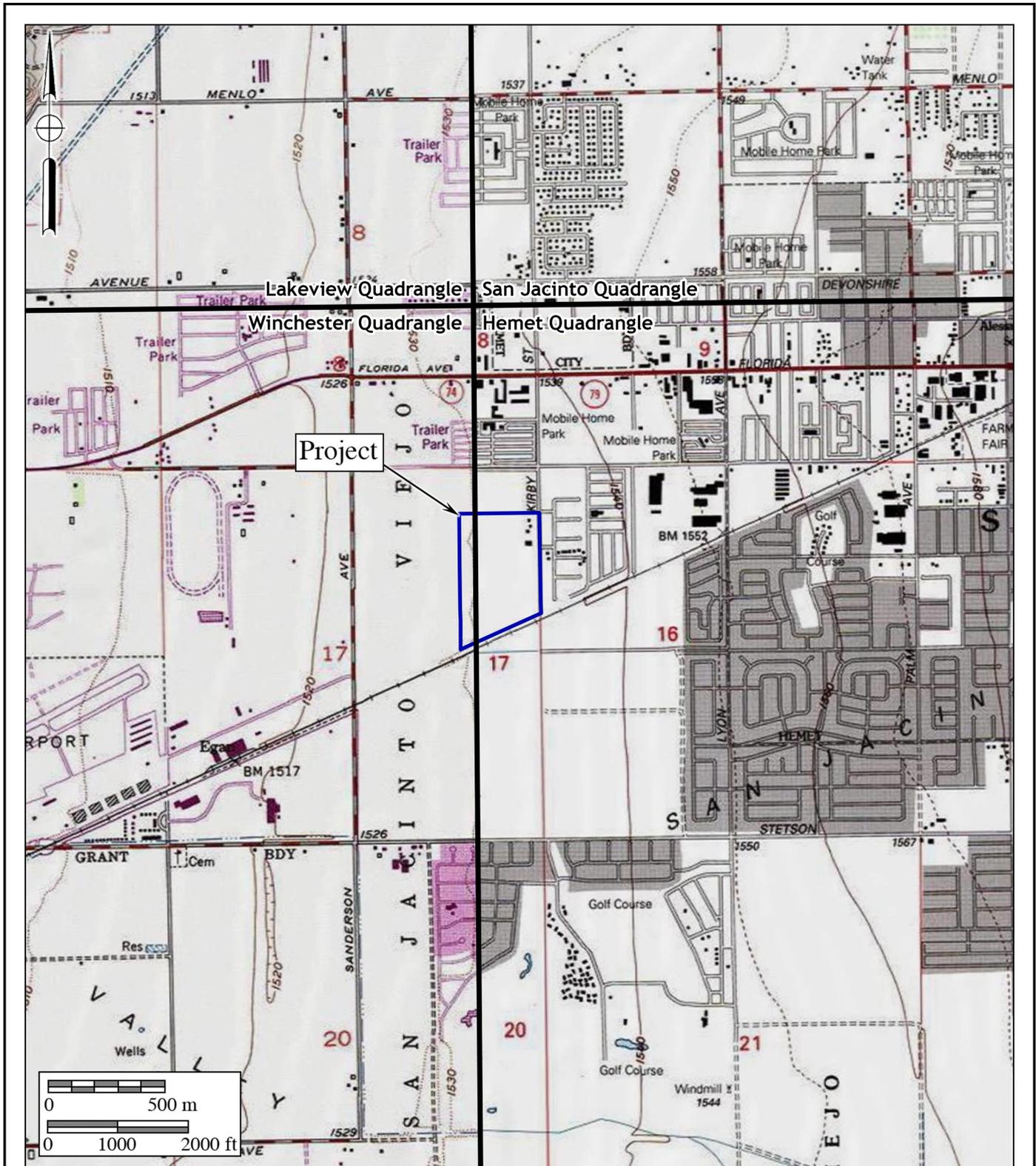


Figure 2
Project Location Map
 The South Kirby Street Project



USGS Hemet, Winchester, Lakeview, and San Jacinto Quadrangles (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.

City of Hemet

The City of Hemet’s Final Environmental Impact Report (EIR) identifies an existing potential for earth disturbance activities to adversely impact significant paleontological resources (City of Hemet 2012a: Impact 4.6-9). According to the EIR, older Pleistocene deposits, either exposed at the surface or below younger deposits, have “a high potential to contain significant paleontological resources, and so are considered to have high paleontological sensitivity” (City of Hemet 2012a: 4.6-18). To reduce potential impacts to paleontological resources to a level below significant, the EIR requires implementing policies and programs from the City of Hemet General Plan 2030 that involve an evaluation of any paleontological “resources found prior to or during site development” by a “qualified paleontologist” (Policy HR-2.3), while the City would implement the “development review process to require appropriate surveys” (Program HR-P-10; City of Hemet 2012a).

In Chapter 9 (Historic Resources) of the City of Hemet General Plan 2030, Goal HR-2 aims to “Preserve significant archeological and paleontological resources in areas under the City’s jurisdiction, to the greatest extent possible” (City of Hemet 2012b: 9-22). The following policies under Goal HR-2 applicable to paleontological resources are given below:

- HR-2.2** Monitoring. Require monitoring of new developments where resources or potential resources have been identified in the review process.
- HR-2.3** Evaluation. Resources found prior to or during site development shall be evaluated by a qualified archaeologist or paleontologist, and appropriate mitigation measures shall be applied before resumption of development activities. Development project proponents shall bear all costs associated with the monitoring and disposition of cultural resources management within the project site.
- HR-2.4** Preferred Repository. To the extent practicable and appropriate, newly uncovered non-Native American archeological and paleontological resources shall be transferred to the Western Science Center of Diamond

Valley for cataloguing, study and, if appropriate, display. (City of Hemet 2012b: 9-22)

Implementation Program HR-P-10, in Chapter 12 of the City’s General Plan, is as follows:

HR-P-10 Studies and Surveys. Use the development and environmental review processes for private sector, public facilities, and public infrastructure projects to require effective mitigation where development may affect archaeological or paleontological resources. Require appropriate archaeological and paleontological surveys and documentation of findings prior to project approval. (City of Hemet 2012b: 12-45)

III. GEOLOGY

Regionally, the project lies near the eastern edge of the Perris block of the Peninsular Ranges batholith (Morton and Matti 2005). The active San Jacinto fault zone lies approximately three miles northeast of the project. According to the geologic map of the Hemet quadrangle by Morton and Matti (2005), the surficial geology at the project consists of Holocene and late Pleistocene-aged young alluvial fan deposits of Bautista Canyon, Unit 1, predominately characterized as gravel, sand, and silt (areas colored mustard and labeled “Qyfb₁” on the southeast quarter of Figure 3). This same unit is indicated as simply Holocene and late Pleistocene-aged young alluvial fan deposits on the Lakeview and Winchester quadrangle maps (areas colored yellow and labeled “Qyf_a” on the west half of Figure 3), but are additionally described as distal deposits related to the fan deposits emanating from Bautista Canyon (Morton and Matti 2001; Morton 2003, respectively). On the 1:100,000-scale geologic map by Lancaster et al. (2012), the surficial deposits are identified as Holocene and late Pleistocene-aged young alluvial fan deposits, characterized as sedimentary deposits issued from a confined valley or canyon (area colored yellowish gray and labeled “Qyf” in the northeast quarter of Figure 3). Outcrops of late to early Pleistocene alluvial deposits occur approximately one and a half to two miles south and southeast of the project (Morton and Matti 2005), and are considered potentially fossiliferous by the City (City of Hemet 2012a). The Holocene to late Pleistocene alluvial deposits overlie the potentially fossiliferous, older Pleistocene-aged deposits (City of Hemet 2012a). The thickness of the Holocene to late Pleistocene alluvial deposits at the project is not known.

The deposits composing the Holocene to late Pleistocene Bautista fan originate from Bautista Canyon, the mouth of which is located about six miles east of the project. Bautista Canyon drains much of the Santa Rosa Hills. The sediments are mostly composed of the detritus of metamorphic rocks (Morton and Matti 2005).

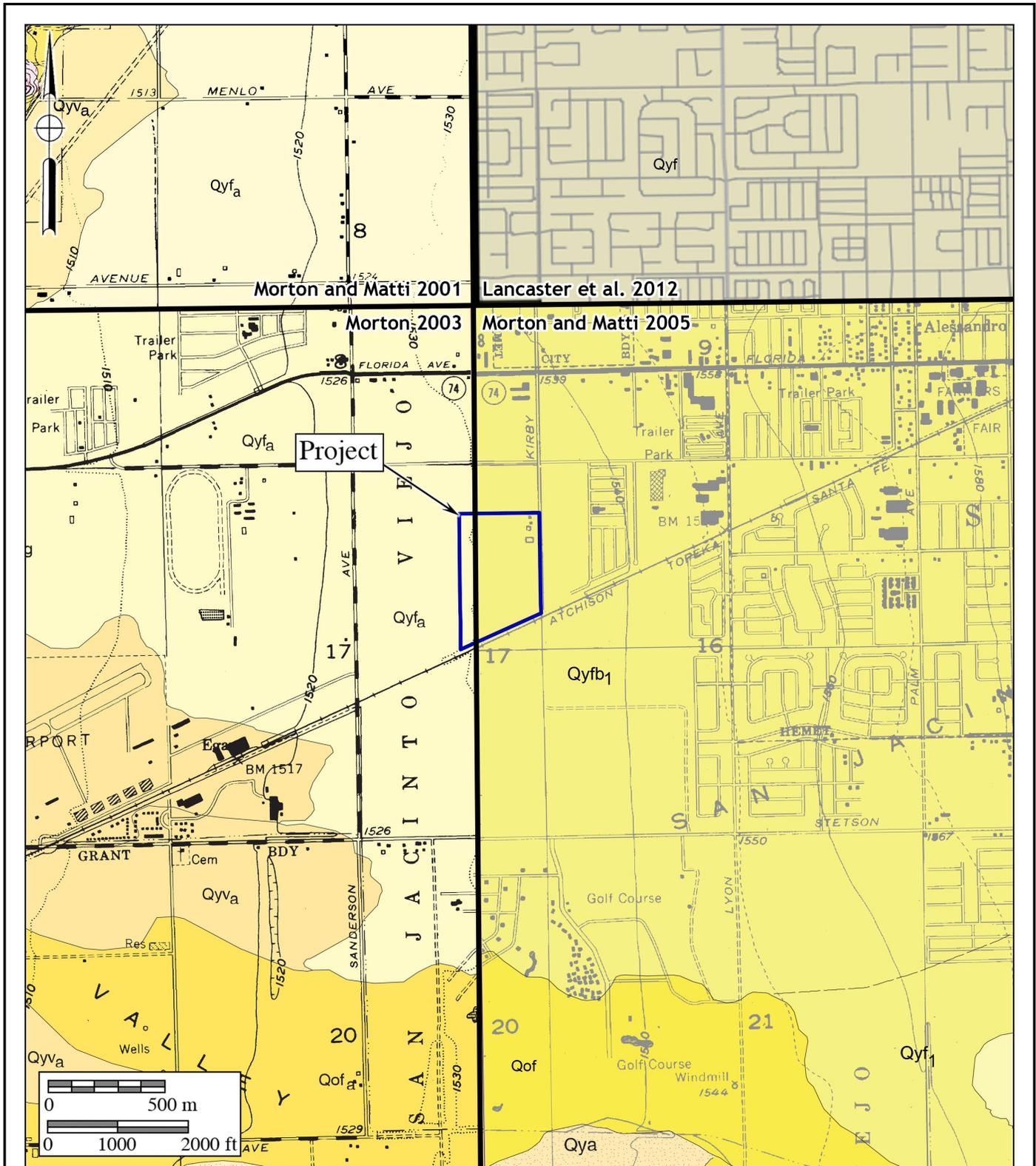


Figure 3
Geologic Map

The South Kirby Street Project

Geology after Morton and Matti (2001, 2005), Morton (2003), and Lancaster et al. (2012)



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, for example. Fossils are considered a nonrenewable resource under state and local guidelines (Section II of this report).

Fossil Locality Search

A paleontological literature review and collections and locality records search was conducted for the project using records from prior Brian F. Smith and Associates, Inc. (BFSA) projects, the Division of Geological Sciences at the San Bernardino County Museum (SBCM), the Los Angeles County Museum of Natural History (LACM), and the Western Science Center (WSC) in Hemet, as well as data from published and unpublished paleontological literature (Jefferson 1991, 2009). The resulting locality records search did not identify any previously recorded fossil localities from within the boundaries of the project. The closest known recorded fossil locality is less than two miles southwest of the project, south of the Hemet-Ryan Airport off Warren Road, consisting of the bones of an extinct horse and other unidentified large mammal remains. Fossils were recovered from 10 places at the locality, from as little as a few feet below the surface (Kennedy 2006). These fossils are housed at the WSC.

The Diamond Valley Lake Reservoir is about two to three miles south of the proposed project. Construction associated with the Diamond Valley Lake Reservoir yielded vast numbers of terrestrial Ice Age vertebrate fossils (Anderson et al. 2002; Springer et al. 1999, 2009) that are now housed at the WSC. Remains included bones from horses, camels, mammoths, mastodons, two species of bison, three species of giant ground sloths, peccaries, llamas, saber tooth cats, two species of pronghorn, and two species of bears, among others.

Project Survey

BFSA staff, under the supervision of Principal Investigator Todd A. Wirths, conducted a project survey on December 28, 2021. Visibility of the natural ground surface was very good to excellent, showing signs of recent disking activities. The entire property has been cultivated for decades and no undisturbed areas exist within the project. No paleontological resources, or evidence indicating the presence 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 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 (older than 11,700 years old) alluvial and alluvial fan deposits in the Inland Empire and western Riverside County, however, are known to yield important 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 thus accorded a high paleontological resource sensitivity.

Professional Standards

The Society of Vertebrate Paleontology 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 upon 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, based on the distribution of nearby fossil localities, surficial deposits the project may be considered to have an undetermined potential to yield significant paleontological resources. The underlying Pleistocene old alluvial deposits may be considered to have a high potential to yield significant paleontological resources.

City of Hemet Sensitivity Assessment

The older Pleistocene alluvial deposits that underlie the Holocene surficial alluvial deposits at the project are regarded by the City of Hemet as having a high potential to contain paleontological resources, and as such are considered to have high paleontological sensitivity, based on the record for fossils of Pleistocene vertebrates recovered in the region (City of Hemet 2012a). The EIR indicates that outcrops of the older Pleistocene alluvial sediments “are also present in the surface in the southern (generally south of Johnston Avenue), and also in the western (generally west of Warren Road) portion of the planning area” (City of Hemet 2012a: 4.6-18). The EIR does not assign a paleontological sensitivity rating to the surficial Holocene alluvial deposits.

VI. CONCLUSIONS AND RECOMMENDATIONS

Research has confirmed the existence of the potentially fossiliferous Pleistocene old alluvial deposits that underlie the Holocene deposits at the project at an unknown depth. The occurrence of terrestrial vertebrate fossils from Pleistocene old alluvial deposits in western Riverside County is well documented. The “High” paleontological sensitivity rating assigned to this formation for yielding paleontological resources supports the recommendation that paleontological monitoring be implemented during mass grading and excavation activities in these deposits to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Full-time monitoring at the project is warranted starting at a depth of five feet below the surface. A monitoring program for the project is suggested below.

Paleontological Resource Impact Mitigation Program (PRIMP)

Pursuant to Policy HR-2.2 and 2.3 of the City's General Plan, the following PRIMP guidelines, outlined below, are based on the findings stated above. Paleontological monitoring may be reduced upon the observations and recommendations of the professional-level project paleontologist. The following PRIMP, when implemented, would reduce potential impacts of paleontological resources to a level below significant:

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources shall be performed by a city-qualified paleontologist or paleontological monitor supervised by a city-qualified paleontologist. Starting at a depth of five feet below the surface, monitoring will be conducted full-time in areas of grading or excavation in undisturbed alluvial deposits.
2. 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 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 the concerned parties of the discovery.
3. Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the 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. Notes will be taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are removed to a safe place. 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 with the use of handheld GPS units. If the site involves remains from a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find, encase the find within a plaster and burlap jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help remove the jacket to a safe location.
 4. Isolated fossils will be collected by hand, wrapped in paper, and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are removed to a safe place.
 5. Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, 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. For vertebrate fossils, the test is usually the observed presence of small pieces of bones within the sediments. If present, as multiple five-gallon buckets of sediment can be collected and returned to a separate facility to wet-screen the sediment.
 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 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.
 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

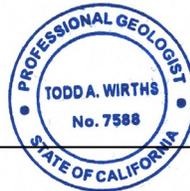
- preservation (not display), including screen-washing sediments to recover small invertebrates and vertebrates. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
9. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (e.g., the WSC) shall be conducted. The paleontological program should include a written repository agreement prior to the initiation of mitigation activities. Prior to curation, the lead agency (the City of Hemet) 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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California Professional Geologist No. 7588



May 18, 2023

Date

VIII. REFERENCES

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APPENDIX A

Qualifications of Key Personnel

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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.