PALEONTOLOGICAL ASSESSMENT FOR THE 2895 SOUTH MAIN STREET PROJECT

CITY OF CORONA
RIVERSIDE COUNTY, CALIFORNIA

Case No. DPR2022-0010; APN 113-340-018

Prepared for:

Balbas Construction, Inc.
3189 Airway Avenue, Unit D
Costa Mesa, California 92626

Submitted to:

City of Corona
400 South Vicentia Avenue
Corona, California 92882

Prepared by:

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September 6, 2022

Paleontological Database Information

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Report Date:	September 6, 2022
Report Title:	Paleontological Assessment for the 2895 South Main Street Project, City of Corona, Riverside County, California (Case No. DPR2022-0010; APN 113-340-018)
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USGS Quadrangle:	Unsectioned Township 4 South, Range 7 West, USGS *Corona South, California* (7.5 minute) topographic quadrangle
Study Area:	4.19 acres
Assessor's Parcel Number:	113-340-018
Key Words:	Paleontological assessment; alluvial fan deposits; Corona; Riverside County; vertebrate fossils.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the 2895 South Main Street Project, located at 2895 South Main Street, northeast of the intersection of South Main Street and Chase Drive, in the city of Corona, Riverside County, California (Figures 1 and 2). The project consists of two parcels (Assessor's Parcel Number 113-340-018) totaling 4.19 acres. The project is situated within an unsectioned area within Township 4 South, Range 7 West, of the San Bernardino Baseline and Meridian, on the U. S. Geological Survey (7.5-minute) *Corona South*, *California* topographic quadrangle map (Figure 2). The project applicant plans to construct a 53,764-square-foot health club.

As the lead agency, the City of Corona has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources (Development Plan Review [DPR] Case No. DPR2022-0010). 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:

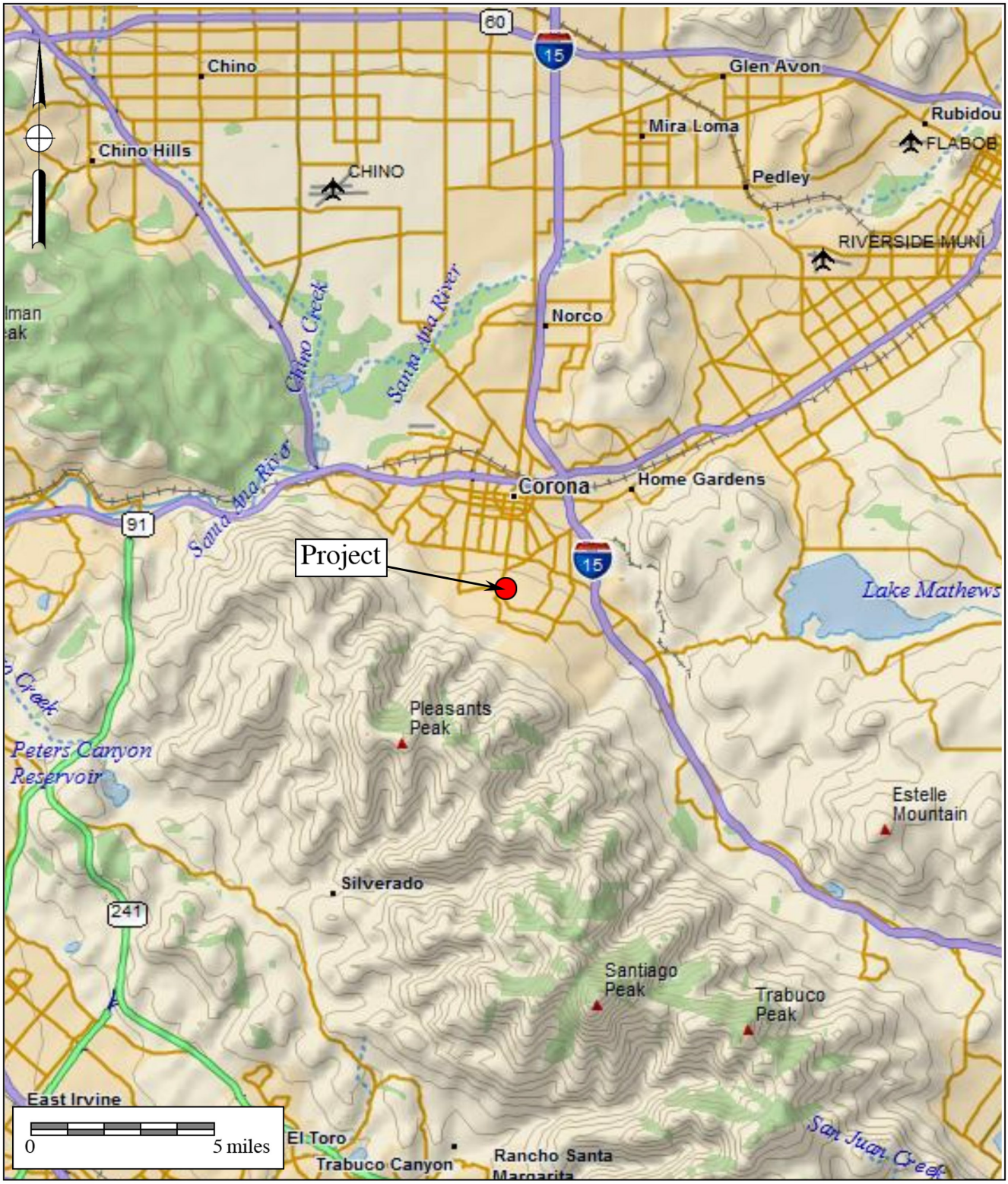


Figure 1

General Location Map

The 2895 South Main Street Project

DeLorme World Base Map Service (1:250,000 series)

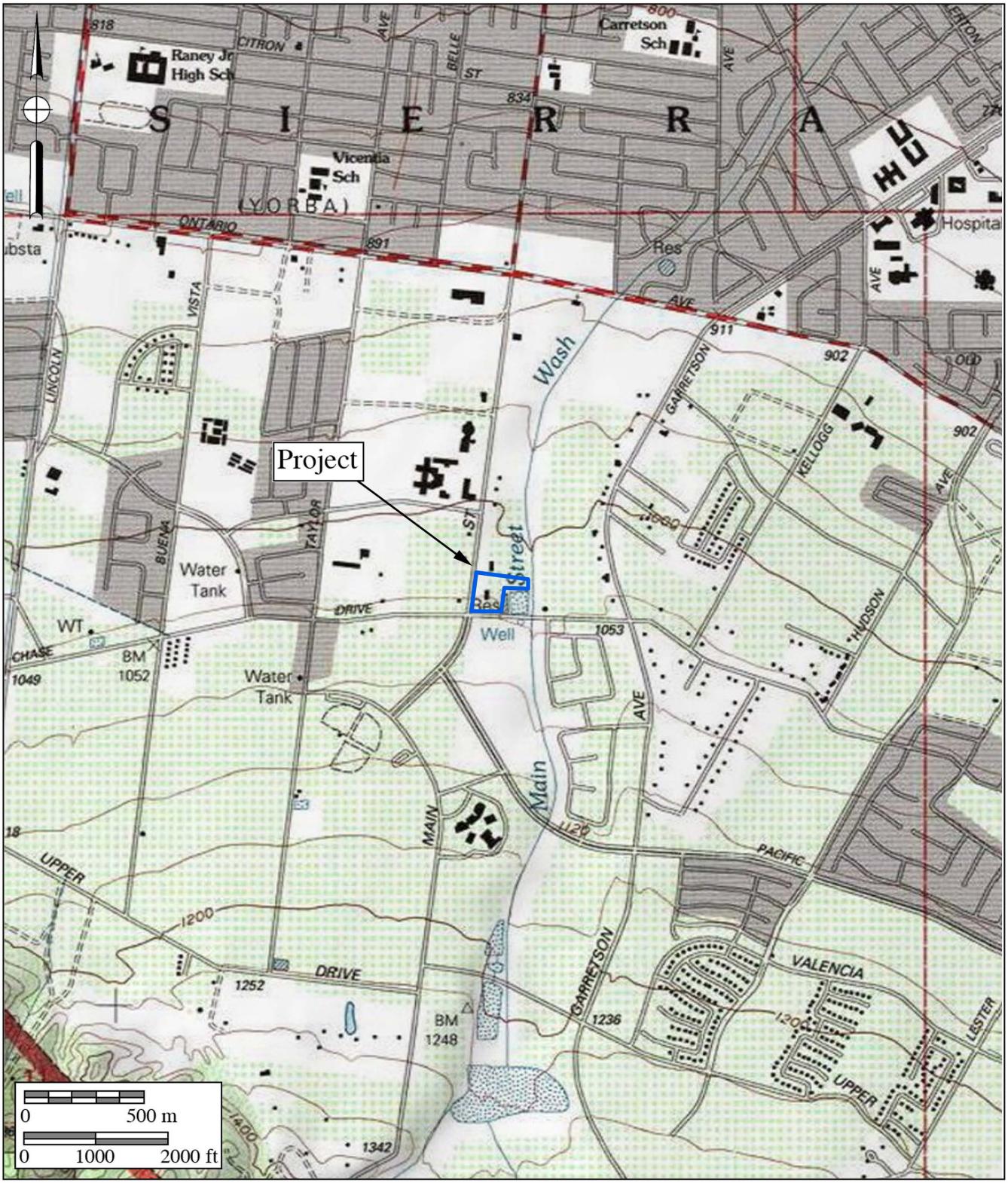


Figure 2

Project Location Map

The 2895 South Main Street Project

USGS *Corona South* 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.

City of Corona

The City of Corona's current General Plan (City of Corona 2020) and Environmental Impact Report (EIR; City of Corona 2019) include the following specific measures to identify, protect, and preserve paleontological resources during the planning and environmental review process:

Goal:

HR-3 Recognize the importance of archaeological and paleontological resources and ensure the identification and protection of those resources within the City of Corona.

Policies:

HR-3.2 Require that development proposals incorporate specific measures to identify, protect, and preserve cultural resources in the planning, environmental review, and development process …

HR-3.6 Any project that involves earth-disturbing activities in soil or rock units known or reasonably suspected to be fossil-bearing shall require monitoring by a qualified paleontologist retained by the project applicant for the duration of excavation or trenching.

HR-3.7 Paleontological resources found prior to or during construction shall be evaluated by a qualified paleontologist, and appropriate mitigation measures applied, pursuant to § 21083.2 of CEQA [California Environmental Quality Act], before the resumption of development activities. Any measures applied shall include the preparation of a report meeting professional standards, which shall be submitted to the

Riverside County Museum of Natural History. (City of Corona 2019, 2020)

III. GEOLOGY

Geologically, the project lies within the Chino and Elsinore fault zones near the northeastern edge of the Santa Ana Mountains (Figure 3, after Gray et al. 2002). The western half of the project is situated on Holocene and upper Pleistocene-aged gravelly young alluvial fan deposits, Unit 1 (area colored medium yellow and labeled "Qyf_{1g}" in Figure 3). These deposits are composed of unconsolidated, granule- to cobble-sized gravel, and are restricted to a single alluvial fan that is bisected by younger fans emanating from the Main Street and Eagle Canyons. The east half of the project is similarly mapped as Holocene and upper Pleistocene-aged young gravelly alluvial fan deposits (area colored pale yellow and labeled "Qyf_g" in Figure 3), consisting of gravels that emanate from Main Street and Eagle Canyons, but are slightly younger than the Unit 1 deposits. All of the fans coarsen with proximity to the mountains (Gray et al. 2002).

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, the Los Angeles County Museum of Natural History (LACM), and the Western Science Center (WSC), 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.

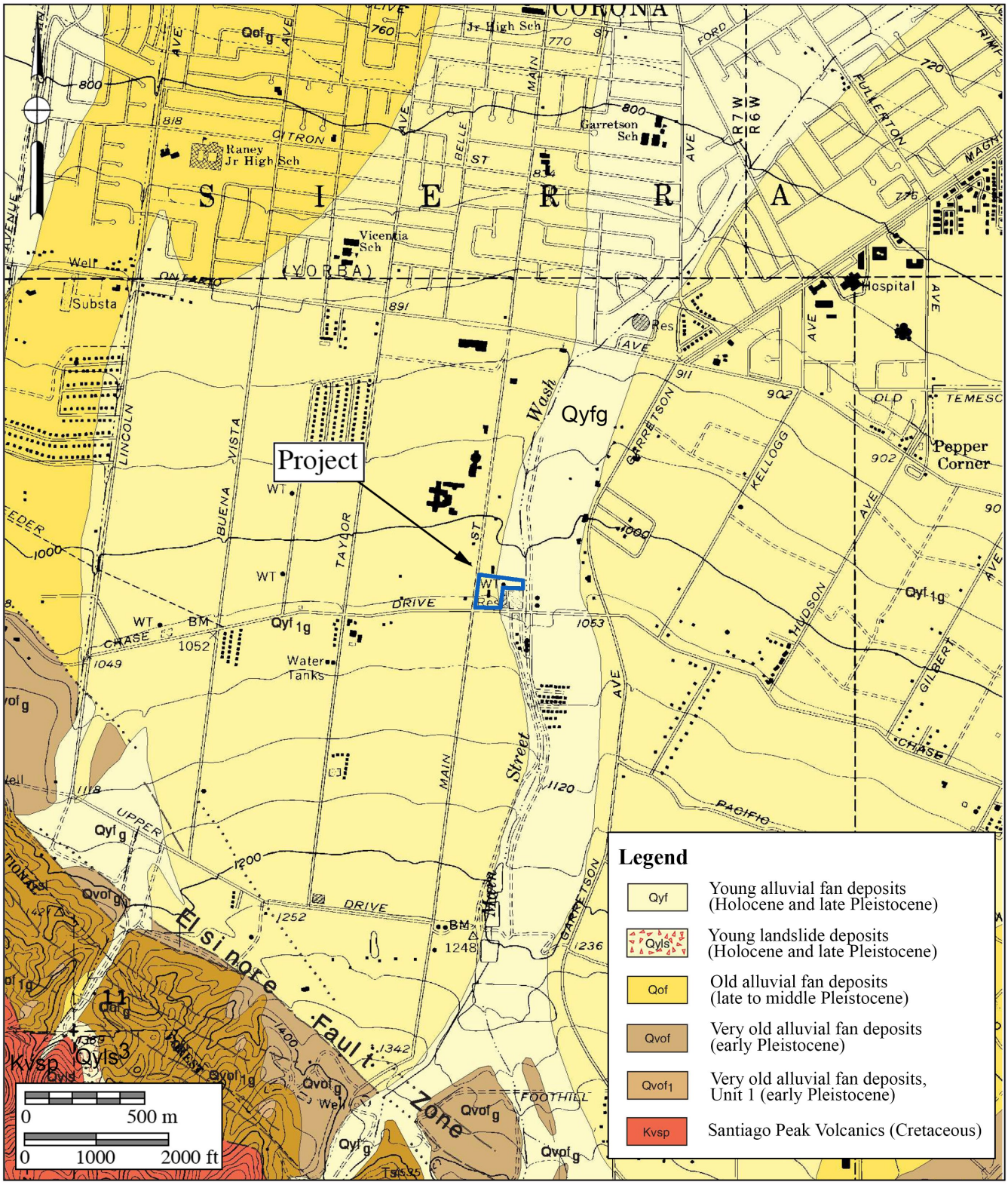


Figure 3

Geologic Map

The 2895 South Main Street Project

Geology after Gray et al. (2002)

The closest known fossils from surficial alluvial deposits are located approximately 1.5 miles southeast of the current project in the Chase Ranch neighborhood of Corona, consisting of a large collection of over 1000 fossil leaves from about 16 species of plants and trees (Fisk and Peck 2004; Jefferson 2009). These fossil leaf localities occur in deposits mapped by Gray et al. (2002) as middle to early Pleistocene-aged very old alluvial fan deposits. About three miles north of the project, between Lincoln Avenue and Main Street, north of Highway 91, the remains of a Pleistocene deer were recovered (LACM locality 1207). Jefferson (1991) 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, but the exact location of this locality is not certain.

Project Survey

BFSA staff, under the supervision of Principal Investigator Todd A. Wirths, conducted a project survey on August 17, 2022. The survey of the property was an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately 10-meter intervals, which covered all areas of the project. All potentially sensitive areas where paleontological resources might be located were closely inspected. Cuts for an excavation for an existing mortar-and-rock retaining wall have exposed the surficial sediments at the northeastern portion of the project, revealing subangular clasts of gravel and cobbles in a poorly to moderately consolidated, poorly sorted, silty sand matrix. The deposits could be described as a clast-supported sandy conglomerate. An orange orchard and a residence occupy most of the project property. 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 (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 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 and the lithologic character of the surficial deposits, the project may be considered to have a low to undetermined potential to yield significant paleontological resources.

City of Corona Sensitivity Assessment

The City of Corona General Plan (City of Corona 2020 [Fig. HR-1]) and EIR (City of Corona 2019 [Table 5.7-4; Figure 5.7-6]) provide a city-wide map presenting levels of paleontological sensitivity assigned to geologic formations. The sensitivity map generally follows the mapping by Gray et al. (2002), assigning the young gravelly alluvial fan deposits ("Qyf_g") mapped at the eastern portion of the project as having a "low-to-high" paleontological potential/sensitivity, while the western portion, mapped in young gravelly alluvial fan deposits, Unit 1 ("Qyf_{1g}"), as having a "high" paleontological potential/sensitivity (Figure 4).

The General Plan identifies a "low-to-high" sensitivity as where "[s]ome sedimentary deposits are too young to preserve fossils at the surface or shallow subsurface but may preserve fossils at greater depth or overlie older units that have high paleontological sensitivity." A "high" sensitivity is defined as "…. geologic formations that are known to preserve abundant or scientifically significant fossils, therefore giving them high sensitivity to paleontological resources." Based on these sensitivity assessments, the EIR presents the following paleontological resource mitigation measures that are applicable to the project (City of Corona 2019:5.7-38):

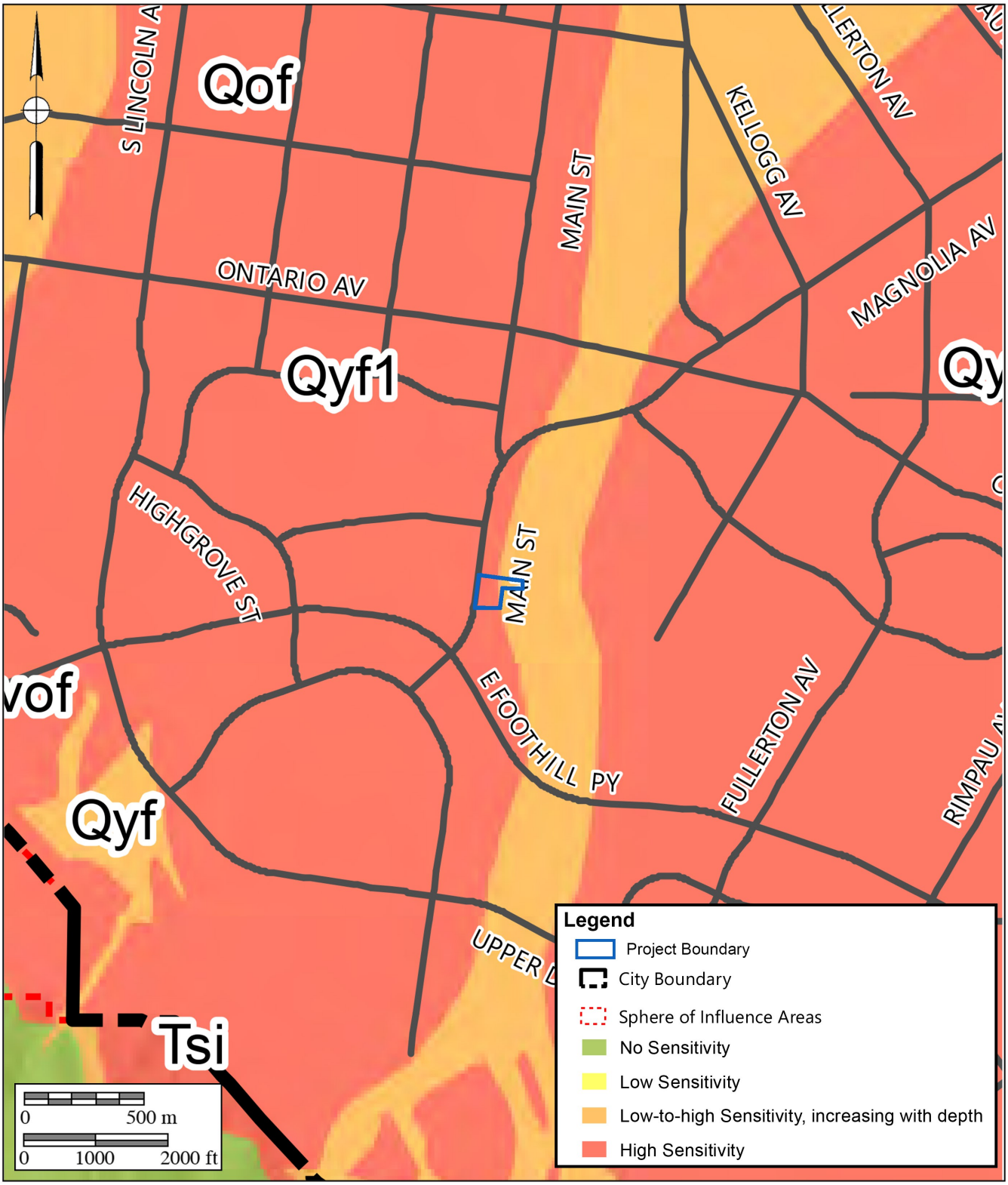


Figure 4

Paleontological Sensitivity Map

The 2895 South Main Street Project

After Corona General Plan (2019)

GEO-1 **High and Low-to-High Sensitivity.** In areas designated as having "high" or "low-to-high" sensitivity for paleontological resources, the project applicant shall be required to submit a Paleontological Resources Monitoring and Mitigation Plan (PRMMP). The PRMMP shall be prepared by a Qualified Paleontologist meeting the standards of [the] Society of Vertebrate Paleontology (2010). The plan shall address specifics of monitoring and mitigation based on the project area and project's construction plan, and shall take into account updated geologic mapping, geotechnical data, updated paleontological records searches, and changes to the regulatory framework at the time of analysis. The PRMMP shall be submitted to the City of Corona's Community Development Department prior to approval of a grading permit.

GEO-2 **High Sensitivity.** Projects involving ground disturbances in previously undisturbed areas mapped as having "high" paleontological sensitivity shall be monitored by a qualified paleontological monitor on a full-time basis, under the supervision of the Qualified Paleontologist. Monitoring shall include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, if the fossils are determined to be significant, professionally and efficiently recover the fossil specimens and collect associated data. The paleontological monitor shall use field data forms to record pertinent location and geologic data, measure stratigraphic sections (if applicable), and collect appropriate sediment samples from any fossil localities.

GEO-3 **Low-to-High Sensitivity.** Projects involving ground disturbance in previously undisturbed areas mapped with "low-to-high" paleontological sensitivity shall require monitoring if construction activity exceeds the depth of the low-sensitivity surficial sediments. The underlying sediments may have high sensitivity; therefore, work in those units shall require paleontological monitoring, as designated by the Qualified Paleontologist in the Paleontological Resources Monitoring and Mitigation Plan (PRMMP)….

GEO-6 **All Projects.** In the event of any fossil discovery, regardless of depth or geologic formation, construction work shall halt within a 50-foot radius of the find until its significance can be determined by a Qualified Paleontologist. Significant fossils shall be recovered, prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility in accordance with the standards of the Society of Vertebrate Paleontology (2010). The most likely repository is the Natural History Museum of Los Angeles County (NHMLA). The repository shall be identified, and a curatorial arrangement shall be signed, prior to collection of the fossils.

VI. CONCLUSIONS AND RECOMMENDATIONS

Research has confirmed the existence of Holocene and upper Pleistocene-aged gravelly young alluvial fan deposits at the project that may be potentially fossiliferous at depth. Based on paleontological sensitivity ratings for the geological formations underlying the project, the City of Corona (General Plan: City of Corona 2020; EIR: City of Corona 2019) requires the preparation of a PRMMP for approval by the city of Corona prior to approval of grading plans for the project. The PRMMP shall follow the guidelines outlined in mitigation measures GEO-1, GEO-2, GEO-3, and GEO-6, and shall be approved prior to approval of the project's grading plans by the Corona's Community Development Department. However, based on the findings of this assessment, it is recommended that the PRMMP contain the following modifications to the mitigation measures presented in Section V (City of Corona 2019, 2020). These modifications are based primarily on the very coarse character of the deposits observed at the surface during the project survey, and their young age. Deposits such as these typically have a low potential to yield fossils.

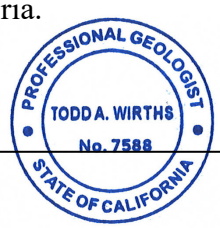
1. GEO-2: a "high" paleontological sensitivity has been assigned to the alluvial deposits approximately situated across the west half of the project. The City requires that these deposits shall be monitored by a qualified paleontological monitor on a full-time basis. It is recommended here that monitoring begin at a depth of five feet.
2. GEO-3: a "low to high" paleontological sensitivity has been assigned to the alluvial deposits approximately situated across the east half of the project. The City requires that these deposits shall be monitored if construction activity exceeds the depth of the low-sensitivity surficial sediments, since the underlying (deeper) sediments may have a high sensitivity. However, the depth of the transition from "low" to "high" sensitivity within the alluvial deposits is not known at the project. It is recommended here that the assessment of low vs. high paleontological resource sensitivity within

the deposits begin at a depth of five feet. Thereafter, the qualified paleontological monitor, in consultation with the Qualified Paleontologist, shall determine the necessity and/or duration of paleontological monitoring.

3. GEO-6: the Natural History Museum of Los Angeles County has been recommended by the City as the curatorial facility (depository) for paleontological resources. It is recommended here that the depository shall be the Western Science Center in Hemet, in recognition of their regional importance and scientific integrity for paleontology in Riverside County and southern California.

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.



September 6, 2022

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

Date

VIII. REFERENCES

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Fisk, L.H. and Peck, P.R. 2004. A large fossil flora from the Pleistocene older alluvium, Triple M Ranch, Corona, California. Southern California Academy of Sciences, Abstracts of Papers, v. 103, Supplement to no. 2: 2004 Annual Meeting, California State University Long Beach, California, May 14-15, 2004. (Chase Ranch was previously termed as "Triple M Ranch." The Chase Ranch Specific Plan [City of Corona 1989] was prepared, in part, for Triple M Development of Palos Verdes Estates, California)

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APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Senior Paleontologist

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Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa-ca.com

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.

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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.