PALEONTOLOGICAL ASSESSMENT FOR THE PIONEER REDLANDS PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

APNs 292-071-30, -59, and -60

Prepared for:

First Industrial Realty Trust, Inc.
c/o Advantage Environmental Consultants
145 Vallecitos De Oro, Suite 201
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Submitted to:

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

Prepared by:

Brian F. Smith and Associates, Inc.
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January 3, 2020

Paleontological Database Information

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Report Date:	January 3, 2020
Report Title:	Paleontological Assessment for the Pioneer Redlands Project, San Bernardino County, California (APNs 292-071-30, -59, and -60)
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USGS Quadrangle:	*Redlands, California* (7.5 minute)
Study Area:	22.7 acres
Key Words:	Paleontological assessment; low sensitivity; County of San Bernardino.

I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the Pioneer Redlands Project (Assessor's Parcel Numbers [APNs] 292-071-30, -59, and -60), located at the northeast corner of the intersection of Pioneer Avenue and Alabama Street in an unincorporated area near the city Redlands in San Bernardino County, California (Figures 1 and 2). The 22.7-acre project is bounded on the east by an industrial warehouse, to the south across Pioneer Avenue by a large warehouse/industrial building, to the west across Alabama Street by orchards, and to the north by a vacant lot. On the U.S. Geological Survey 7.5-minute, 1:24,000-scale *Redlands, California* topographic quadrangle map, the project is located in the northwest quarter of the southwest quarter of Section 16, Township 1 South, Range 3 West, San Bernardino Base and Meridian. The project is currently utilized as an orchard.

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 82.20.010, respectively (County of San Bernardino Development Code 2018).

III. GEOLOGY

The Pioneer Redlands Project lies within the broad, fault-bounded alluvial valley of the Santa Ana Wash between the San Bernardino Mountains to the north and the San Timoteo Badlands to the south (Matti et al. 2003). The San Andreas Fault lies at the foot of the San Bernardino Mountains, and the Banning Fault lies approximately two miles south-southwest of the project. The project is positioned within a half mile of the ephemeral Santa Ana River bed (Figure 3, after Matti et al. 2003). Stratigraphically, the project overlies middle Holocene Young axial-valley deposits, Unit 3 (Qya3 on Figure 3). These sedimentary deposits are characterized as fine to coarse-grained sands and pebbly sands that coarsen eastward. The unit is capped by weak to moderate A/AC soils. Based on borings and terrace wall exposures in the Santa Ana Wash, these deposits are at least 10 to 15 meters thick (equivalent to approximately 33 to 49 feet) (Matti et al. 2003).

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 and county guidelines (Section II of this report).

Fossil Records Search

A paleontological literature review and collections and records search was performed by the San Bernardino County Museum (SBCM) for a study conducted by Michael Brandman Associates (Sanka 2008) for the nearby Holy Name of Jesus Catholic Church Project located

southeast of the Pioneer Redlands Project just across Pioneer Avenue in Redlands (Scott 2007, attached). The resulting report did not identify any previously recorded fossil localities from within the boundaries of that project, nor from within a one-mile radius. Scott (2007) indicated that the Holy Name of Jesus Catholic Church project overlies middle Holocene Young axial-valley deposits that have a low paleontological resource potential, and therefore are assigned a low paleontological sensitivity. The Pioneer Redlands Project overlies these same deposits. Scott (2007) also discussed the presence of Ice Age vertebrate fossils, mainly larger terrestrial mammals, recovered from older, Pleistocene, sediments that may underlie the middle Holocene alluvium. These older Pleistocene sediments are accorded a High paleontological resource sensitivity by Scott (2007) in his literature review and records search report, and that these sediments might be present at an undetermined depth below the young alluvial sediments across the current project.

An in-house records search was performed using the fossil locality database website managed by the University of California Museum of Paleontology (UCMP 2019). No fossils are listed as located near the Pioneer Redlands Project. Similarly, records of Quaternary vertebrate fossils listed by Jefferson (2009a, 2009b) indicated these fossil types are not known near the project.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. 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 (Scott 2007, attached). Older, Pleistocene (> 11,000 year 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 2007, 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). Since a low paleontological resource sensitivity has been, and can be, applied to the geologic strata beneath the project (Scott 2007, attached; SVP 2010), and no known fossil resources have been found in the area of the Pioneer Redlands Project (Section IV, above), the application of the County's PR Overlay criteria (Section 82.20.030) does not appear necessary (County of San Bernardino 2018).

VI. RECOMMENDATIONS

The existence of thick deposits of late Quaternary (middle Holocene) alluvial axial valley deposits (Qya3 on Figure 3, after Matti et al. 2003) likely beneath the project, and the lack of any known fossil specimens or fossil localities from within a several-mile radius encompassing the subject property support the recommendation that paleontological monitoring need not be required during surficial grading activities concomitant with the site preparation phase of the Pioneer Redlands Project. However, if fossils of any sort are discovered during grading and earthmoving activities in older (i.e., Pleistocene) sediments below the young axial valley sediments, a paleontologist must be retained to develop a Mitigation Monitoring and Reporting Program (MMRP) consistent with the provisions of CEQA, those of the County of San Bernardino (as listed in Scott 2007, attached), and those of the guidelines of the SVP (2010). Implementation of the MMRP would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources, if they were present, to a level below significant.

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.

January 3, 2020

Todd A. Wirths
Senior Paleontologist
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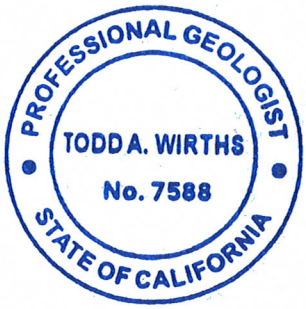
Date



VIII. ATTACHMENT A

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Resumes

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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.

UCMP (University of California Museum of Paleontology). 2019. https://ucmp.berkeley.edu/.

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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 **1993**

Associate of Arts, Geological Sciences, Santa Barbara City College **1992**

Professional Certifications

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

Board member, San Diego Geological Society
San Diego Association of Geologists (President, 2012; Vice President, 2011)
South Coast Geological Society

Publications

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

Experience

Senior Paleontologist **October 2012–Present**
Brian F. Smith and Associates, Inc. **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 **November 2011–February 2009**
Cogstone Resource Management **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 **February 2011–November 2011**
San Diego Natural History Museum **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 **March 2010–February 2011**
Wirths Consulting **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 **April 2007–August 2009**
ETIC Engineering, Inc. **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 **January 2000–April 2007**
TRC Solution, Inc./TRC Alton Geoscience **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 **May 1997–September 2000**
IT Corp./Pacific Environmental Group **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

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**

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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**

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

2014 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Blessed Teresa of Calcutta Catholic Parish project site, French Valley, unincorporated Riverside County, California (APN 480-040-044; Project No. PP24903).* Prepared for Blessed Teresa of Calcutta Catholic Parish, Inc. 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), Salton City Landfill Expansion Project, unincorporated Imperial County, California (SCH No. 2010071072).* Prepared for Burrtec Waste Industries, Inc. 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 Yates Road housing development site, Tract Map TR 36437, northeast of Murrieta, unincorporated Riverside County, California (APNs 467-390-001 through 467-390-016).* 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 Monitoring Report, Construction of the Park and G Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for Oliver McMillan. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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

2014 *Paleontological Monitoring Report, Construction of Pinnacle 15th & Island Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for Pinnacle International Development, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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

2012 *Paleontological Monitoring Report, Construction of 13th & 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**

2013 *Paleontological Monitoring Report, Ariel Suites, Little Italy, City of San Diego, San Diego County, California.* Prepared for Ariel Suites, LP. 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, 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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Wirths, Todd A., and George L. Kennedy

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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.

Wirths, Todd A., and George L. Kennedy

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Kennedy, George L., and Todd A. **Wirths**
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IX. ATTACHMENT B

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

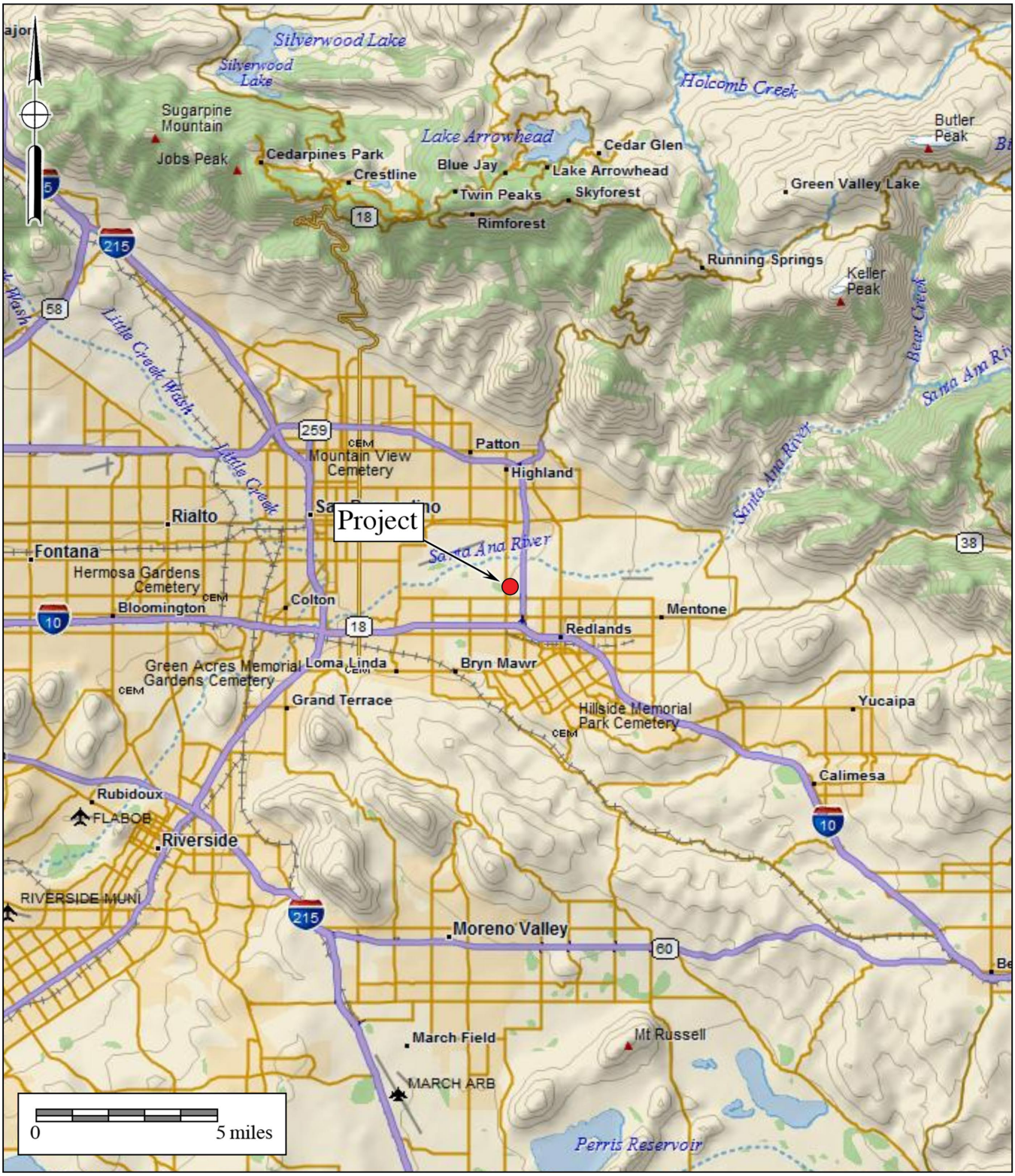

Figure 1

General Location Map

The Pioneer Redlands Project

DeLorme (1:250,000)

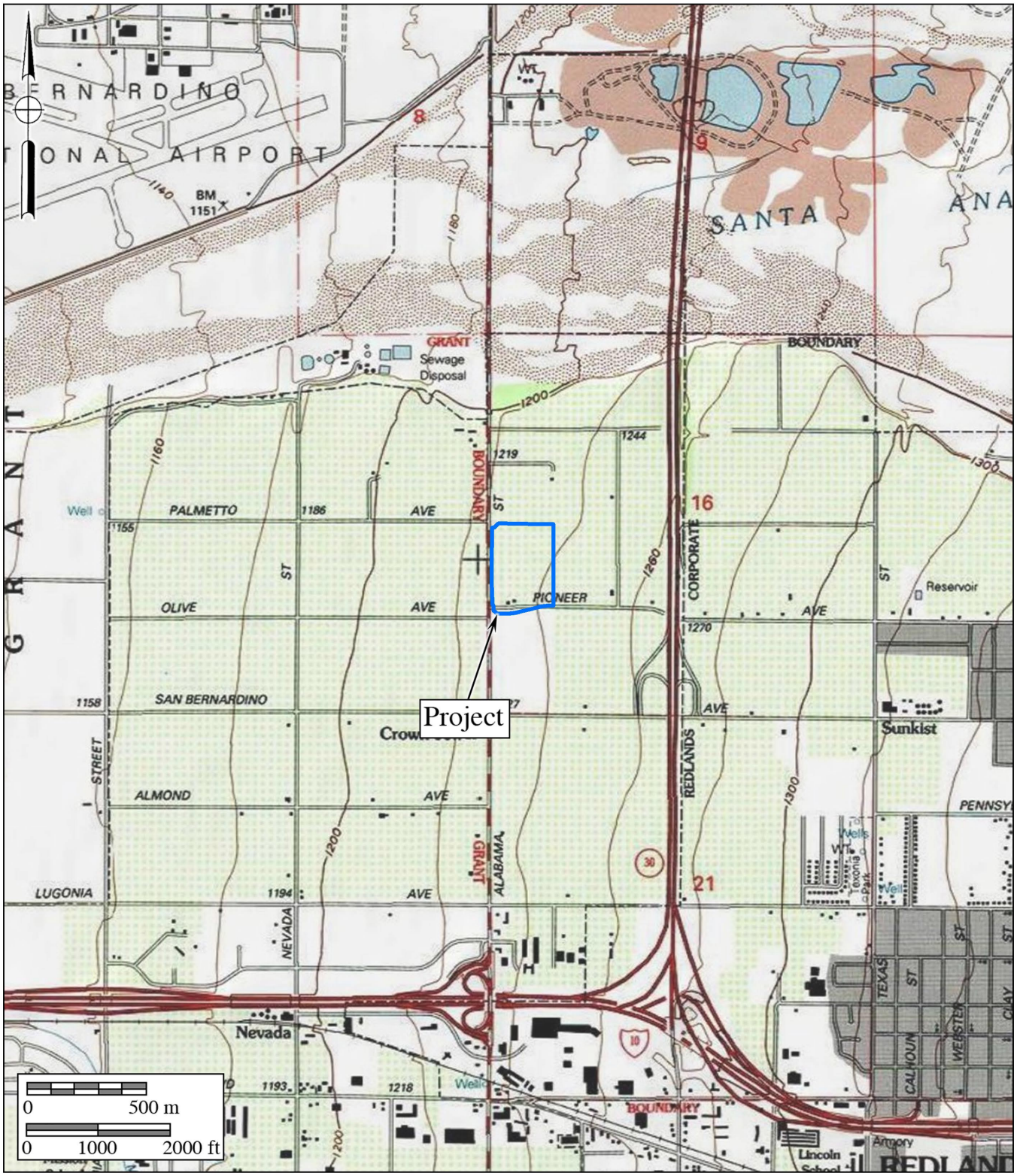

Figure 2

Project Location Map

The Pioneer Redlands Project

USGS *Redlands* Quadrangle (1:24,000 series)

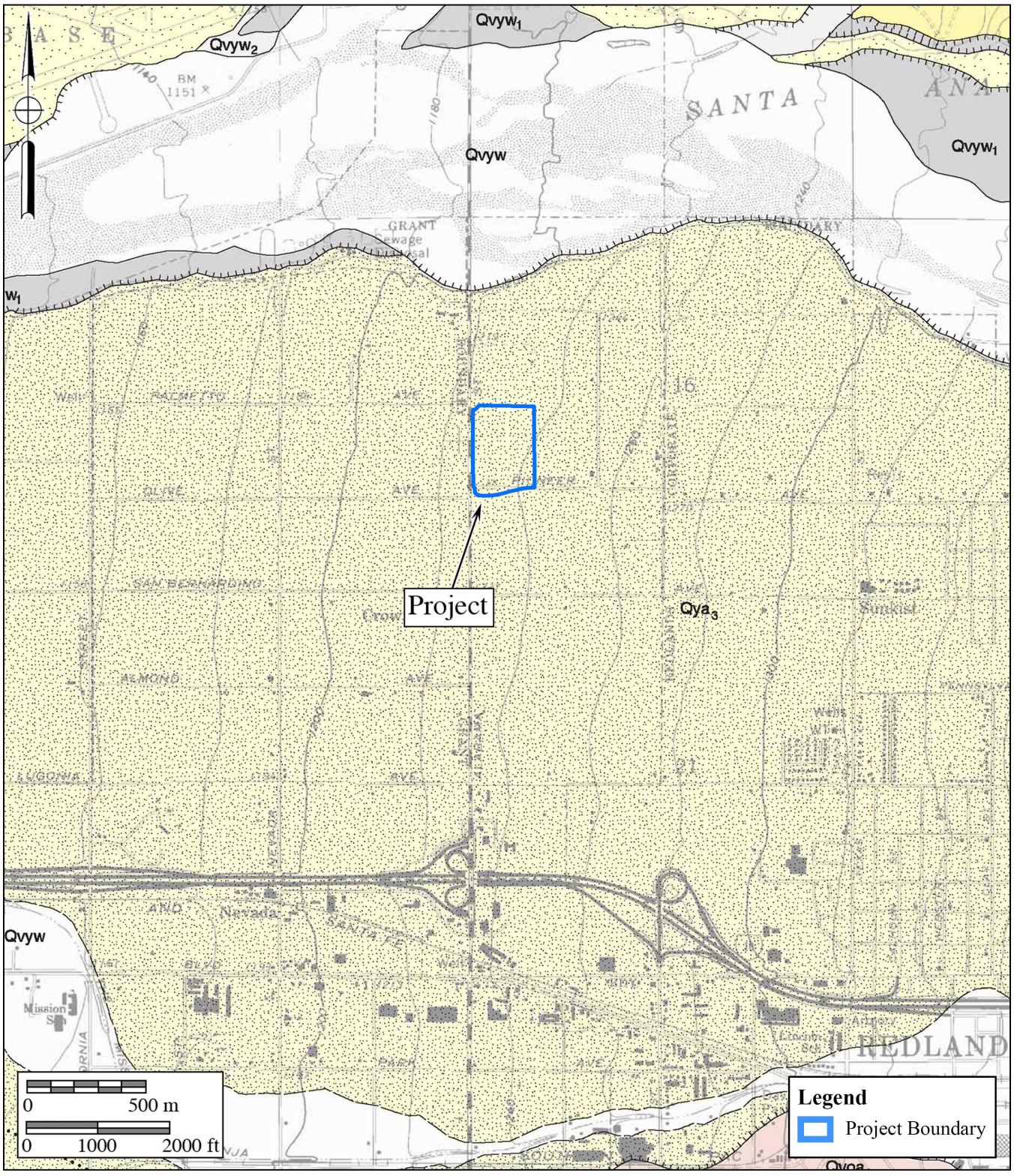

Figure 3

Geologic Map

The Pioneer Redlands Project

Geology after Matti et al. (2003)

X. ATTACHMENT C

Paleontological Records Search Results

(In Phase I Cultural Resources Assessment and Paleontological Records Review, Holy Name of Jesus Catholic Church Project, Redlands, San Bernardino County, California, Prepared by Michael Brandman Associates 2008)

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COUNTY OF SAN BERNARDII
PUBLIC AND SUPPORT
SERVICES GROUP

ROBERT L. McKERNAN
Director

13 November 2007

Michael Brandman Associates
attn: Jennifer M. Sanka M.A., R.P.A.
220 Commerce, Suite #200
Irvine, CA 92602

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, HOLY NAME OF JESUS CATHOLIC CHURCH, CITY OF REDLANDS, SAN BERNARDINO COUNTY, CALIFORNIA**

Dear Ms. Sanka,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named property in the City of Redlands, San Bernardino County, California. The study area is located in the southwestern quadrant of section 16, Township 1 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Redlands, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition, photorevised 1988).

Previous geologic mapping (Bortugno and Spittler, 1986; Matti and others, 2003) indicates that the study area is situated entirely upon surface exposures of middle Holocene younger axial-valley alluvium (= **Qya_3**). This younger alluvium has low potential to contain significant nonrenewable paleontologic resources, and so is assigned low paleontologic sensitivity. However, this middle Holocene alluvium may overlie subsurface Pleistocene older alluvium. If present in the subsurface, this alluvium would have high potential to contain fossil resources, depending upon its lithology. Older Pleistocene alluvial sediments elsewhere throughout the Inland Empire have been reported to yield significant fossils of extinct animals from the Ice Age (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999, 2007). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, short-faced bears, 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; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999, 2007; Anderson and others, 2002).

For this review, Craig R. Manker of the Division of Geological Sciences, SBCM conducted a search of the Regional Paleontologic Locality Inventory (RPLI). The results of this search indicate that no previously-known paleontologic resource localities are recorded by the SBCM from within the boundaries of the study area, nor from within at least one mile in any direction.

Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in surface and subsurface exposures of recent alluvium within the boundaries of the proposed development site has low potential to adversely impact significant nonrenewable paleontologic resources. These sediments have low paleontologic sensitivity. *No program to mitigate adverse impacts to fossil resources is recommended at this time.*

However, in the event that any sediments of Pleistocene alluvium having a lithology conducive to the preservation of significant paleontologic resources are exposed at depth, or if fossils are encountered during development-related excavation in this area, a qualified vertebrate paleontologist must be retained to develop a program to mitigate impacts to nonrenewable paleontologic resources, including full curation of recovered significant resources (see Scott and others, 2004). Such a 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 and the proposed guidelines of the Society of Vertebrate Paleontology.

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 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.

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

Sincerely,

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