PALEONTOLOGICAL ASSESSMENT FOR THE GLACIER POWER AND GAS SOLAR PROJECT

YERMO
SAN BERNARDINO COUNTY, CALIFORNIA

APNs 0538-161-28 and -29

Prepared for:

Lilburn Corporation
1905 Business Center Drive
San Bernardino, California 92408

Submitted to:

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

Prepared by:

BFSA Environmental Services,
a Perennial Company
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Poway, California 92064

July 18, 2023

BFSA Environmental Services
A Perennial Company

Paleontological Database Information

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Report Date:	July 18, 2023
Report Title:	Paleontological Assessment for the Glacier Power and Gas Solar Project, San Bernardino County, California
Prepared for:	Lilburn Corporation 1905 Business Center Drive San Bernardino, California 92408
Submitted to:	County of San Bernardino 385 North Arrowhead Avenue San Bernardino, California 92415
USGS Quadrangle:	Section 32, Township 10 North, Range 2 East, *Yermo, California* (7.5-minute) USGS Quadrangle
Assessor's Parcel Numbers:	0538-161-28 and -29
Study Area:	41 acres
Key Words*:*	Paleontological assessment; Pleistocene old alluvial deposits; high paleontological resource sensitivity; monitoring recommended.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the Glacier Power and Gas Solar Project located at 39952 Calico Boulevard in the community of Yermo in unincorporated San Bernardino County, California (Figures 1 and 2). The 41-acre project consists of two parcels (Assessor's Parcel Numbers [APNs] 0538-161-28 and -29). The project is situated within Section 32, Township 10 North, Range 2 East, as shown on the U.S. Geological Survey (USGS) *Yermo, California* topographic quadrangle map (see Figure 2). The proposed project consists of the construction of a solar power facility including a new series of 20-by-20-foot solar collection arrays along with associated chain link fencing, access gates and roads, parking stalls, electric cabinets and meters, power poles, and concrete pads. A project-specific geotechnical investigation report was not available at the time of this report.

As the lead agency, the County of San Bernardino has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records in the area, a review of the underlying geology, and recommendations to mitigate impacts to potential paleontological resources, if necessary.

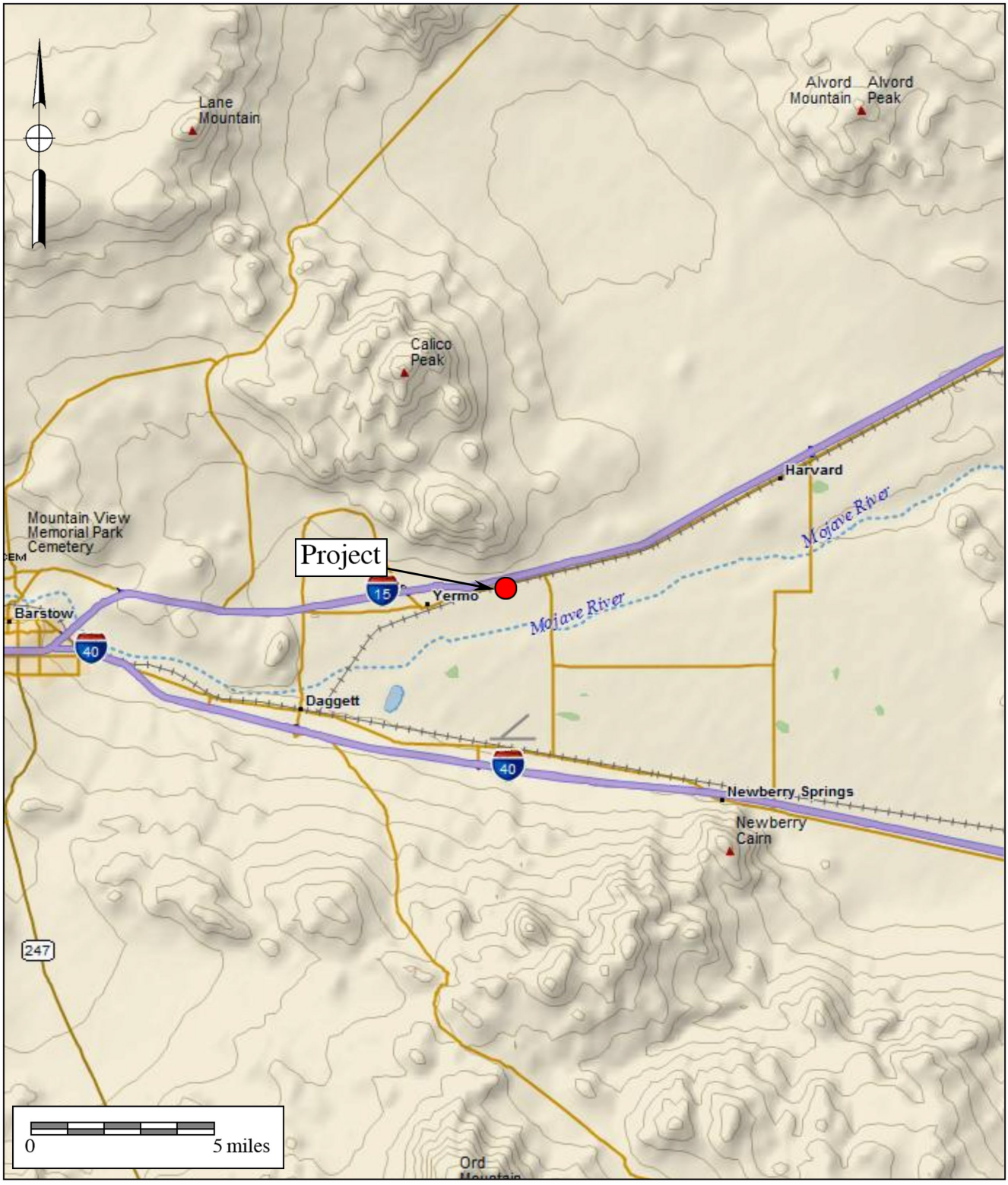

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Figure 1
General Location Map

The Glacier Power and Gas Solar Project

DeLorme (1:250,000 series)

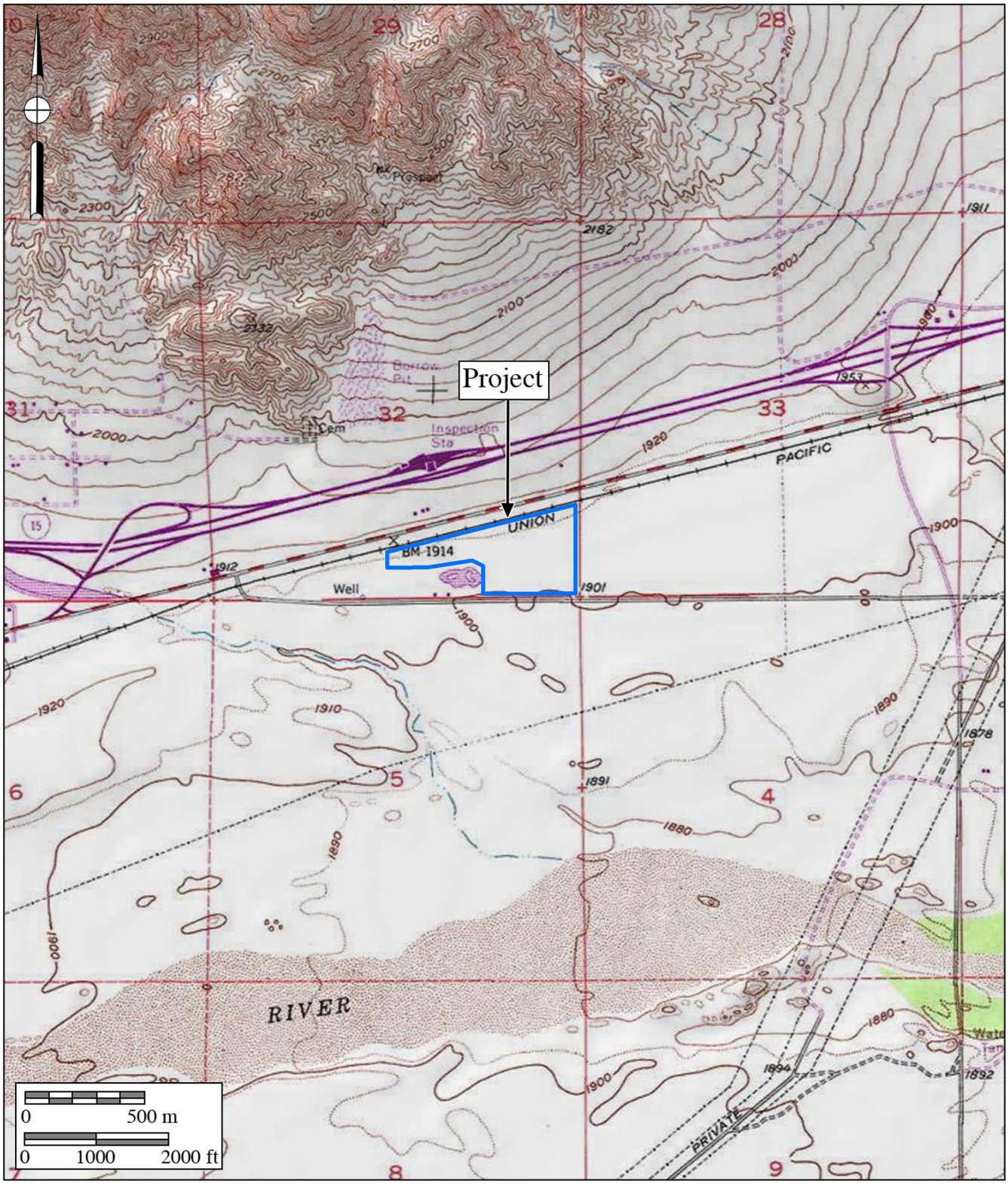

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Figure 2
Project Location Map
The Glacier Power and Gas Solar Project
USGS *Yermo* Quadrangle (7.5-minute Series)

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental regulation that sets the requirement for protecting California's paleontological resources. CEQA mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

State of California

Under "Guidelines for Implementation of the California Environmental Quality Act," as amended in December 2018 (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3, Sections 15000 et seq.), procedures define the types of activities, persons, and public agencies required to comply with CEQA. Section 15063 of the CCR provides a process by which a lead agency may review a project's potential impact to the environment, whether the impacts are significant, and provide recommendations, if necessary.

In CEQA's Environmental Checklist Form, one of the questions to answer is, "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (Appendix G, Section VII, Part f). This is to ensure compliance with California Public Resources Code Section 5097.5, the law that protects nonrenewable resources including fossils, which is paraphrased below:

a) A person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.
b) As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.
c) A violation of this section is a misdemeanor.

County of San Bernardino

The County of San Bernardino 2007 Development Code has developed criteria for applying guidelines to preserve and protect nonrenewable paleontological resources (County of San Bernardino 2018). In Chapter 82.20, "Paleontologic Resources (PR) Overlay," of the Development Code, Purpose, Location Requirements, Development Standards, and

Paleontologist Qualifications are described in Sections 82.20.010 through 82.20.040, respectively (County of San Bernardino 2018).

III. GEOLOGY

The project is located in the central area of the Mojave Desert, within the tectonically active Mojave Desert Block. As summarized in Phelps et al. (2012), the Mojave Desert Block, along with the Death Valley region, form parts of the Eastern California Shear Zone, which is considered as having absorbed 65 to 80 kilometers of right-lateral shear strain since the middle Miocene, as a result of slip along the Pacific-North American transform boundary. The block is characterized by numerous faults active during the Quaternary Epoch. The Mojave Valley, where the project lies at its northern edge, is characterized as the deepest Cenozoic sedimentary basin in the Newberry Springs 30-minute-by-60-minute quadrangle and is as much as three kilometers deep.

The path of the ephemeral Mojave River lies just south of the project. Below the river's path are "bedded and laminated, fine- to coarse-grained, conglomeratic late Pliocene to late Pleistocene deposits that provide a relatively complete record of playa, lake, and alluvial environments that preceded establishment of the through-going, eastward-flowing Mojave River" (Phelps et al. 2012). As shown on Figure 3, Dibblee (2008) maps the geology in the area of the project as simply Holocene alluvium valley areas, composed of fine- to coarse-grained sand. Phelps et al. (2012) greatly expanded the interpretation of the various deposits of the river, developing a comprehensive system of identification that includes criteria such as sorting, topography, vegetation, channel abandonment, desert varnish, consolidation, and soil development.

At the project, sediments deposited by the Mojave River are mapped as early Holocene and latest Pleistocene older young wash deposits (blue area labeled "QywoMR" on Figure 4), characterized as wash deposits consisting of "well-stratified, moderately sorted channel gravel, poorly sorted, sandy crevasse splay deposits, muddy to finely sandy floodplain deposits, and muddy marsh deposits with organic materials and groundwater-discharge carbonate blebs." Along the southern boundary of the project, Phelps et al. (2012) identify a large, modern surficial deposit of disturbed earthen materials (brown area labeled "ml" [modified land] on Figure 4). These disturbed/fill deposits are partly associated with the Calico Lakes community southwest of the project where Mountain View Road encircles an artificial lake. A project-specific geotechnical investigation report to confirm these descriptions was not available at the time of this report.

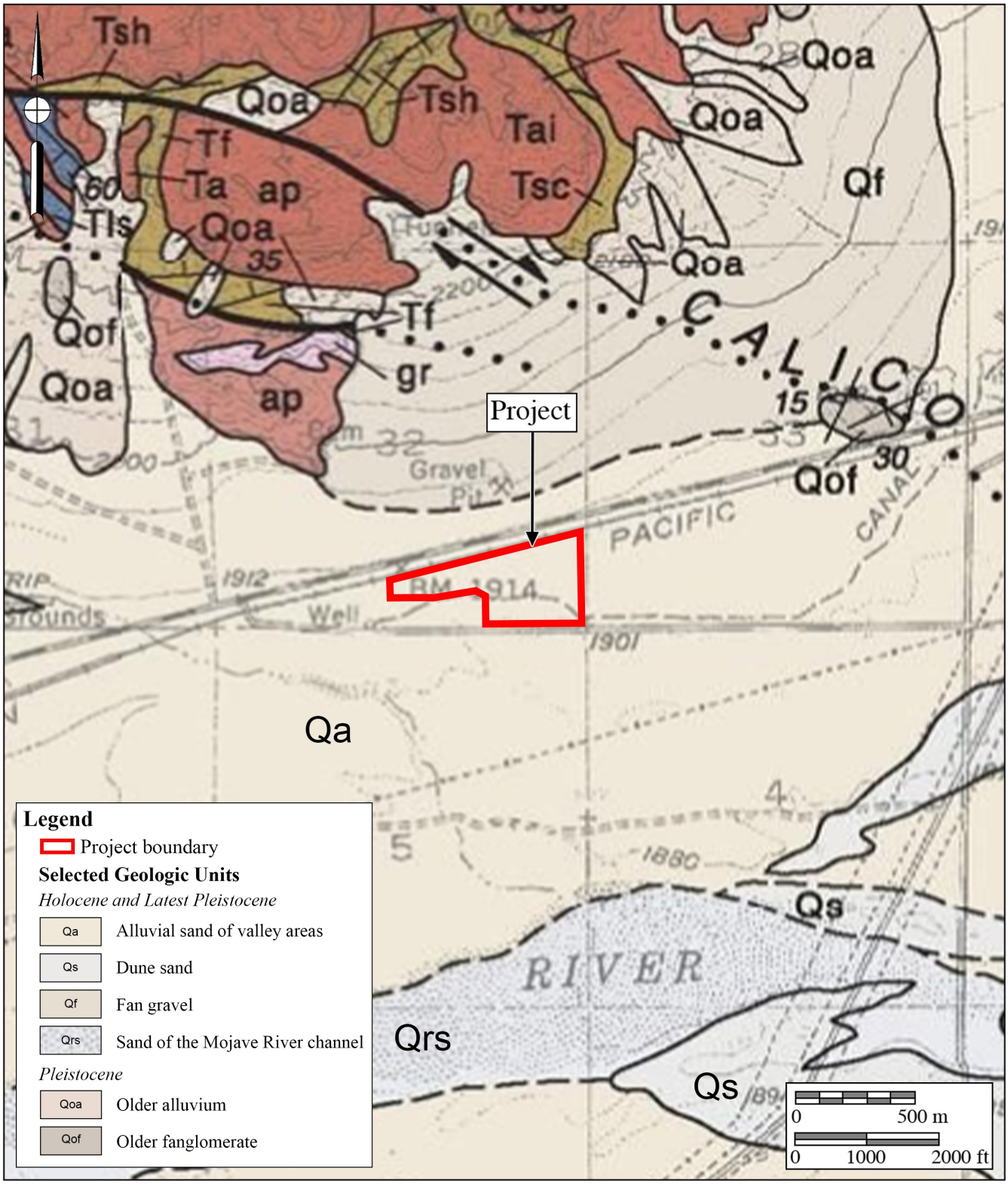

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Figure 3
Geologic Map
The Glacier Power and Gas Solar Project
Geology after Dibblee (2008)

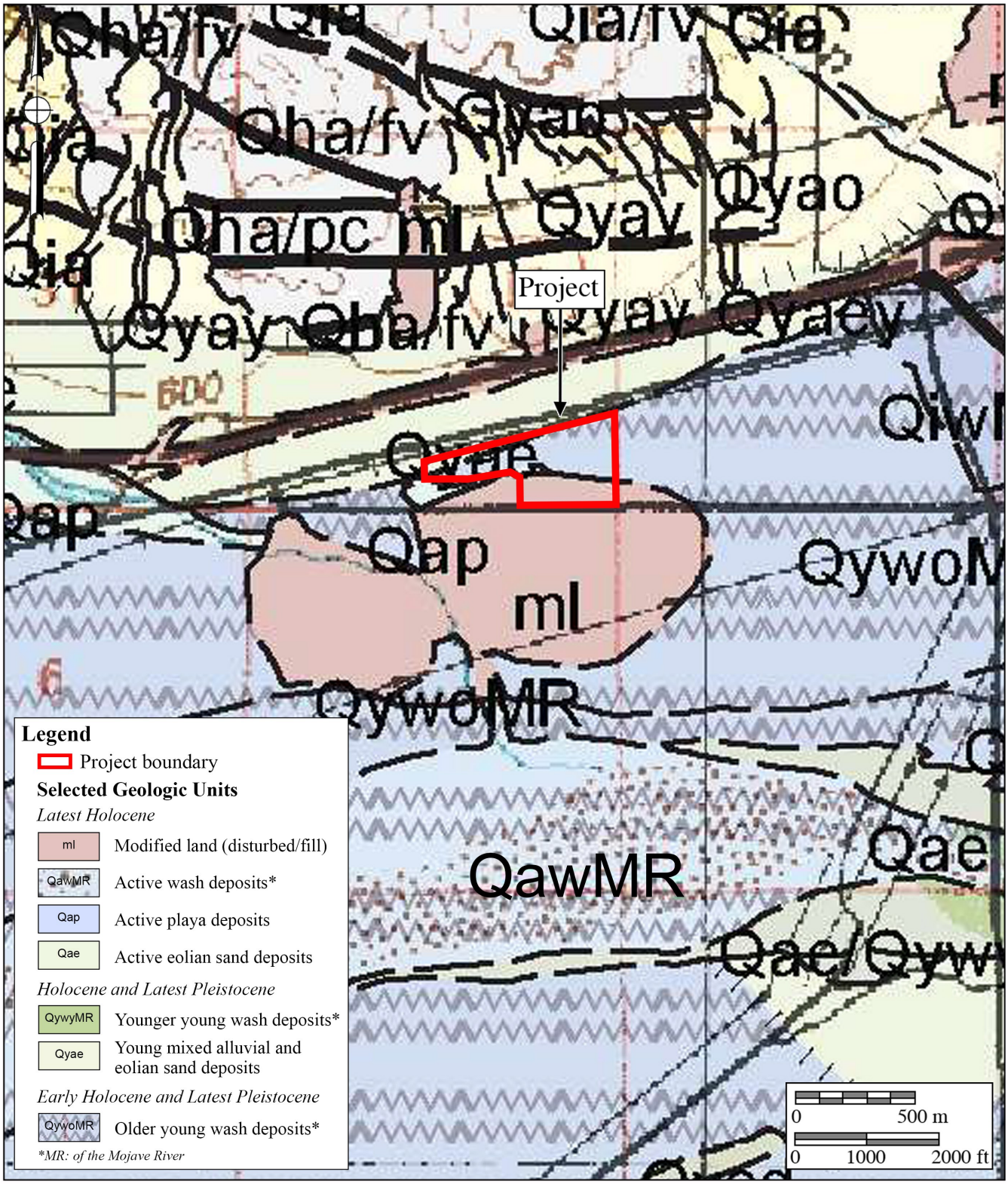

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Figure 4
Geologic Map
The Glacier Power and Gas Solar Project
Geology after Phelps et al. (2012)

IV. PALEONTOLOGICAL RESOURCES

Definition

Paleontological resources are the remains of prehistoric life that have been preserved in the 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 local guidelines (Section II of this report).

Fossil Locality Record Search

A paleontological records search was performed for the project by the San Bernardino County Museum (SBCM; Kottkamp 2023; Appendix B). While no fossil localities are known by the SBCM to be within the project, several fossil localities are located as close as 0.2 mile south of the project's boundary. The two closest localities include the remains of a horse and abundant camel teeth and bones from shallow sediments described as older ("Qoa" = Pleistocene) alluvium composed of fluviatile silts and silty sandstones with gravel stringers (SBCM localities [locs.] 1.76.18 and 1.76.19). The older alluvial deposits underlie the surficial Holocene deposits but, unfortunately, the depths were not recorded. More fossils were found south and southeast of these localities, yielding more camel remains as well as indeterminate mammal bones from the same older fluvial deposits. Fossil horse bones were collected a quarter mile to the east (SBCM loc. 1.76.38).

Many more fossil localities are known from a locality at the Calico Lakes community, just 0.38 mile to the southwest (SBCM loc. 1.76.35). Fossils from just a few feet below a previously graded surface included the remains of snails, frogs, lizards, several species of rodents, hares, extinct horses, camels, llamas, and sheep. Several more fossil localities lie further east and southeast, within a mile radius. Unfortunately, it appears elevation data is not associated with the localities and so precise depths are not known, however all of the discoveries appear to be somewhat shallow.

Kottkamp (2023) explained that the Holocene-aged surface deposits in the area are unlikely to yield fossils, but the underlying Pleistocene-aged older alluvial deposits are fossiliferous. Many of these localities are described in the published paper by Scott and Cox (2008).

Project Survey

Personnel from BFSA Environmental Services, a Perennial Company, under the direction of Principal Investigator Todd A. Wirths, conducted a pedestrian survey of the project on May 30, 2023. The field methodology employed for the project included walking evenly spaced survey transects set approximately five to ten meters apart while visually inspecting the ground surface. All potentially sensitive areas where paleontological resources might be located were closely inspected. The survey found the project to consist primarily of clear desert transitional terrain with sparse vegetation and limited development. Visibility was accordingly very good, nearly 100 percent, barring certain large creosote bushes and a few modern concrete pads. The project boundaries are also crossed in places by graded or gravel roads. A remaining segment of the Yermo Canal, constructed in 1910, was visible at the project. The surface was generally deflated of fine sand, leaving larger, angular clasts of granules and gravel protecting the underlying, sandier deposits. No paleontological resources, or evidence suggesting the presence of paleontological resources, were observed during the survey.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. Holocene alluvium is generally considered to be geologically too young to contain significant nonrenewable paleontological resources (*i.e.,* fossils) and thus is typically assigned a low paleontological sensitivity. Pleistocene (over 11,700 years old) alluvial and alluvial fan deposits in the Mojave Desert and Inland Empire, however, often yield important terrestrial vertebrate fossils such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, camel, saber-toothed cats, and others (Jefferson 1991). These Pleistocene sediments are thus accorded a high paleontological resource sensitivity.

Professional Standards

The Society of Vertebrate Paleontology (SVP 2010) has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- *High Potential:* Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- *Undetermined Potential:* Rock units for which little information is available concerning

their paleontological content, geologic age, and depositional environment, and that further study is needed to determine the potential of the rock unit.

- *Low Potential:* Rock units that are poorly represented by fossil specimens in institutional collections or based on a general scientific consensus that only preserve fossils in rare circumstances.
- *No Potential:* Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Using these criteria, based upon the presence of nearby significant fossil localities and the strong likelihood that the nearby fossil localities originated from the same geologic formation as that which underlies the project at depth, the old alluvial deposits can be considered to have a high potential to yield significant paleontological resources. The Holocene young alluvial sediments at the surface may be considered to have a low paleontological potential.

County of San Bernardino Assessment

The County of San Bernardino applies its "[PR] Overlay" guideline to those areas where paleontological resources are known to occur or are likely to be present by using fossil location criteria reported by the SBCM, the University of California Museum of Paleontology (Berkeley), the Los Angeles County Natural History Museum, or other institutions (County of San Bernardino 2018, Section 82.20.020). The reported presence of paleontological resources by the SBCM near the project in a similar geologic setting and in similar mapped rock units follows the County's definition for mitigation and preservation of nonrenewable paleontological resources (County of San Bernardino 2018, Section 82.20.010). Therefore, the project is subject to remain in compliance within the County's PR Overlay, Section 82.20.030 (County of San Bernardino 2018). Thus, the following criteria are to be used to evaluate the project's compliance with the intent of the overlay:

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 within the overlay, 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.

f. **Mitigation financial limits.** In no event shall the County require the applicant to pay more for mitigation as required by Subsections (b), (c), and (d), above within the site of the project than the following amounts:
   1. One-half of one percent of the projected cost of the project, if the project is a commercial or industrial project;
   2. Three-fourths of one percent of the projected cost of the project for a housing project consisting of one unit; and
   3. If a housing project consists of more than one unit, three-fourths of one percent of the projected cost of the first unit plus the sum of the following:
      A. $200 per unit for any of the next 99 units;
      B. $150 per unit for any of the next 400 units; and
      C. $100 per unit for units in excess of 500.

VI. CONCLUSIONS AND RECOMMENDATIONS

The existence of Pleistocene old alluvial deposits likely beneath the project, along with the High paleontological resource sensitivity assigned to these sediments locally, and the close proximity of previously recorded fossil specimens all support the recommendation that full-time paleontological monitoring be required starting at the surface during grading, excavation, or utility trenching activities at the project.

A Paleontological Resource Impact Mitigation Program (PRIMP) is recommended for the project. The PRIMP must be consistent with the provisions of CEQA, County of San Bernardino guidelines (2018, Section 82.20.030), and the guidelines of the SVP (2010). If implemented, the PRIMP report would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to less than significant. The PRIMP should include methods for:

- Attendance by a qualified paleontologist at the preconstruction meeting to consult with the grading and excavation contractors.
- On-site presence of a paleontological monitor to inspect for paleontological resources during the excavation of previously undisturbed deposits.
- Salvage and recovery of paleontological resources by the qualified paleontologist or paleontological monitor.
- Preparation (repair and cleaning), sorting, and cataloging of recovered paleontological resources.
- Donation of prepared fossils, field notes, photographs, and maps to a scientific institution with permanent paleontological collections.
- Completion of a final summary report that outlines the results of the mitigation program.

All mitigation programs shall be performed by a qualified professional paleontologist, defined as an individual with a M.S. or Ph.D. in paleontology or geology who has proven experience in San Bernardino County paleontology and who is knowledgeable in professional paleontological procedures and techniques. Fieldwork may be conducted by a qualified paleontological monitor, defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor shall always work under the direction of a qualified paleontologist.

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.

July 18, 2023

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

Date

VIII. REFERENCES

County of San Bernardino. 2018. County of San Bernardino 2007 Development Code. Prepared for the County of San Bernardino Land Use Services Division by several consultants. Adopted March 13, 2007; effective April 12, 2007; amended May 2, 2019. Electronic document, http://www.sbcounty.gov/Uploads/lus/DevelopmentCode/DCWebsite.pdf.

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Jefferson, G.T. 1991. A catalogue of late Quaternary vertebrates from California: Part two, mammals. Natural History Museum of Los Angeles County, Technical Reports, no. 7: i-v + 1-129.

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Scott, E., and Cox, S.M. 2008. Late Pleistocene distribution of *Bison* (Mammalia; Artiodactyla) in the Mojave Desert of Southern California and Nevada. *In*, Wang, X., and Barnes, L.G., eds., Geology and Vertebrate Paleontology of Western and Southern North America: Natural History Museum of Los Angeles County Science Series, Number 41, pp. 359–382.

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APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Senior Paleontologist

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BFSA Environmental Services
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Education

Master of Science, Geological Sciences, San Diego State University, California **1995**

Bachelor of Arts, Earth Sciences, University of California, Santa Cruz **1992**

Professional Certifications

California Professional Geologist #7588, 2003
Riverside County Approved Paleontologist
San Diego County Qualified Paleontologist
Orange County Certified Paleontologist
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

Professional Memberships

Board member, San Diego Geological Society
San Diego Association of Geologists; past President (2012) and Vice President (2011)
South Coast Geological Society
Southern California Paleontological Society

Experience

Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSA, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

Selected Recent Reports

2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Sunset Crossroads Project, Banning, Riverside County*. Prepared for NP Banning Industrial, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Ortega Plaza Project, Lake Elsinore, Riverside County*. Prepared for Empire Design Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Record Search Update for the Green River Ranch III Project, Green River Ranch Specific Plan SP00-001, City of Corona, California*. Prepared for Western Realco. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Cypress/Slover Industrial Center Project, City of Fontana, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Imperial Landfill Expansion Project (Phase VI, Segment C-2), Imperial County, California*. Prepared for Republic Services, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Manitou Court Logistics Center Project, City of Jurupa Valley, Riverside County, California*. Prepared for Link Industrial. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Resource Impact Mitigation Program for the Del Oro (Tract 36852) Project, Menifee, Riverside County*. Prepared for D.R. Horton. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Alessandro Corporate Center Project (Planning Case PR-2020-000519), City of Riverside, Riverside County, California*. Prepared for OZI Alessandro, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Monitoring Report for the Boardwalk Project, La Jolla, City of San Diego*. Prepared for Project Management Advisors, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

APPENDIX B

Paleontological Records Search

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www.SBCounty.gov

SAN BERNARDINO COUNTY

Museum
Division of Earth Science

Scott Kottkamp
Curator of Earth Science

14 June, 2023

Brian F. Smith & Associates Environmental Services
Attn: Todd Wirths
14010 Poway Road
Poway, CA 92064

PALEONTOLOGY RECORDS REVIEW for site of Glacier Power and Solar, San Bernardino County, California

Dear Mr. Wirths,

The Division of Earth Science of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in Riverside County, California. The proposed project site (Glacier Power and Solar) is in the unincorporated community of Yermo, California as shown on the United States Geological Survey (USGS) 7.5-minute Yermo, California quadrangle.

Geologic mapping of the region done by Dibblee and Minch (2008) indicates that the entire project area is located atop recent alluvium of latest Pleistocene and Holocene age (Qa). Qa is comprised of arkosic, coarse- to fine-grained, light grey sand with minority gravel that becomes more abundant as one moves towards highlands. Qa is unlikely to be fossiliferous, but shallowly overlies older sediments of Pleistocene age that are (Qoa). Qoa is variable in its exact composition, frequently appearing like Qa except slightly more consolidated. In the local area, Qoa consists of grey gravel, sand, and silt that sometimes exhibits poor bedding (Dibblee and Minch 2008). Local Qoa is known to contain multiple paleontological localities from which vertebrate fossils have been collected, including horses, camels, rabbits, rodents, birds, and lizards as well as gastropods and root casts (Reynolds and Reynolds 1985).

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no paleontological localities occur within the project area, but similar sediments within a mile of the project's perimeter are rich in paleontological resources. Cultural resources were also found in the vicinity. 15 SBCM localities are present within Qoa underlying Qa near the project site. The closest of these, SBCM 1.76.18, is 0.2 miles south of the project area's bottom-center at TRS 9N 2E 5 SE ¼ SW ¼ NW ¼ NE ¼, or 34°54'22"N 116°47'30"W. A partial upper molar and bone fragments of *Equus* sp. were collected from fluviatile silts and silty sandstones with gravel stringers at this site. These sediments are indicated as corresponding to Qoa underlying Qa, but a precise depth below surface is not provided. The next closest locality, SBCM 1.76.19, is 500 ft. southeast of SBCM 1.76.18 and occurs within the same lithology. Abundant camelid bone and tooth fragments were collected at this site. SBCM 1.76.20 – 23 all occur nearby to the south and southeast of SBCM 1.76.19 and all occur within the same fluviatile Qoa except for rhizoliths within a paleosol. Fossils collected from these localities include teeth, limbs, vertebrae, and a skull belonging to the Camelidae in addition to nondiagnostic mammalian bone fragments and root casts.

SBCM 1.76.35 is in sediments removed during construction of the man-made lake within the Calico Lakes subdivision, 0.38 miles south-southeast of the project area. Records indicate a mildly fossiliferous fluviatile sand with soil development containing rhizoliths, petrified wood including fossil stumps, and traces of charcoal. The sand was located less than a foot below the graded surface at the time, but there was no record preserved of how far below the ungraded surface this unit would have been. Approximately two to three feet below the sand unit is a lacustrine clay unit richly fossiliferous with permineralized vertebrate remains. Fossil taxa found within this clay include: Gastropoda indet., *Rana* sp., Iguanidae indet., *Xantusia vigilis*, Lacertilia indet., Aves indet., Marmotini indet., *Dipodomys* sp., *Perognathus* sp., *Neotoma* sp., *Lepus californicus*, *Sylvilagus* sp., cf. †*Equus conversidens*, *Equus* sp., cf. †*Camelops hesternus*, †*Hemiauchenia* sp., *Ovis* sp., and Mammalia indet. (Reynolds and Reynolds 1985; Scott and Cox 2008). Fossils from this locality are highly fragmented and many diagnostic elements were restoratively conserved from associated fragments.

SBCM 1.76.38 is located approximately 0.26 miles east of the project site at TRS 10N 2E SE ¼ SW ¼, or 33 34°54'37"N 116°46'43"W. Fragmented bones belonging to a small specimen of *Equus* sp. were collected here from within fluvial sand and gravel. SBCM 1.76.25 is found 0.46 miles east of the project site at 9N 2E 4 NE ¼ NW ¼ NW ¼ NE ¼, or 34°54'30"N 116°46'31"W. A diaphysis of a large mammalian longbone was collected from this locality. SBCM 1.76.24 is 1 mile east of the project site and contained mammalian bone fragments and a rabbit-sized limb bone. SBCM 1.76.26 – 28, SBCM 1.76.50, and SBCM 1.76.57 are situated between 0.50 – 0.8 miles southeast of the project site, ranging from TRS 9N 2E 4 E2 SE ¼ NW ¼ to Mitchell Lane. Fossil taxa

found at these localities include *Helisoma* sp., Gastropoda indet., Testudinae indet., *Lepus* sp., and Mammalia indet. Fossils are recrystallized or permineralized, mostly fragmental, and occur within the same fluviatile sand and silt as SBCM 1.76.18 – 19. Precise depth below surface at which these fossils were discovered is not recorded.

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

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

Sincerely,

Scott Kottkamp

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