

# PALEONTOLOGICAL ASSESSMENT FOR THE KAISER COMMERCE CENTER PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

APNs 023-803-132, -133, -134, -135, and -136

Prepared for:

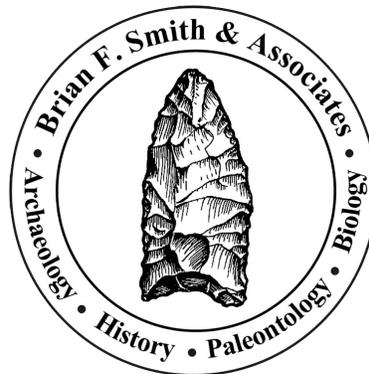
T&B Planning, Inc.  
17542 East 17<sup>th</sup> Street, Suite 100  
Tustin, California 92780

Submitted to:

County of San Bernardino  
385 North Arrowhead Avenue  
San Bernardino, California 92415

Prepared by:

Brian F. Smith and Associates, Inc.  
14010 Poway Road, Suite A  
Poway, California 92064



*August 27, 2019*

## **Paleontological Database Information**

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***Report Date:*** August 27, 2019

***Report Title:*** Paleontological Assessment for the Kaiser Commerce Center  
Project, San Bernardino County, California (APNs 023-803-132,  
-133, -134, -135, and -136)

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***USGS Quadrangle:*** *Guasti, California (7.5 minute)*

***Study Area:*** 9.9 acres

***Key Words:*** Paleontological assessment; High Paleontological resource  
sensitivity; County of San Bernardino.

## **I. INTRODUCTION AND LOCATION**

A paleontological resource assessment has been completed for the Kaiser Commerce Center Project (Assessor's Parcel Numbers [APNs] 023-803-132, -133, -134, -135, and -136), located in unincorporated San Bernardino County. The 9.9-acre project site is positioned on the south side of San Bernardino Avenue between Commerce Drive and Calabash Avenue near the western limits of the city of Fontana (Figures 1 and 2). The project site is part of an area of heavy industrial facilities, including steel works. On the U.S. Geological Survey 7.5-minute, 1:24,000-scale *Guasti, California* topographic quadrangle map, the project is located within Section 21 of Township 1 South, Range 6 West, San Bernardino Base and Meridian. The site is currently occupied by heavy industrial operations. An industrial warehouse building is proposed for construction at the project.

## **II. REGULATORY SETTING**

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

### **State of California**

Under Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 1, Chapter 3, California Code of Regulations: 15000 et seq.), procedures define the type of activities, persons, and public agencies required to comply with CEQA. In the Environmental Checklist, one of the questions to answer is, "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (Section 15023, Appendix G, Section XIV, Part a). The California Public Resources Code (PRC) Section 5097.5 states:

- a) No person shall 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. Violation of this section is a misdemeanor.
- 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.

### **County of San Bernardino**

The County of San Bernardino 2007 Development Code (2018) has developed criteria applying guidelines to preserve and protect nonrenewable paleontological resources. In Chapter 82.20, “Paleontologic Resources (PR) Overlay,” of the Development Code, Purpose, Location Requirements, Development Standards, and Paleontologist Qualifications are described in Sections 82.20.010 through 82.20.040, respectively (County of San Bernardino Development Code 2018).

## **III. GEOLOGY**

The project is located at the western margin and near the distal southern end of the broad Lytle Creek alluvial fan that emanates from the San Gabriel Mountains approximately seven to eight miles to the north as a result of uplift and dissection of the eastern San Gabriel Mountains. The main source of these sediments is from the Lytle Creek drainage, near where the northwest-southeast trending San Andreas fault zone cuts across and separates the San Gabriel and San Bernardino mountain ranges. Geomorphically, the project is relatively flat-lying, with a gentle slope to the southwest. Cartographically, the project occupies an area divided between two geologic maps (Figures 3A and 3B). The site itself occupies the *Guasti* Quadrangle, which is part of regional mapping by Morton and Miller (2006). East of the site about a half a mile, the geology of the *Fontana* Quadrangle is presented by Morton (2003). The area’s subsurface is mostly underlain by late Pleistocene to early Holocene old alluvial fan deposits (pale amber areas labeled Qyf<sub>1</sub>, Morton and Miller 2006) and middle to late Pleistocene old alluvial fan deposits (pale amber areas labeled Qof<sub>3</sub>, Morton 2003) on Figures 3A and 3B that occur as slightly raised areas protruding through the surrounding surficial Quaternary (Holocene and late Pleistocene) young alluvial fan sediments (light yellow areas labeled Qyf<sub>5</sub>/Qyf<sub>1</sub>) of the Lytle Creek fan (Figures 3A and 3B). Dutcher and Garrett (1963, Pl. 7, cross-section G-G') indicate that young alluvial fan deposits may exceed 100 feet thick in some areas, but show that young alluvial fan deposits are approximately 15 feet thick for a broad area in the Fontana Plain about four miles east-northeast of the Kaiser Commerce Center Project. Large deposits of artificial fill materials (brown areas labeled Qaf) sandwich the Kaiser Commerce Center Project.

The proximity of outcrops of older alluvial deposits to the younger alluvial deposits underlying the site support Dutcher and Garrett’s (1963) latter assessment, and general geologic structural relationships as well, for a relatively thin thickness of the young alluvial deposits. A site-specific geotechnical report for this project was not available for examination, but rarely do geotechnical reports distinguish between older and younger alluvial or alluvial fan sediments in boring logs.

## **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, county, and local guidelines (Section II of this report).

### **Fossil Records Search**

A paleontological records search was performed for the Kaiser Commerce Center Project by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (LACM; McLeod 2019). The report (attached) did not identify any localities known from within the project boundaries but identified nearby fossil localities from within similar sediment types to the Kaiser Commerce Center Project. The closest LACM fossil vertebrate locality to the project is LACM no. 7811, located in Jurupa Valley, about eight miles to the south-southeast, and consists of the fossil remains of a whipsnake. McLeod (2019) indicated that shallow excavations in the overlying younger alluvium are unlikely to yield significant vertebrate fossils, but deeper excavations into older deposits of Quaternary alluvium have a greater potential to encounter vertebrate fossils.

A paleontological literature review and collections and records search for another project approximately 0.8 mile southwest of the Kaiser Commerce Center Project (the Slover Avenue Distribution Center) was conducted by a vertebrate paleontologist in the Division of Geological Sciences at the San Bernardino County Museum (SBCM) in Redlands (Scott 2014, attached). The resulting report did not identify any previously recorded fossil localities from within the boundaries of that project, but did discuss the presence of Ice Age vertebrate fossils, mainly larger terrestrial mammals, recovered from older, Pleistocene, sediments to the south of the Kaiser Commerce Center Project, probably from the late Pleistocene to early Holocene old alluvial fan deposits (Qyf<sub>1</sub>, of Morton and Miller 2006, Qof<sub>3</sub> of Morton 2003). The older Pleistocene sediments were accorded a High paleontological resource sensitivity by Scott (2014) in his literature review and records search report, and might be present at an undetermined depth below the younger Quaternary alluvial fan sediments across the current project. The Pleistocene fossils recorded from approximately one and a half to two miles south of the Kaiser Commerce Center Project included extinct species of mastodon, bison, and camel at depths as shallow as five feet below the surface (SBCM locs. 5.1.14 to 5.1.21). The locality two miles southwest of the original site, and thus between three and three and one-half miles west-southwest of the Kaiser Commerce Center property, included mammoth remains at a depth of about 20 feet below the surface (SBCM

loc. 5.1.8).

## 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. Late Quaternary (Holocene, or “modern”) 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. Older, Pleistocene (greater than 10,000 years old), alluvial and alluvial fan deposits in the Inland Empire, 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 (Scott 2014, attached). These Pleistocene sediments are thus accorded a High paleontological resource sensitivity.

### Professional Standards

The Society of Vertebrate Paleontology (SVP) drafted guidelines outlining procedures that include:

[E]valuating the potential for impacts of a proposed action on paleontological resources and for mitigating those impacts. Impact mitigation includes pre-project survey and salvage, monitoring and screen washing during excavation to salvage fossils, conservation and inventory, and final reports and specimen curation. The objective of these procedures is to offer standard methods for assessing potential impacts to fossils and mitigating these impacts. (SVP 2010)

The guidelines 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.

### **County Assessment**

The County of San Bernardino applies its “Paleontologic Resources (PR) Overlay” guideline to those areas where paleontological resources are known to occur or are likely to be present, by using fossil location criteria reported by the SBCM, the University of California Museum of Paleontology (Berkeley), the Los Angeles County Natural History Museum, or other institutions (County of San Bernardino 2018, Section 82.20.020). The reported presence of paleontological resources by the SBCM near the Kaiser Commerce Center Project in a similar geologic setting and in similar mapped rock units follows the County’s definition for mitigation and preservation of nonrenewable paleontological resources (County of San Bernardino 2018, Section 82.20.010). Therefore, the project is subject to remain in compliance within the County’s Paleontologic Resources Overlay, Section 82.20.030 (County of San Bernardino 2018).

## **VI. RECOMMENDATIONS**

The existence of Quaternary (i.e., middle to late Pleistocene or younger) alluvial fan deposits (Qyf<sub>1</sub>/Qof<sub>3</sub>) near and likely beneath the project, along with the High paleontological resource sensitivity assigned to these sediments locally (Scott 2014), and the presence of previously recorded fossil specimens from the unit about one and a half to two miles south of the subject property all support the recommendation that full-time paleontological monitoring be required starting at a depth of 10 feet below the surface during grading, excavation, or utility trenching activities concomitant with the site preparation phase of the Kaiser Commerce Center construction project. For grading and other earth disturbance activities at depths between five and 10 feet below the surface, periodic spot checks for potential paleontological resources is warranted. Periodic monitoring will consist of approximately one to two scheduled site visits per week by a paleontological monitor during construction ground disturbance.

A Mitigation Monitoring and Reporting Program (MMRP) is proposed and must be consistent with the provisions of CEQA, the County of San Bernardino (2018, Section 82.20.030), Scott 2014 (attached), and those of the guidelines of the SVP (2010). If implemented, the MMRP report would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to less than significant. A proposed paleontological MMRP follows.

**Proposed Paleontological Mitigation Monitoring and Reporting Program (MMRP)**

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Monitoring will be conducted full-time in areas of grading or excavation in undisturbed exposures of Quaternary (i.e., middle to late Pleistocene or younger) alluvial fan deposits (Qyf<sub>1</sub>/Qof<sub>3</sub>, Figures 3A and 3B) at a depth of 10 feet and below. Periodic spot checks (one to two visits per week) will be performed in areas with earth disturbance ranging from five to 10 feet deep. Monitoring is not recommended for earth disturbances of less than two feet. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediment that are likely to contain the remains of small fossil invertebrates and vertebrates. 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 they are present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources.
2. Preparation of recovered specimens to a point of identification and permanent preservation, including screen-washing sediments to recover small invertebrates and vertebrates if indicated by the results of test sampling. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
3. All fossils must be deposited in an accredited institution (university or museum) that maintains collections of paleontological materials. All costs of the paleontological monitoring and mitigation program, including any one-time charges by the receiving institution, are the responsibility of the developer.
4. Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). A letter documenting receipt and acceptance of all fossil collections by the receiving institution must be included in the final report. The report, when submitted to (and accepted by) the appropriate lead agency (i.e., the County of San Bernardino), will signify satisfactory completion of the project program to mitigate impacts to any nonrenewable paleontological resources.

## VIII. 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.

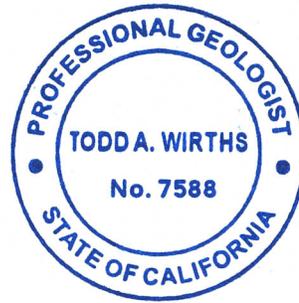


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Todd A. Wirths  
Senior Paleontologist  
California Professional Geologist No. 7588

August 27, 2019

Date



**VIII. ATTACHMENT A**

**References  
Resumes**

## **REFERENCES**

- County of San Bernardino. 2018. County of San Bernardino 2007 Development Code. Prepared for the County of San Bernardino Land Use Services Division, by several consultants. Adopted March 13, 2007; effective April 12, 2007; amended April 20, 2018. <http://www.sbcounty.gov/Uploads/lus/DevelopmentCode/DCWebsite.pdf>.
- Dutcher, L.C., and Garrett, A.A. 1963. Geologic and hydrologic features of the San Bernardino area, California - with special reference to underflow across the San Jacinto fault. USGS Water-Supply Paper 1419.
- McLeod, S.A. 2019. Paleontological resources records search for the proposed Kaiser Commerce Center Project, BFSAs Project #19-032, in the City of Fontana, San Bernardino County, project area. Unpublished letter report for Brian F. Smith and Associates, Inc., of Poway, Calif., by the Natural History Museum of Los Angeles County, Vertebrate Paleontology Section, Los Angeles, California (Attached).
- Morton, D.M. 2003. Preliminary Geologic Map of the *Fontana* 7.5' Quadrangle, San Bernardino and Riverside Counties, California, Version 1.0: U.S. Geological Survey Open-File Report 03-418, scale 1:24,000.
- Morton, D.M., and Miller, F.K. 2006. Geologic map of the *San Bernardino* and *Santa Ana* 30' X 60' Quadrangles, California, v. 1.0. U.S. Geological Survey Open File Report 2006-1217.
- Scott, E.G. 2014. Paleontology literature and records review, Slover Avenue Distribution Center project, city of Fontana, San Bernardino County, California. Unpublished letter report for Brian F. Smith and Associates, Inc., of Poway, Calif., by the San Bernardino County Museum, Division of Geological Sciences, Redlands, California (Attached).
- 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: [http://vertpaleo.org/Membership/Member-Ethics/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx).

# Todd A. Wirths, MS, PG

## Senior Paleontologist

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## Education

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<b>Master of Science, Geological Sciences, San Diego State University, California</b>	<b>1995</b>
<b>Bachelor of Arts, Earth Sciences, University of California, Santa Cruz</b>	<b>1993</b>
<b>Associate of Arts, Geological Sciences, Santa Barbara City College</b>	<b>1992</b>

## Professional Certifications

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Professional Geologist, California (#7588), 2003  
Riverside County Approved Paleontologist  
San Diego County Qualified Paleontologist  
Orange County Certified Paleontologist (applied, 2019)  
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 (President, 2012; Vice President, 2011)  
South Coast Geological Society

## Publications

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*Picacho and the Cargo Muchachos: Guns, Gold, and Geology of Eastern Imperial County, California:*  
San Diego Associations of Geologists/Sunbelt Publications, 2012 (1<sup>st</sup> ed.), 2014 (2<sup>nd</sup> ed.).  
"Picacho, the Golden Road," *Dezert Magazine*, Winter, 2013.

## Experience

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**Senior Paleontologist**  
**Brian F. Smith and Associates, Inc.**

**October 2012–Present**  
**Poway, California**

Mr. Wirths serves as the director of the paleontology department at BFSa. Mr. Wirths oversees all phases of project-related paleontology, including management of field and junior staff, planning, organizing, and implementing monitoring projects, research, report drafting, regulatory compliance, and laboratory oversight. Mr. Wirths directs or performs resource mitigation monitoring of construction sites, fossil salvage activities, paleontological field surveys and assessments, laboratory fossil preparation and curation. He has drafted dozens of technical reports, including paleontological assessments, site reports, and paleontological resource impact mitigation program (PRIMP) reports. Mr. Wirths created and implemented BFSa-specific fossil-recovery data sheets for field use by monitoring staff. The field

experience of Mr. Wirths includes the use of Trimble GPS data recording, burlap and plaster techniques, collection of microfossils, and wet and dry-screening techniques. Mr. Wirths provides expert identification of fossil marine invertebrates.

**Lead Geological/Paleontological Consultant  
Cogstone Resource Management**

**November 2011–February 2009  
San Diego and Orange, California**

Mr. Wirths conducted on-site paleontological monitoring, drafted/evaluated RFP responses, work plans, and reports; planned, organized, and implemented projects, and trained and supervised junior staff. Field localities include projects in Calaveras, Merced, Tulare, San Joaquin, Kern, San Bernardino, Los Angeles, and Riverside Counties. At the Highway 99 Caltrans expansion project near Merced, Mr. Wirths recovered dozens of Rancholabrean-age vertebrate fossils using plaster and burlap casting techniques.

**Paleontological/Geological Monitor  
San Diego Natural History Museum**

**February 2011–November 2011  
San Diego, California**

Oversaw construction and development sites for fossil resources and logged and interpreted geology during drilling and trenching activities/recovery of fossils. Monitoring projects include the SDG&E Sunrise Powerlink, several SDG&E Wood to Steel projects, San Diego City College expansion, The Bishops School, and the Prebys Cardiovascular Institute.

**Project Manager/Geologist  
Wirths Consulting**

**March 2010–February 2011  
San Diego, California**

Provided environmental consulting services for Apex Companies, H.M. Pitt Labs, Ninyo & Moore, and TRC Solutions, providing project management, reporting, and certified professional field oversight, designing/budgeting an *in situ* chemical oxidation project, and obtaining a City of San Diego business license.

**Senior Project Manager  
ETIC Engineering, Inc.**

**April 2007–August 2009  
Santa Diego, California**

Operated as senior project manager for 10 ExxonMobil retail sites, designed and implemented assessment and remediation projects (including project forecasting/budgeting, managing subcontractors, and composing work plans), composed work plans, assessment reports, and corrective action plans, and managed/mentored staff-level associates.

**Project Manager  
TRC Solution, Inc./TRC Alton Geoscience**

**January 2000–April 2007  
San Diego and Imperial Counties, California**

Operated as project manager for various projects throughout San Diego County, including ExxonMobil Oil Corporation and Unocal Corporation remediation activities, BNSF Railway Company groundwater assessment and remediation, and Ultramar/Valero, Inc., which involved supervising/managing on-site personnel, collecting/managing soils, groundwater, and wood samples, writing reports, and conducting remediation feasibility testing and remedial planning.

**Staff Geologist  
IT Corp./Pacific Environmental Group**

**May 1997–September 2000  
San Diego, Orange, and Los Angeles Counties, California**

Tracked progress of excavation and delineation of impact, sampled/managed soil, and conducted drilling and groundwater monitoring/well installation activities.

## Selected Technical Reports

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Glover, Amy, Todd **Wirths**, and Sherri Gust

2012 *Paleontological assessment for the Paradise Creek Housing Development, National City, San Diego County, California.* Prepared for The Related Companies of California, Irvine, CA, by Cogstone Resource Mgt., Inc.

Gust, Sherri, Kim Scott, and Todd **Wirths**

2012 *Paleontological resources assessment for the WECC Path 42 Project in Riverside County, California.* Prepared for Southern California Edison, Monrovia, CA, by Cogstone Resource Mgt., Inc.

Horne, Melinda, Todd **Wirths**, and Amy Glover

2012 *Paleontological and cultural resources assessment for the town of Yucca Valley General Plan update, San Bernardino County, California.* Prepared for The Planning Center – DC&E, Santa Ana, CA, by Cogstone Resource Mgt., Inc.

**Wirths**, Todd A., and Sherri Gust

2012 *Paleontological resources assessment for the Truckhaven geothermal expansion project, Imperial County, California.* Prepared for NGP Truckhaven, LLC, Reno, NV, by Cogstone Resource Mgt., Inc.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Aztec Court Apartments, 6237 Montezuma Road, San Diego, San Diego County, California.* Prepared for Warmington Residential California, Inc., Southern California Division. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Citywide Sewer Pump Station Upgrades, Group II, Pump Station 60A, Scripps Ranch neighborhood, City of San Diego, San Diego County, California (PTS No. 31233 and WBS No. S-00304).* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Impact Mitigation Program (PRIMP), Rancho Paseo de Valencia, City of Corona and unincorporated Riverside County, California (Tentative Tract Map 34760; APNs 114-040-019, 114-040-020, 275-100-003, and 275-100-004).* Prepared for Rancho Paseo de Valencia. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological monitoring report, Casa Aldea Phase II, University City Village Apartments, 6112, 6122, and 6132 Gullstrand Street, University City, San Diego, San Diego County (LDR No. 98-0408, PTS No. 303550).* Prepared for Wise River Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Assessment, Ballpark Village Development, East Village, San Diego, San Diego County, California.* Prepared for Ballpark Village, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *An Updated Phase I Paleontological Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside, California.* Prepared for Brookfield Residential. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Impact Mitigation Program (PRIMP), Ridge Park project, city of Temecula, Riverside County, California (APNs 922-210-049; 940-310-013, 940-310-015, and 940-310-016; 940-310-044 through 940-310-048; and 940-320-001 through 940-320-007).* Prepared for Ambient Communities. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Chino Desalter Phase III Expansion Project, 11301 Harrel Street, City of Jurupa Valley, Riverside County, California.* Prepared for W.M. Lyles Co. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological resource and monitoring assessment, proposed Avanti North housing development, Lancaster, Los Angeles County, California (Tentative Tract Map No. 53229).* Prepared for Avanti North, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological monitoring report for the Montezuma Trunk Sewer project, College and Mid-Cities Community Plan Areas, San Diego, San Diego County, California (Project No. 240104).* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological resource impact assessment for the Lake Ranch project site, unincorporated Riverside County, California (APNs 270-060-010, 270-160-001, 270-170-010, 270-170-011, and 270-180-010; TR 36730).* Prepared for Christopher Development Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Menifee Heights Development, City of Menifee, Riverside County, California (Tract No. 32277).* Prepared for CV Communities, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Assessment, Shoshone Valley Road solar array project, Twentynine Palms, San Bernardino County, California (APNs 613-233-01, -02, -03, -04, -27, -28, -29, and -30).* Prepared for Ecos Energy, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Assessment, Utah Trail solar array project, Twentynine Palms, San Bernardino County, California (APNs 621-281-22 through 621-281-25).* Prepared for Ecos Energy, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, San Diego Community College District, César Chávez Campus, Barrio Logan, San Diego, California.* Prepared for San Diego Community College District. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Sewer and Water Group 761, Uptown Community Plan Area, San Diego, San Diego County, California.* Prepared for Burtech Pipeline. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

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Kennedy, George L., and Todd A. **Wirths**

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Kennedy, George L., and Todd A. **Wirths**

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Kennedy, George L., and Todd A. **Wirths**

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Kennedy, George L., and Todd A. **Wirths**

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Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2012 *Paleontological Monitoring Report, Construction of 13<sup>th</sup> & Market Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for The Hanover Company. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

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Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Village Lindo Paseo Dormitories, SDSU College Area, City of San Diego, San Diego County, California.* Prepared for Village Lindo Paseo, L.P. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Grit Processing Improvements Project, Point Loma Wastewater Treatment Plant, San Diego, San Diego County, California (Sewer WO No. 176001; WBS No. S-00315)*. Prepared for Archer Western Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Harbor Drive Trunk Sewer, City of San Diego, San Diego County, California (Project No. 38789)*. Prepared for Burtech Pipeline. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and Brian F. Smith

2013 *Paleontological and Archaeological Monitoring and Mitigation Report, Lake Forest Sports Park, City of Lake Forest, Orange County, California*. Prepared for Road Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Negative Paleontological Monitoring and Mitigation Report, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN 060-032-04)*. Prepared for Primus Building Solutions. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

**Wirths**, Todd A., and George L. Kennedy

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2015 *Paleontological Monitoring Report, 951 South Beach Boulevard Project, La Habra, Orange County, California (MND No. 14-01)*. Prepared for Fairfield 951 Beach, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2015 *Paleontological Monitoring Report, Casa Aldea Lots 4 & 6, Fairbanks Ranch-Santaluz Area, Northern San Diego, California*. Prepared for Wise River Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2015 *Paleontological Monitoring Report, Pendry Hotel San Diego, Gaslamp Quarter, Downtown San Diego, California*. Prepared for The Robert Green Company. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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Kennedy, George L., and Todd A. **Wirths**

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**Wirths**, Todd A., and George L. Kennedy

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**Wirths**, Todd A., and George L. Kennedy

2017 *Paleontological Monitoring Report, 460 16<sup>th</sup> Street, East Village, Downtown San Diego, San Diego County, California.* Prepared for Lennar Multifamily Communities, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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2017 *Paleontological Monitoring Report, Imagine Coachella project at the Jordan Christian Academy, West of Coachella in Unincorporated Riverside County, California.* Prepared for M-13 Construction, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2017 *Paleontological Monitoring Report, Kettner and Ash Condominiums Project, Columbia District of Downtown San Diego, San Diego County, California.* Prepared for Bosa Development California, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

2018 *Paleontological Monitoring Report, Manning Canyon Sewer and Water Replacement Project, Linda Vista, City of San Diego, San Diego County, California.* Prepared for Red Tail Monitoring & Research, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

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**Wirths**, Todd A., and George L. Kennedy

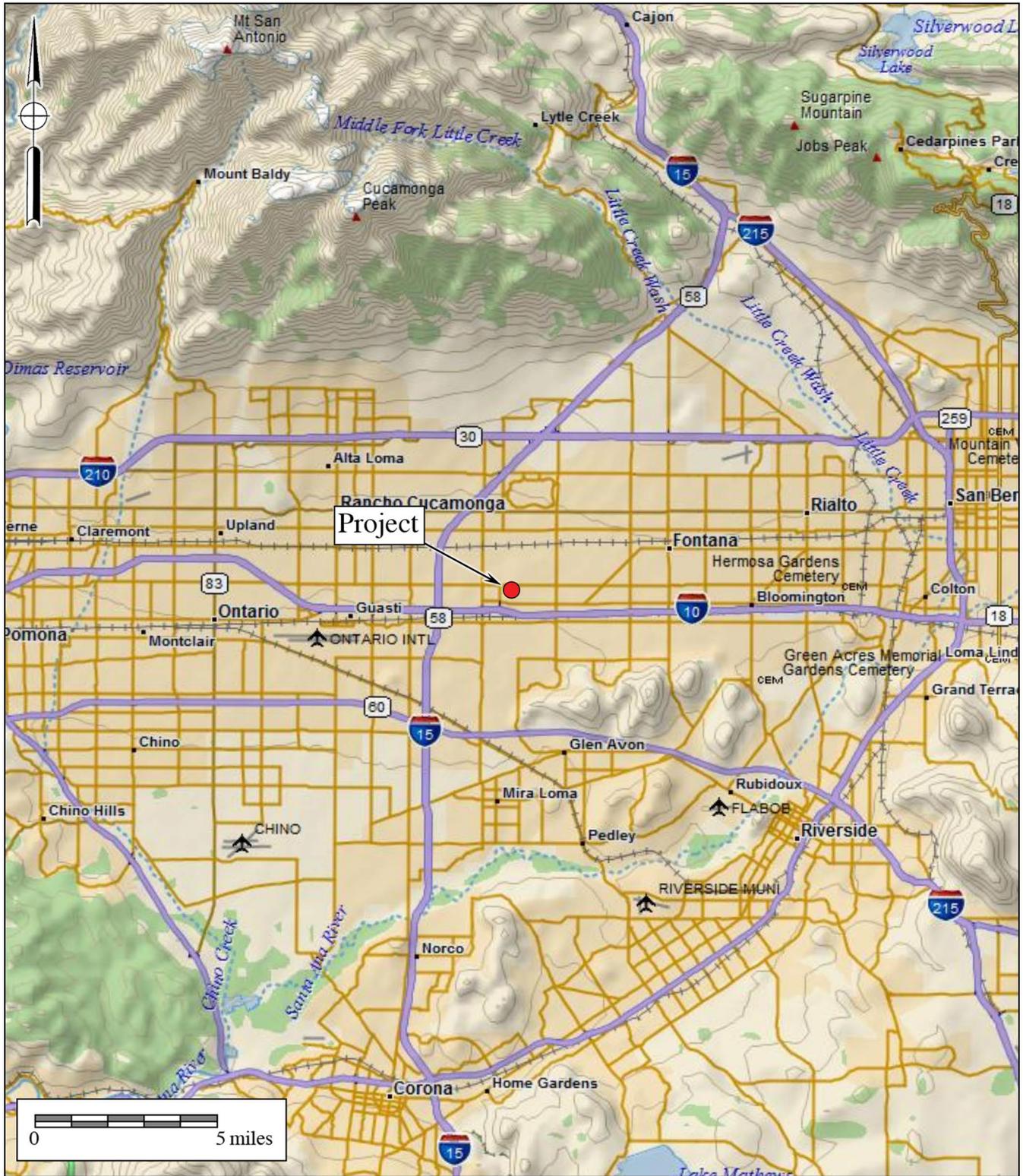
2018 *Negative Paleontological Monitoring Report, Verizon Capistrano Depot Project, 32400 Paseo Adelanto, San Juan Capistrano, Orange County, California (CUP No. 16-003; APN 668-10-023).* Prepared for Trileaf Environmental and Property Consultants. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

2019 *Paleontological Monitoring Report, Saint Demiana Coptic Orthodox Church, Santaluz-Torrey Highlands Neighborhood, San Diego, San Diego County, California.* Prepared for Barnhart-Reese Construction, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

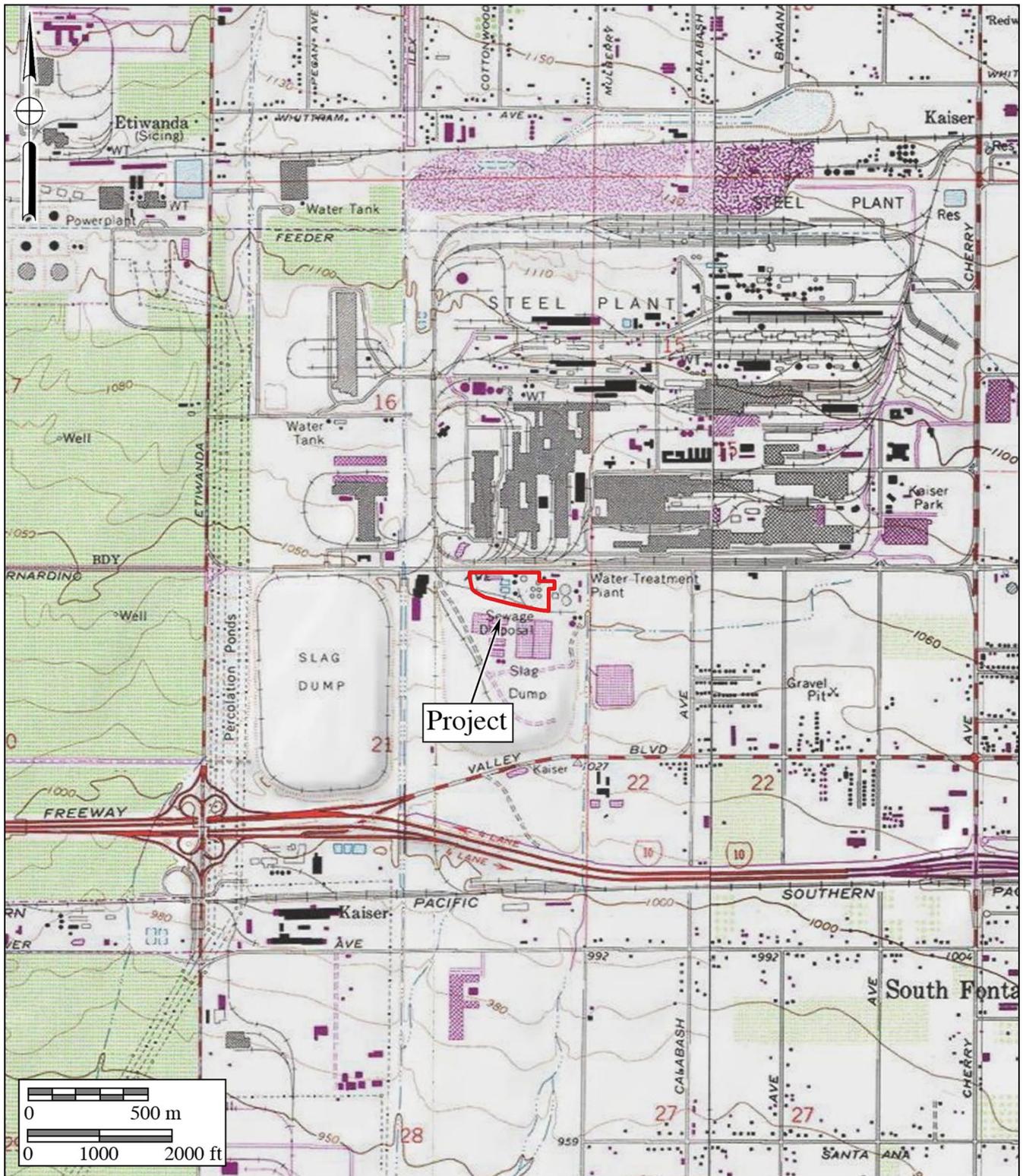
**IX. ATTACHMENT B**

**Project Maps:  
General Location Map  
USGS Project Location Map  
Geologic Map  
Geologic Map Key**



**Figure 1**  
**General Location Map**  
 The Kaiser Commerce Center Project  
 DeLorme (1:250,000)





**Figure 2**

**Project Location Map**

The Kaiser Commerce Center Project  
 USGS *Guasti* Quadrangle (1:24,000 series)





DESCRIPTION OF MAP UNITS

From Morton and  
Miller 2006

From Morton 2003

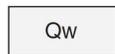


Qaf



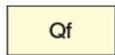
Qaf

Artificial fill



Qw

Late Holocene, very young wash deposits



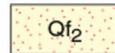
Qf

Late Holocene, very young alluvial fan deposits



Qyfe

Holocene and late Pleistocene young  
alluvial fan deposits of Etiwanda Creek



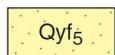
Qf<sub>2</sub>

Late Holocene very young alluvial fan deposits, Unit 2

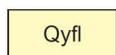


Qye

Holocene and late Pleistocene young eolian deposits

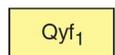


Qyf<sub>5</sub>



Qyfl

Holocene to late Pleistocene young alluvial fan deposits



Qyf<sub>1</sub>



Qof<sub>1</sub>

Late to middle Pleistocene old alluvial fan deposits



**Figure 3B**  
**Geologic Key**

The Kaiser Commerce Center Project

Geology after Morton and Miller (2006) and Morton (2003)

**X. ATTACHMENT C**

**Paleontological Records Search Results**



## Museum

Leonard X. Hernandez  
Interim Museum Director

21 October 2014

Brian F. Smith and Associates  
attn: George L. Kennedy, Ph.D., Senior Paleontologist  
14010 Poway Road, Suite A  
Poway, CA 92064

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re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, SLOVER AVENUE DISTRIBUTION CENTER PROJECT, CITY OF FONTANA, SAN BERNARDINO COUNTY, CALIFORNIA**

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Dear Dr. Kennedy,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named development in the City of Fontana, San Bernardino County. Specifically, the proposed project property is located in the southwestern quadrant of section 21, Township 1 South, Range 6 West, San Bernardino Base and Meridian, as seen on the Guasti, California 7.5' United States Geological Survey topographic quadrangle map (1966 edition, photorevised 1981).

Previous geologic mapping (Bortugno and Spittler, 1986; Morton and Miller, 2003) indicates that the proposed project property is situated upon late Holocene fan deposits (= unit **Qyf<sub>5</sub>**). Because these sediments are geologically very young, they have low potential to contain significant nonrenewable paleontologic resources subject to adverse impact by development-related excavation, and are therefore assigned low paleontologic sensitivity. However, these sediments likely overlie older Pleistocene alluvial sediments present in the subsurface that have high potential to contain significant nonrenewable paleontologic resources, and so where present are assigned high paleontologic sensitivity. Pleistocene alluvial sediments elsewhere throughout San Bernardino and Riverside Counties and the Inland Empire have been previously reported to yield significant fossils of extinct animals from the Ice Age (Jefferson, 1991; Reynolds and Reynolds, 1991; Pajak and others, 1996; Anderson and others, 2002; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison, as well as plant macro- and microfossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Pajak and others, 1996; Anderson and others, 2002; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010). If present in the subsurface, and depending upon the lithology exhibited, Pleistocene older alluvium within the boundaries of the study areas has high paleontologic sensitivity.

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For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously-recorded paleontologic resource localities are present within the boundaries of the proposed development property. However, localities SBCM 5.1.14 - 5.1.21, situated within one mile to the southeast of the proposed project property, yielded remains of extinct mastodon, bison, and camel from as little as 5 feet below the existing ground surface. Additionally, locality SBCM 5.1.8, situated roughly 2 miles southwest of the project, yielded fossil remains of extinct mammoth from depths of approximately 20' below the existing ground surface. The proximity of all of these localities to the study area demonstrates the high potential of Pleistocene older alluvium in this area to contain significant vertebrate fossils.

### **Recommendations**

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the proposed property may be situated upon Pleistocene older alluvial deposits present at depth that, if not previously disturbed by development, have high potential to contain paleontologic resources. Excavation into this older alluvium therefore has high potential to impact paleontologic resources. If the proposed depth of excavation is sufficient to encounter these Pleistocene sediments, a qualified vertebrate paleontologist must develop a program to mitigate impacts to nonrenewable paleontologic resources, including full curation of recovered resources (see Scott and others, 2004). This mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of San Bernardino.

The County of San Bernardino (Development Code §82.20.040) defines a qualified vertebrate paleontologist as meeting the following criteria:

Education: An advanced degree (Masters or higher) in geology, paleontology, biology or related disciplines (exclusive of archaeology).

Professional experience: At least five years professional experience with paleontologic (not including cultural) resources, including the collection, identification and curation of the resources.

The County of San Bernardino (Development Code §82.20.030) requires that paleontologic mitigation programs include, but not be limited to:

(a) Field survey before grading. In areas of potential but unknown sensitivity, field surveys before grading shall be required to establish the need for paleontologic monitoring.

(b) Monitoring during grading. A project that requires grading plans and is located in an area of known fossil occurrence, or that has been demonstrated to have fossils present in a field survey, shall have all grading monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Paleontologic monitors shall be equipped to salvage fossils as they are unearthed, to avoid construction delays, and

to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring is not necessary if the potentially-fossiliferous units described for the property in question are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.

(c) Recovered specimens. Qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils is essential in order to fully mitigate adverse impacts to the resources.

(d) Identification and curation of specimens. Qualified paleontologic personnel shall identify and curate specimens into the collections of the Division of Geological Sciences, San Bernardino County Museum, an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation and CEQA compliance. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until curation into an established museum repository has been fully completed and documented.

(e) Report of findings. Qualified paleontologic personnel shall prepare a report of findings with an appended itemized list of specimens. A preliminary report shall be submitted and approved before granting of building permits, and a final report shall be submitted and approved before granting of occupancy permits. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into the collections of the San Bernardino County Museum, will signify completion of the program to mitigate impacts to paleontologic resources.

## References

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Please do not hesitate to contact us with any additional questions you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Scott". The signature is stylized and somewhat cursive, with a large loop at the top and a smaller loop at the bottom.

Eric Scott, Curator of Paleontology  
Division of Geological Sciences  
San Bernardino County Museum

Natural History Museum  
of Los Angeles County  
900 Exposition Boulevard  
Los Angeles, CA 90007

tel 213.763.DINO  
www.nhm.org



Vertebrate Paleontology Section  
Telephone: (213) 763-3325

e-mail: [smcleod@nhm.org](mailto:smcleod@nhm.org)

8 August 2019

Brian F. Smith & Associates, Inc.  
14010 Poway Road, Suite A  
Poway, CA 92064

Attn: Todd Wirths, Senior Paleontologist

re: Paleontological Resources Records Search for the proposed Kaiser Commerce Center Project,  
BFSa Project # 19-032, in the City of Fontana, San Bernardino County, project area

Dear Todd:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Kaiser Commerce Center Project, BFSa Project # 19-032, in the City of Fontana, San Bernardino County, project area as outlined on the portion of the Guasti USGS topographic quadrangle map that you sent to me via e-mail on 25 July 2019. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities farther afield from sedimentary deposits similar to those that may occur subsurface in the proposed project area.

In the entire proposed project area the surface sediments are composed of younger Quaternary Alluvium, derived broadly as alluvial fan deposits from the San Gabriel Mountains to the north via Lytle Creek that currently flows to the north and east and partly via East Etiwanda Creek that currently flows just to the west. These deposits typically do not contain significant vertebrate fossils in the uppermost layers, but they may be underlain at relatively shallow depth by older sedimentary deposits that do contain significant fossil vertebrate remains. Our closest vertebrate fossil locality from somewhat similar basin deposits is LACM 7811, to the southwest of the proposed project area in the Jurupa Valley north of Norco and west of Mira Loma, along Sumner Avenue north of Cloverdale Road, that produced a fossil specimen of whipsnake, *Masticophis*, at a depth of 9 to 11 feet below the surface. Further to the south between Corona

and Norco our vertebrate fossil locality LACM 1207 produced a fossil specimen of deer, *Odocoileus*.

Shallow excavations in the younger Quaternary Alluvium exposed throughout the proposed project area are unlikely to encounter significant vertebrate fossils. Deeper excavations in the proposed project area that extend down into older Quaternary deposits, however, may well encounter significant remains of fossil vertebrates. Any substantial and deep excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils collected should be placed in an accredited scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

A handwritten signature in cursive script that reads "Samuel A. McLeod".

Samuel A. McLeod, Ph.D.  
Vertebrate Paleontology

enclosure: invoice