

PALEONTOLOGICAL RESOURCE ASSESSMENT FOR THE HARVILL AND RIDER PROJECT

MEAD VALLEY, RIVERSIDE COUNTY

PPT190039; APNs 317-170-024 and -045

Prepared for:

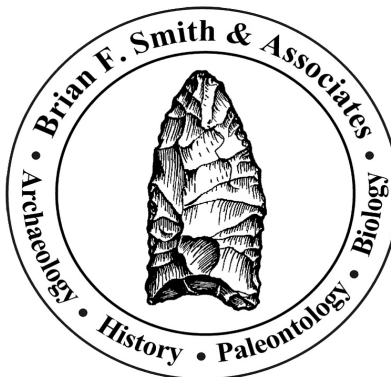
T&B Planning, Inc.
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Submitted to:

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

Prepared by:

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February 4, 2020

Paleontological Database Information

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- Report Date:*** February 4, 2020
- Report Title:*** Paleontological Resource Assessment for the Harvill and Rider
Project, Mead Valley, Riverside County (PPT190039; APNs
317-170-024 and -045)
- Prepared for:*** T&B Planning, Inc.
3200 El Camino Real, Suite 100
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- Submitted to:*** Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, California 92501
- Prepared by:*** Brian F. Smith and Associates, Inc.
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- USGS Quadrangle:*** *Perris, California (7.5 minute)*
- Study Area:*** 14.62 acres
- Key Words:*** “High B” paleontological resource sensitivity; Riverside County;
Perris Valley; Quaternary very old alluvial fan deposits;
excavation monitoring starting at four feet below the surface.

I. INTRODUCTION AND LOCATION

This paleontological resource assessment report has been completed for the Harvill and Rider Project (PPT190039), located west of Interstate 215 and the city of Perris, within unincorporated Riverside County, California (Figures 1 and 2 in Attachment B). The 14.62-acre project consists of two parcels (Assessor's Parcel Numbers 317-170-024 and -045), and is situated at 23480 Rider Street, at the northeast corner of Rider Street and Harvill Avenue. The project proposes the development of a warehouse totaling over 300,000 square feet with associated driveways, landscaping, and infrastructure. The project is located within the southeast corner of Section 12, Township 4 South, Range 4 West, San Bernardino Base and Meridian, as shown on the USGS *Perris, California* topographic quadrangle map (Figure 2 in Attachment B).

In general, the property is associated with agricultural uses, and has been impacted by previous clearing, grading, and partial development. Grain silos and an office building which once occupied the southern half of the project were removed in 2019. Past use included a gasoline and diesel fueling service facility along the southern portion of the project, which was removed in 1998 (Lazar and Jorgensen 2019).

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), patterned after the National Environmental Protection 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 Riverside

According to County of Riverside Environmental Impact Report No. 521:

The County of Riverside has existing programs in place that ensure applicable policies are imposed once a development proposal triggers a specific policy or policies. The need for specific policies is determined through subsequent CEQA analysis performed for site-specific projects. These measures are implemented, enforced and verified through their inclusion into project conditions of approval (County of Riverside 2015).

For example, Policy OS 19.6 states:

Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources (County of Riverside 2015).

An online, interactive, paleontological sensitivity mapping database is maintained by the County of Riverside as a research tool to access the County’s assignment of levels of paleontological sensitivity to the various geologic formations within the county (County of Riverside Land Information System n.d.). This is specifically addressed in Section V.

Paleontological resources are addressed under the 2008 Multipurpose Open Space Element of the Riverside County General Plan, Policy OS 19.9, which states:

This policy requires that when existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department documenting any paleontological resources that are found during the course of site grading (County of Riverside 2008).

The “SABER Policy” (Safeguard Artifacts Being Excavated in Riverside County), enacted in October 2011 by the Riverside County Board of Supervisors, requires that any paleontological resources found or unearthed in the county of Riverside be curated at the Western Science Center on Searl Parkway in the city of Hemet.

III. GEOLOGY

Geomorphically, the project site is mostly flat with a gentle eastward gradient, situated along the western edge of the Perris Valley, on the eastern slopes of the northern part of the Peninsular Ranges. The geology of the project site and immediate area is shown on Figure 3 in Attachment B (after Morton 2001, 2003). The maps of the area show that the project is within the central part of the Perris tectonic block and is underlain by lower Pleistocene (approximately 1.8 million- to perhaps 200,000- to 300,000-year-old) sandy, very old alluvial fan deposits (light brown areas labeled “Qvof_a,” on Figure 3 in Attachment B). Additionally, a relatively small deposit of Holocene (modern) sandy, young alluvial fan deposits occupies the northern area of the site (pale yellow areas labeled “Qyf_a,” on Figure 3 in Attachment B), and appears to be associated with a small, ephemeral stream, or drainage. These young deposits overlie the very old alluvial fan deposits at an unknown, but likely shallow, depth. According to Woodford et al. (1971), the thickness of the alluvial deposits overlying the granitic bedrock basement beneath the project (light gray areas labeled “Kvt,” on Figure 3 in Attachment B) ranges between approximately 100 to 300 feet.

The results of a Phase I environmental site assessment (ESA) for the Harvill and Rider Project was recently drafted by Lazar and Jorgensen (2019). The ESA contained current and prior reporting documenting subsurface investigations of past leaking underground fuel storage facilities, including subsurface boring logs and soil sampling efforts. A May 2019 investigation across the project encompassed various boring and sampling activities, and included three direct-push borings advanced to 20 feet deep. The results generally indicated micaceous, silty sands and sandy silts were present at the surface with a thickness ranging from six to 15 feet deep, overlying poorly sorted, fine- to coarse-grained sands from six to 17 feet deep, in turn overlying silty sands to 20 feet below the surface (Lazar and Jorgensen 2019). No distinctions regarding imported materials and potentially disturbed versus undisturbed sedimentary deposits were noted, although surface soils in the northern half of the project were generally noted as micaceous, silty sands versus the sandy silts present in the southern half.

Also provided in the ESA were the results of a 1999-2000 investigation that was limited to the former fueling service area, and included borings up to 60 feet deep, with one boring drilled to 100 feet deep (Lazar and Jorgensen 2019). The investigation indicated silts from the surface to just below five feet deep, overlying sandy clays to about 20 to 25 feet deep. Underlying the sandy clays are approximately five feet of very fine- to fine-grained sands that overlie more sandy clays to a depth of 65 feet that, in turn, overlie fine- to coarse-grained sands

to 100 feet deep (Lazar and Jorgensen 2019). No information regarding the age of the deposits was given in each of these investigations.

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 non-renewable resource under state and county guidelines (Section II of this report).

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.

Fossil Records Search

A paleontological literature review, and collections and records search report of a nearby area (Stratford Ranch) approximately one and a half miles northeast of the Harvill and Rider Project (on the east side of Perris Boulevard and the north side of Ramona Expressway), was previously prepared by the Geological Sciences Division of the San Bernardino County Museum in Redlands, California (SBCM; Scott 2005 in Attachment C) and is used in this evaluation. The report did not record any previously located fossil localities within the project area, nor within a one-mile radius in any direction. The records search report regarded the older Pleistocene alluvial fan deposits (Qvof_a on Figure 3 in Attachment B) as having a high potential to contain significant nonrenewable paleontological resources (*i.e.*, fossils), and the project area was assigned a “high paleontological resource sensitivity” (Scott 2005). Similar older Pleistocene sediments throughout the lowland (valley) areas of Riverside County and the Inland Empire have been reported to yield significant fossils of extinct terrestrial mammals from the last Ice Age (Scott 2005; Jefferson 1991), such as mammoths, mastodons, giant ground sloths, dire wolves, short-faced bears, saber-toothed cats, large and small horses, camels, and bison.

According to another previous SBCM record search (SBCM; Scott 2013 in Attachment C), the closest recorded terrestrial vertebrate fossil localities appear to be located about five miles to the east, southwest of Lakeview Hot Springs, on the southeast side of the Perris Reservoir (SBCM localities 5.3.151 and 5.3.153). Fossil vertebrates collected from these localities included mammoths, extinct horses, and extinct bison.

V. PALEONTOLOGICAL SENSITIVITY

A paleontological sensitivity map generated by the Riverside County Land Information System in January 2020 (Figure 4 in Attachment B) ranks the Harvill and Rider Project as having a “High (High B)” Paleontological Potential/Sensitivity (amber-colored areas on Figure 4 in Attachment B), which is defined as:

[E]quivalent to High A, but is based on the occurrence of fossils at a specified depth below the surface. The category High B indicates that fossils are likely to be encountered at or below four feet of depth, and may be impacted during excavation by construction activities.

The category “High B” indicates that potential fossils are likely to be encountered at or below four feet of depth and may be impacted during excavation by construction activities. Alluvial valley sediments and very old alluvial fan sediments with a High Potential/Sensitivity (High B) to yield nonrenewable paleontological resources (*i.e.*, fossils) are shown in amber tint on Figure 4 in Attachment B. It should be noted, however, that Holocene sedimentary deposits,

such as those mapped in the northern area of the project, generally lack significant paleontological resources, and are assigned a low paleontological sensitivity.

VI. RECOMMENDATIONS

Because of the High Paleontological Sensitivity (High B) assigned to the older alluvial-fan deposits (Qvof_a on Figure 3 in Attachment B) mapped at the surface across the southern and central areas of the project, full-time paleontological monitoring of mass grading and excavation (utility trenching, etc.) activities below a depth of four feet from the surface in areas mapped as such should be required in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (*i.e.*, fossils). Where mapped as young alluvial fan sediments (Qyf_a on Figure 3 in Attachment B) in the northern area of the project, full-time paleontological monitoring of mass grading and excavation activities below a depth of eight feet from the surface is recommended.

A paleontological mitigation, monitoring, and reporting program (MMRP) consistent with the provisions of CEQA, the County of Riverside, and the guidelines of the SVP (2010) should be implemented for any mass grading and excavation-related activities, including utility trenching and boring activities, during site preparations for the construction of the proposed Harvill and Rider Project. Paleontological monitoring may be reduced if, based upon the observations and recommendations of the professional-level project paleontologist, the excavations are only occurring in, for example, coarse-grained sediments that are unlikely to yield paleontological resources. The proposed MMRP is outlined below.

- 1) Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time paleontological monitoring of mass grading and excavation (utility trenching, etc.) activities below a depth of four feet from the surface in areas mapped as very older alluvial fan deposits (Qvof_a on Figure 3 in Attachment B) is recommended in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (*i.e.*, fossils). Where mapped as young alluvial fan sediments (Qyf_a on Figure 3 in Attachment B) in the northern area of the project, full-time paleontological monitoring of mass grading and excavation activities below a depth of eight feet from the surface is recommended. Areas containing disturbed materials and sediments, such as the former underground fuel storage tank pit, are exempt from monitoring. Paleontological monitors will 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. 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

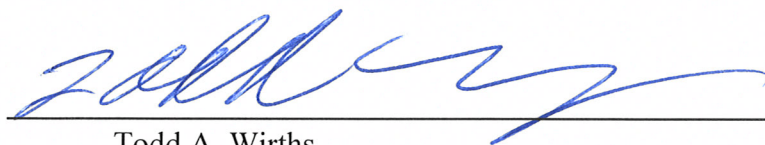
fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

- 2) Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils are collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils are removed to a safe place. On mass grading projects, any discovered fossil site is protected by red flagging to prevent it from being overrun by earthmovers (scrapers) before salvage begins. Fossils are collected in a similar manner, with notes and photographs being taken before removing the fossils. Precise location of the site is determined with the use of handheld GPS units. If the site involves a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, Brian F. Smith and Associates, Inc. will send a fossil recovery crew in to excavate around the find, encase the find within a plaster jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment is solicited to help remove the jacket to a safe location before it is returned to our laboratory facility for preparation.
- 3) Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained from one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For vertebrate fossils, the test is usually the observed presence of small pieces of bones within the sediments. If present, as many as 20 to 40 five-gallon buckets of sediment can be collected and returned to a separate facility to wet screen the sediment. In the laboratory, individual fossils are cleaned of extraneous matrix, any breaks are repaired, and the specimen, if needed, is stabilized by soaking in an archivally approved acrylic hardener (*e.g.*, a solution of acetone and Paraloid B-72).
- 4) Preparation of recovered specimens to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
- 5) Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Western Science Center Museum, 2345 Searl Parkway, Hemet, California 92543). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.
- 6) 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. The report, when submitted to the appropriate lead agency (County of Riverside), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.

VII. CERTIFICATION

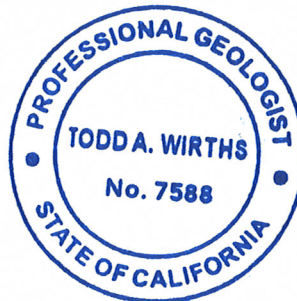
I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.



February 4, 2020

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

Date



VIII. ATTACHMENT A

References

Resumes

REFERENCES

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- Scott, E.G. 2013. Paleontology literature and records review, Ecos Nuevo project, Lakeview Hot Springs region, Riverside County, California. Unpublished report prepared for Brian F. Smith and Associates, Inc., Poway, by the Division of Geological Sciences, San Bernardino County Museum, Redlands (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.
- Woodford, A.O., Shelton, J.S., Doehring, D.O., and Morton, R.K. 1971. Pliocene-Pleistocene history of the Perris Block, southern California. Geological Society of America Bulletin, v. 82, p. 3421-3448, 18 figs.

Todd A. Wirths, MS, PG

Senior Paleontologist

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Education

| | |
|---|-------------|
| Master of Science, Geological Sciences, San Diego State University, California | 1995 |
| Bachelor of Arts, Earth Sciences, University of California, Santa Cruz | 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
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

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**

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

2014 *Paleontological Monitoring Report, Sewer Main Replacement Group Job 685 (Part of Sewer and Water Group Job 685 (Part of Sewer and Water Group 3014), City Heights Neighborhood of the City of San Diego, San Diego County, California (Project No. 131446; Sewer WBS No. B-00333)*. Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

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.

Wirths, Todd A., and George L. Kennedy

2016 *Paleontological Monitoring Report, The Rey Project, 840 B Street, Downtown San Diego, San Diego County, California*. Prepared for Blue/WP San Diego, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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

2016 *Paleontological Monitoring Report, Atmosphere Affordable Housing Project, 1453 Fourth Avenue, Downtown San Diego, San Diego County, California.* Prepared for Wakeland Housing & Development Corp. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Monitoring Report, Ballpark Village, Lower East Village, Downtown San Diego, California.* Prepared for Ballpark Village, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Monitoring Report, 460 16th 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.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Resource Impact Mitigation Program (PRIMP) for the La Habra North Project, La Habra, Orange County, California (Tract Map 17809).* Prepared for City Ventures. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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

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

2018 *Paleontological Monitoring Report, Westfield University Towne Center Expansion Project, Phase 2A, La Jolla Village Drive, San Diego, San Diego County, California.* Prepared for Westfield UTC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

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
Paleontological Sensitivity Map**

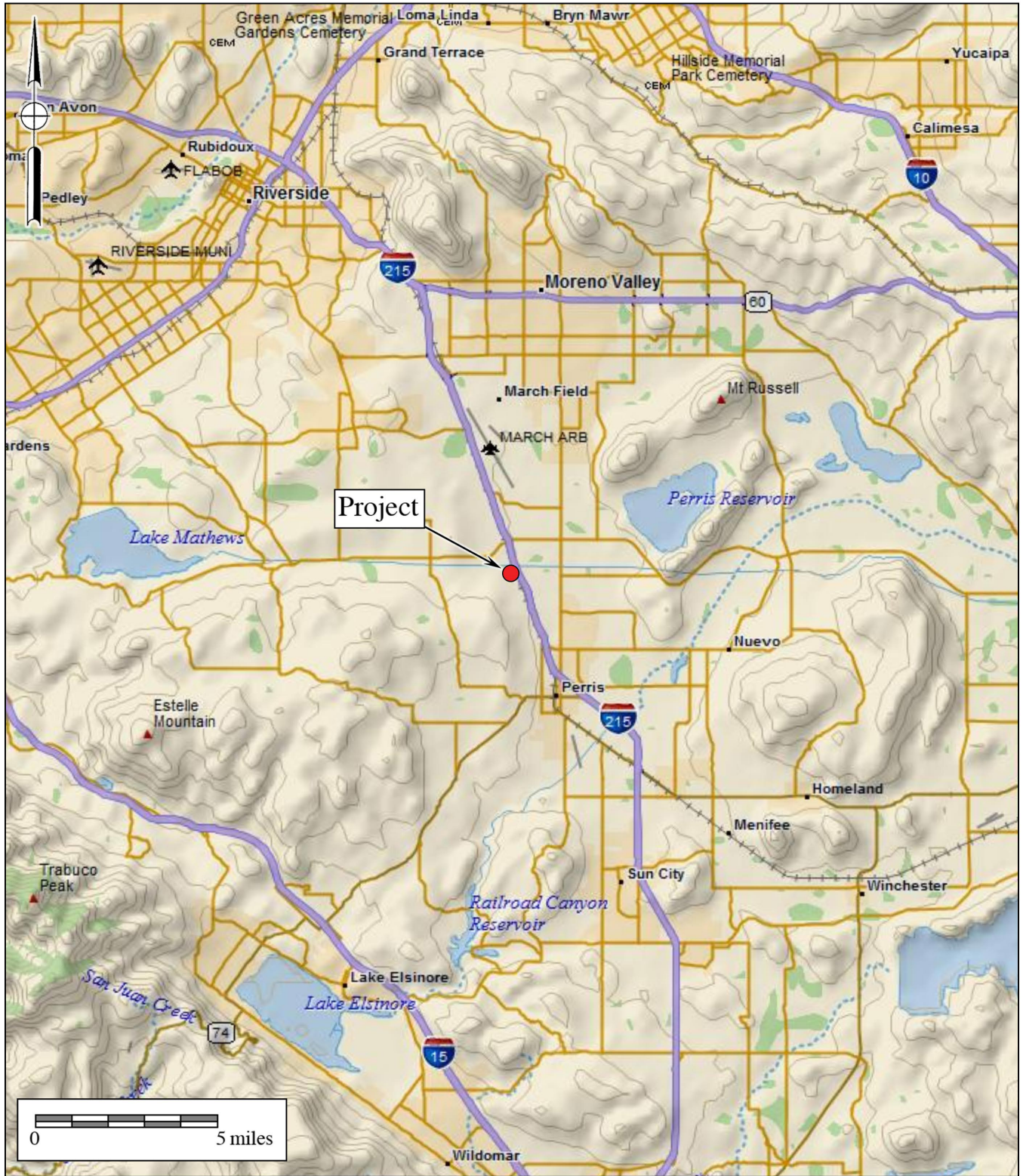


Figure 1
General Location Map
 The Harvill and Rider Project

DeLorme (1:250,000)



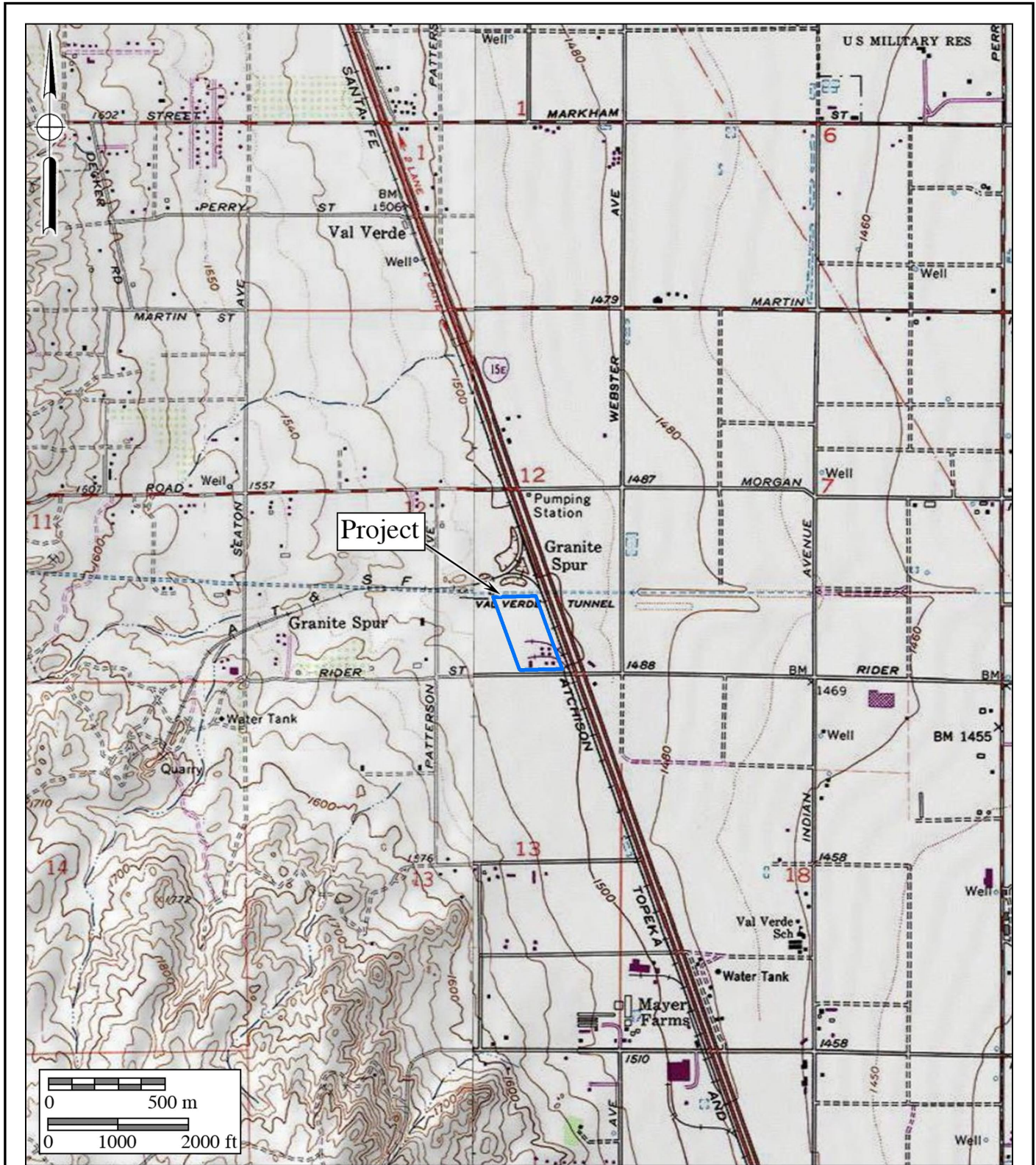


Figure 2
Project Location Map
 The Harvill and Rider Project

USGS *Steele Peak* and *Perris* Quadrangles (7.5-minute series)



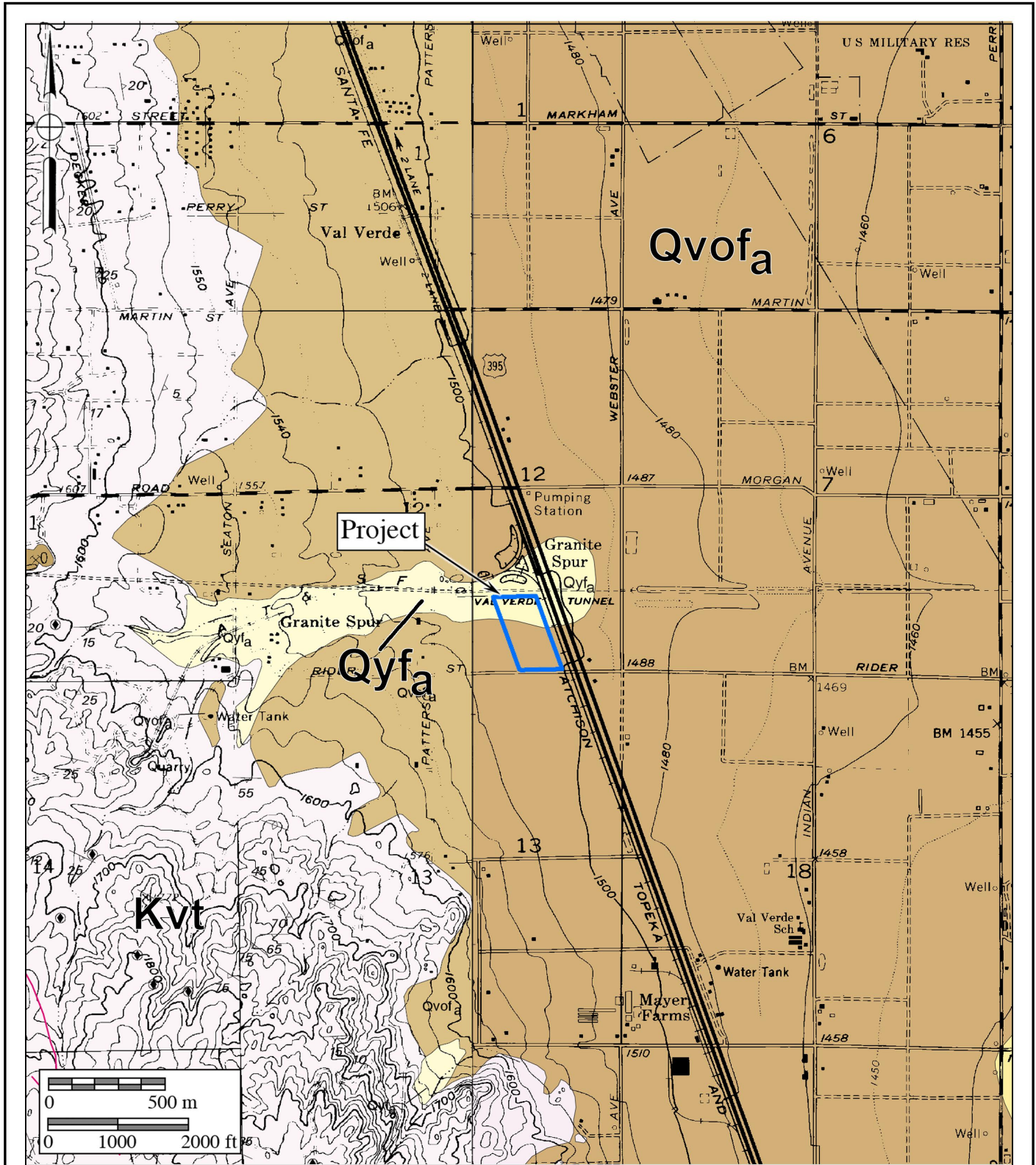


Figure 3
Geologic Map

The Harvill and Rider Project

Geology after Morton (2001, 2003)



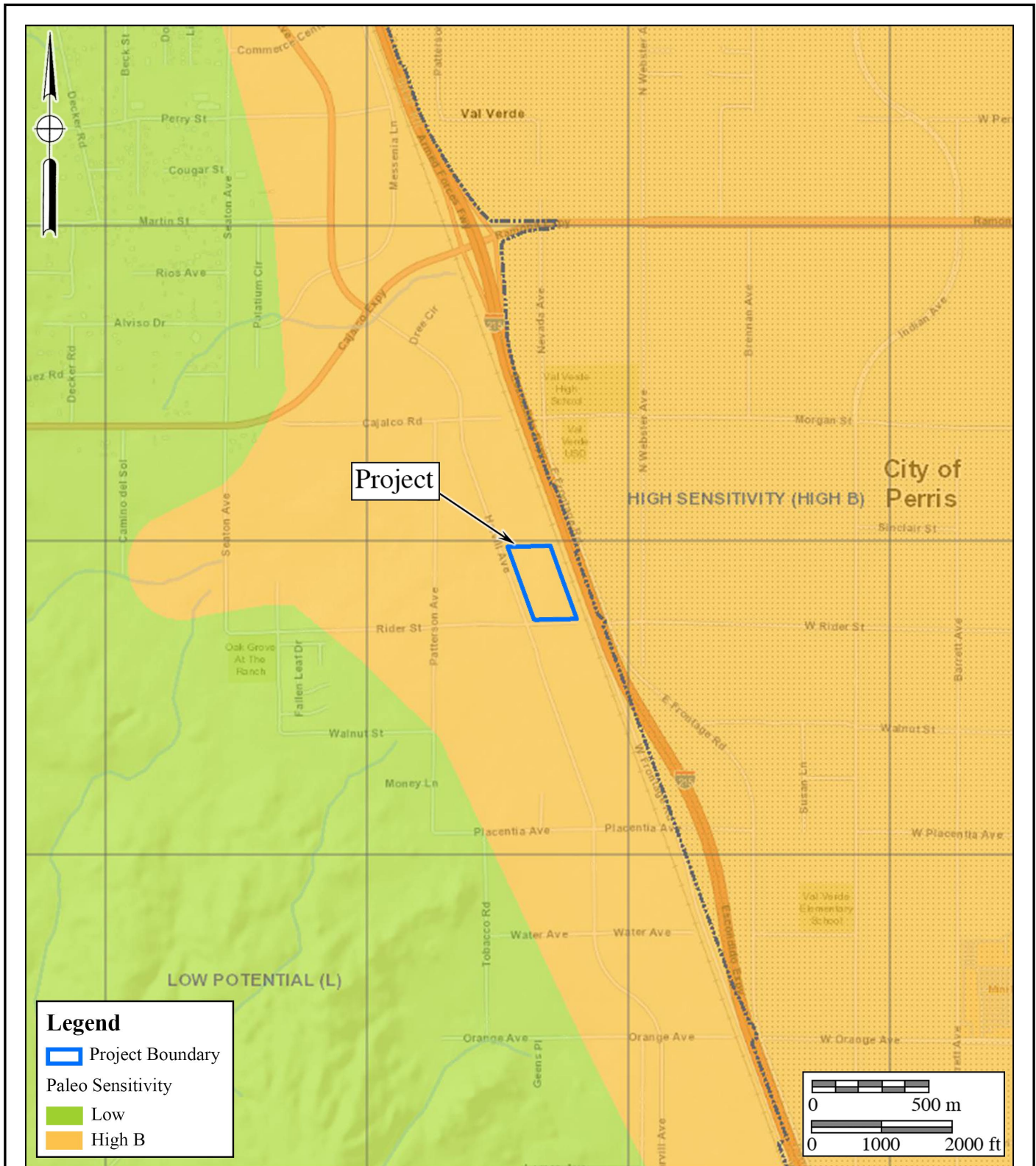


Figure 4
Paleontological Sensitivity Map
 The Harvill and Rider Project



X. ATTACHMENT C

Paleontological Records Search Results



SAN BERNARDINO COUNTY MUSEUM

2024 Orange Tree Lane • Redlands, California USA 92374-4560
(909) 307-2669 • Fax (909) 307-0539 • www.sbcountymuseum.org



COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

ROBERT L. McKERNAN
Director

11 January 2005

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

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, STRATFORD RANCH PROJECT (BFSA # 04-175), PERRIS REGION, RIVERSIDE COUNTY, CALIFORNIA**

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 property north of the City of Perris, Riverside County, California. The study area is located in the western portion of section 5, Township 4 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition, photorevised 1973).

Previous geologic mapping (Rogers, 1965; Morton, 2004) indicates that the proposed study area is located primarily upon surface and subsurface early to middle Pleistocene alluvial fan deposits (= unit **Qvof_a**), overlain in the eastern portion of the property by a thin veneer of Holocene alluvial valley deposits (= **Qyv_{sa}**). The Holocene alluvium is too recently deposited to have potential to contain fossil resources, and so is assigned low paleontologic sensitivity. However, the older Pleistocene alluvial deposits have high potential to contain significant nonrenewable paleontologic resources, and so are assigned high paleontologic sensitivity. Similar older Pleistocene sediments throughout Riverside County and the Inland Empire have been reported to yield significant fossils of plants and 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; Anderson and others, 2002). 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 (Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002).

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-known paleontologic resource localities are recorded by the SBCM from within the study area, nor from within at least one mile in any direction.

MARK H. UFFER
County Administrative Officer

NORMAN A. KANOLD
Assistant County Administrator
Economic Development and
Public Services Group

Board of Supervisors
BILL POSTMUS First District DENNIS HANSBERGER Third District
PAUL BIANE Second District GARY C. QVITT Fourth District
JOSIE GONZALES Fifth District

Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in conjunction with development may have high potential to adversely impact significant nonrenewable paleontologic resources present within the boundaries of the proposed Stratford Ranch development. A qualified vertebrate paleontologist must be retained to develop a program to mitigate impacts to such resources. This mitigation program should 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 Riverside and the proposed guidelines of the Society of Vertebrate Paleontology. This program should include, but not be limited to:

1. Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Based upon the results of this review, areas of concern include all previously-undisturbed sediments of fossiliferous Pleistocene older alluvium present within the boundaries of the property. Paleontologic monitors should 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 must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially-fossiliferous units described herein are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.
2. Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage (e.g., SBCM). 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 complete until such curation into an established museum repository has been fully completed and documented.
4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontologic resources.

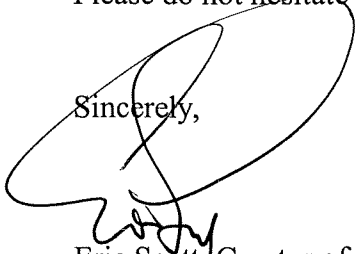
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Please do not hesitate to contact us with any further questions you may have.

Sincerely,



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



SAN BERNARDINO COUNTY MUSEUM

2024 Orange Tree Lane ~ Redlands, California USA 92374-4560
(909) 307-2669 ~ Fax (909) 307-0539 www.sbcountymuseum.org



COUNTY OF SAN BERNARDINO

ROBERT L. McKERNAN
Director

2 April 2013

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

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, ECOS NUEVO
PROJECT, LAKEVIEW HOT SPRINGS REGION, RIVERSIDE COUNTY,
CALIFORNIA**

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 project in the Lakeview Hot Springs region of Riverside County, California. The proposed project property is located in the southeastern quadrant of section 12, Township 4 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California 7.5' United States Geological Survey topographic quadrangle map (1967 edition).

Previous geologic mapping (Rogers, 1965; Morton, 2003) indicates that the proposed project property is situated entirely upon active valley deposits of recent age (= unit **Qv_{se}**) associated with the present-day San Jacinto River. These sediments have low potential to contain significant nonrenewable paleontologic resources in a reliable stratigraphic context, and so are assigned low paleontologic sensitivity. However, these sediments overlie older Pleistocene alluvium (= **Qvof_n**) that has high paleontologic sensitivity. Similar older Pleistocene sediments throughout Riverside and San Bernardino Counties and the Inland Empire have been previously reported to yield significant fossils of plants and extinct animals from the Ice Age (Jefferson, 1991; Reynolds and Reynolds, 1991; Anderson and others, 2002; Springer and others, 2009, 2010; Scott, 2010). 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 (Jefferson, 1991; Reynolds and Reynolds, 1991; Springer and others, 2009, 2010; Scott, 2010).

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that two previously-known paleontologic resource localities are recorded by the SBCM within ¼ to ½ mile of portions of the proposed study area. These localities, SBCM 5.3.151 and 5.3.153, yielded fossils of late Pleistocene vertebrates including

mammoths, horses, and bison from Pleistocene older alluvium. The proximity of these localities to the proposed project demonstrates the high paleontologic sensitivity of Pleistocene older alluvium at the surface and in the subsurface in this region.

Recommendations

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the above named study area is located on subsurface Pleistocene alluvial sediments with high potential to contain paleontologic resources. A qualified vertebrate paleontologist must develop a program to mitigate impacts to nonrenewable paleontologic resources. This mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations implemented by the County of Riverside. This program should include, but not be limited to:

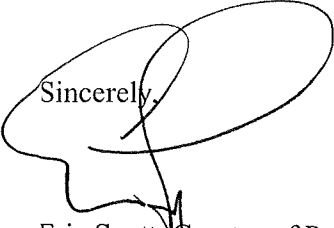
1. Monitoring of excavation into rock units having high potential to contain significant nonrenewable paleontologic resources. Based upon the results of this review, all Pleistocene older alluvial sediments present within the area of potential effect are considered to have high potential to contain such resources. Paleontologic monitors should 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 must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens.
2. Preparation of 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 are essential in order to fully mitigate adverse impacts to the resources (Scott and others, 2004).
3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). 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 complete until such curation into an established, accredited museum repository has been fully completed and documented.
4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, 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