

# PALEONTOLOGICAL RESOURCE IMPACT MONITORING PROGRAM FOR THE GLEN IVY SENIOR COMMUNITY PROJECT

CUP200011; CEQ200037; BGR \_\_\_\_\_  
RIVERSIDE COUNTY, CALIFORNIA

APNs 290-190-083 and -084 and  
portions of APNs 290-190-027, -028, and -082

Prepared for:

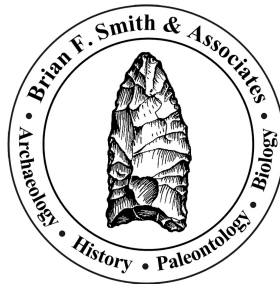
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*April 20, 2021*

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- Report Date:*** April 20, 2021
- Report Title:*** Paleontological Resource Impact Mitigation Program for the Glen Ivy Senior Community Project, CUP200011; CEQ200037; BGR \_\_\_\_\_, Riverside County, APNs 290-190-083 and -084 and portions of APNs 290-190-027, -028, and -082
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- USGS Quadrangle:*** *Lake Mathews, California (7.5 minute)*
- Study Area:*** Approximately 10 acres plus 3.15 acres of off-site improvements
- Key Words:*** “Low” paleontological resource sensitivity; Riverside County; Temescal Valley; Quaternary young alluvial valley deposits; monitoring is initially recommended on a part-time basis.

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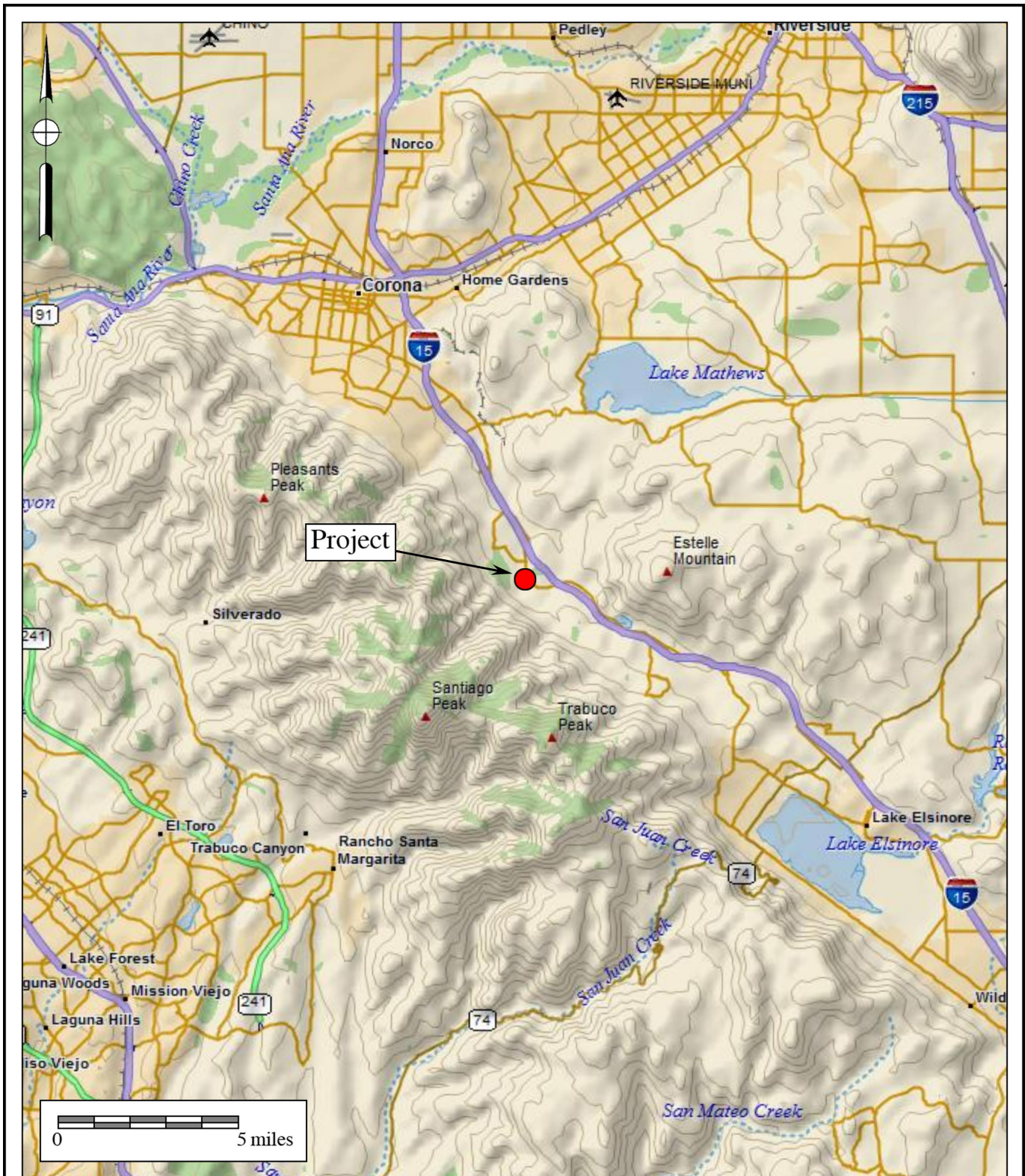
## **I. INTRODUCTION AND LOCATION**

This Paleontological Resource Impact Mitigation Program (PRIMP) has been completed for the Glen Ivy Senior Community Project located south of the city of Corona within the Temescal Canyon area of unincorporated Riverside County, California (Figures 1 and 2). The Glen Ivy Senior Community Project proposes the development of an approximately 10-acre project with 3.15 acres of off-site improvements identified as Assessor’s Parcel Numbers (APNs) 290-190-083 and -084 and portions of APNs 290-190-027, -028, and -082. The project lies southeast of the intersection of Trilogy Parkway and Temescal Canyon Road in Section 3, Township 5 South, Range 6 West of the San Bernardino Base and Meridian, as shown on the USGS 7.5-minute *Lake Mathews, California* topographic quadrangle map (see Figure 2). The project consists of a Conditional Use Permit (CUP200011) to allow for future development of a residential care facility for the elderly and off-site drainage improvements. The proposed development includes three buildings, including two 250,000-square-foot, two-story buildings that would each include an atrium and one 32,000-square-foot, single-story building with an atrium. Up to 75 units with 92 beds would be provided for independent living, 109 units with 129 beds for assisted living, and 32 units with 35 beds for memory care. Associated on-site uses would include passenger vehicle parking stalls, landscaped areas, open space, and a pool.

Implementation of this PRIMP addresses the potential for scientifically significant fossil remains that might be uncovered by earth-moving activities at previously unknown fossil sites within the project. Without the PRIMP, fossil remains and associated specimen and corresponding geologic data would be lost to excavation activities and unauthorized fossil collecting. The recommendations in this PRIMP are consistent with the intent and provisions of the California Environmental Quality Act (CEQA), environmental guidelines of the County of Riverside, and the procedures outlined by the Society of Vertebrate Paleontology (SVP; 2010) and should be implemented for any mass grading and excavation-related activities, including utility and storm drain trenching, during construction within the project. This PRIMP will: identify any documented, nearby fossil localities; summarize the geology underlying the project and assess the potential to contain paleontological resources; evaluate the potential of project activities to negatively impact fossil resources that might exist below the project; and provide recommendations for mitigation of potential impacts, if appropriate.

## **II. REGULATORY SETTING**

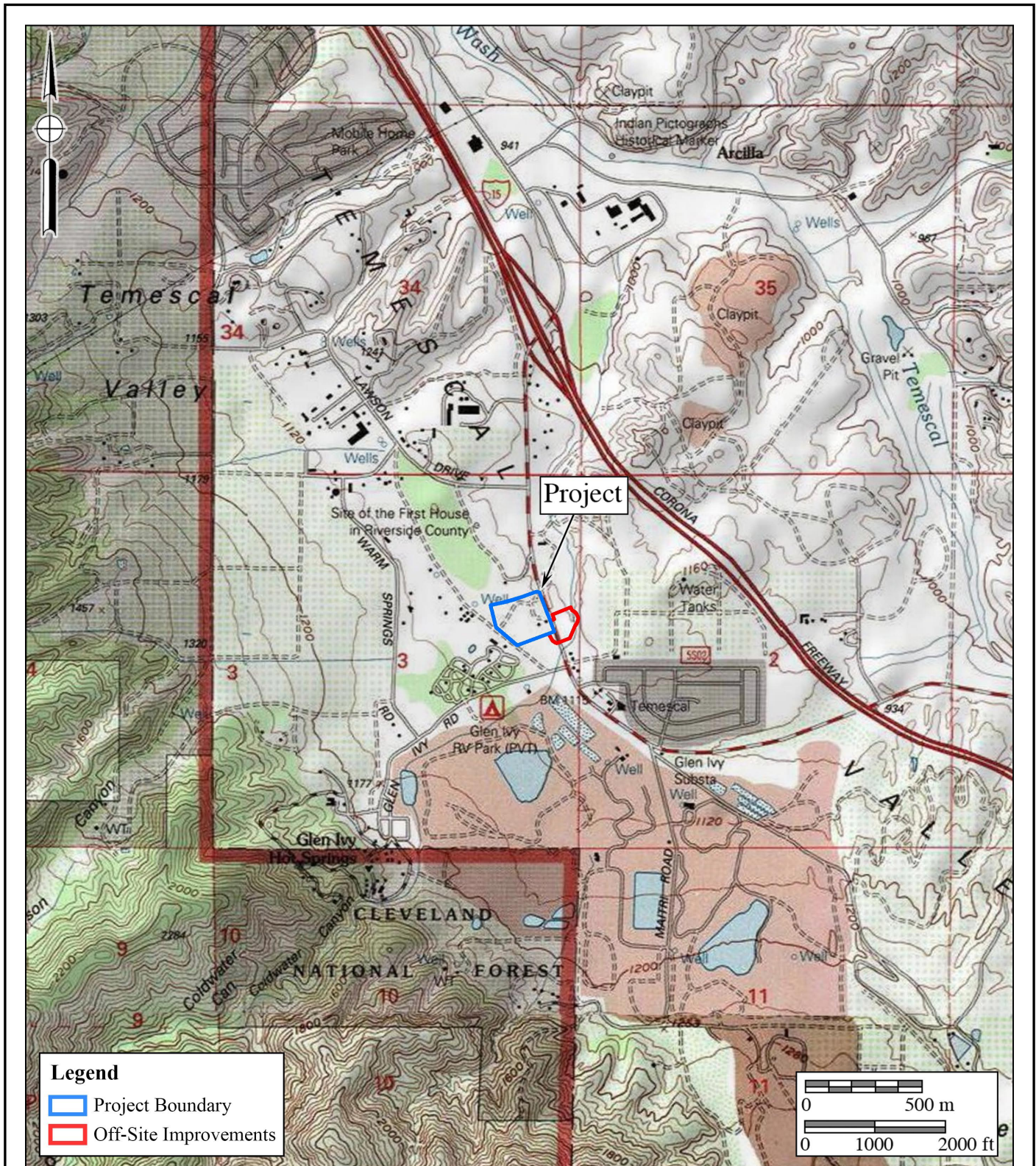
CEQA, patterned after the National Environmental Policy Act, is the overriding environmental document that sets the requirement for protecting California’s cultural and paleontological resources. The document does not establish specific rules that must be followed, but mandates that governing permitting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



**Figure 1**  
**General Location Map**  
 The Glen Ivy Senior Community Project



DeLorme (1:250,000)



**Figure 2**

**Project Location Map**

The Glen Ivy Senior Community Project

USGS Lake Matthews, Corona South, Santiago Peak, and Alberhill Quadrangles (7.5-minute series)



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 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 the Environmental Checklist, 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). California Public Resources Code 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 interactive paleontological sensitivity mapping database is available online and maintained by the County of Riverside as a research tool to access the County's assignment of paleontological sensitivity levels for the various geologic formations within the county (County of Riverside Land Information System 2021). This is specifically addressed in Section V of this report.

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

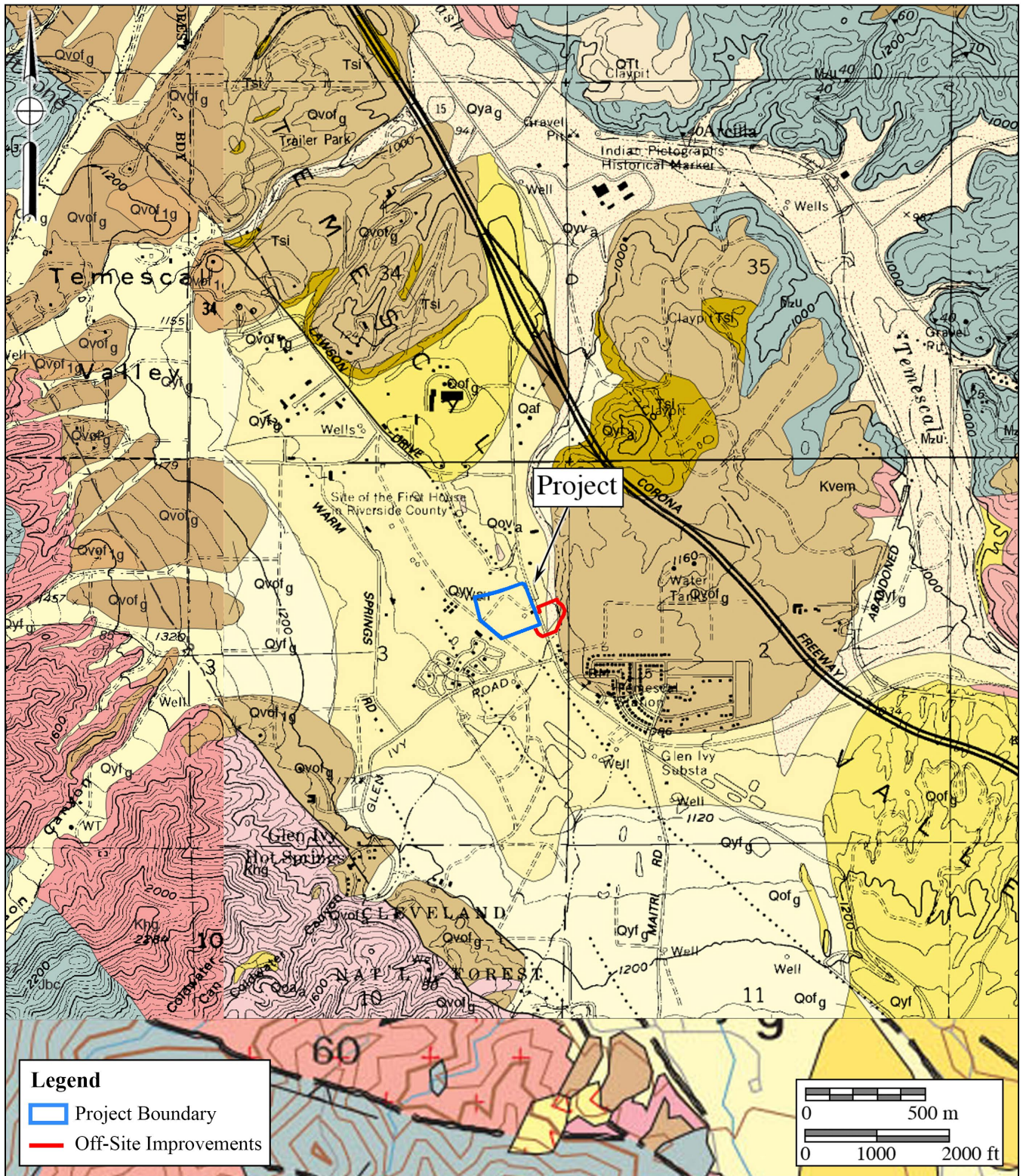
This policy requires that when existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected 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)

Riverside County's "SABER Policy" (Safeguard Artifacts Being Excavated in Riverside County), enacted in October 2011 by the Riverside County Board of Supervisors, may be applicable to the current project. The "SABER Policy" requires that any paleontological resources found or unearthed in the county of Riverside be curated at a facility within Riverside County, including the Western Science Center located in the city of Hemet (County of Riverside 2015, Policy OS 19.9).

### **III. GEOLOGY**

Regionally, the project lies on the western edge of the Perris Block, a structural block bounded on the west by the Elsinore fault zone and on the east by the San Jacinto fault zone (Morton and Weber 2001). The project is located within Temescal Valley, the erosional expression of the path of the tectonically active Elsinore fault zone. Within the fault zone in the vicinity of the project are various deposits of Quaternary-aged (less than 1.8 million years) surficial alluvial deposits bordered by much older outcrops of several Mesozoic rock units to the northeast and southwest (Figure 3, after Morton and Weber 2001, Gray et al. 2002, and Morton 2004).





**Figure 3**  
**Geologic Map**

The Glen Ivy Senior Community Project

Geology after Morton and Weber (2001), Gray et al. (2002), and Morton (2004)



The project is situated over Quaternary young (Holocene and late Pleistocene) alluvial valley deposits (“Qyva” on Figure 3), composed of unconsolidated silts and sands (Morton and Weber 2001). The project’s proximal position relative to concealed (interpreted) fault lines (dotted lines on Figure 3) suggests relatively thick deposits of young alluvial valley sediments.

Moderately high hills, as much as 120 feet above Temescal Wash, lie west of the project. These hills are composed mostly of Quaternary very old (early Pleistocene) alluvial fan deposits (“Qvofg”), consisting of well-indurated, reddish-brown sands and gravels, that mantle much more ancient rocks, some portions of which are exposed as outcrops (see Figure 3). Mapped in gray are undifferentiated metasediments of Mesozoic age (“Mzu” on Figure 3) and in olive brown is the Paleocene-aged Silverado Formation (“Tsi” on Figure 3). The Silverado Formation consists of marine and non-marine sandstone, siltstone, and conglomerate (Morton and Weber 2001), but much of it is thoroughly weathered (Morton 2004). In the marine facies, the Silverado Formation locally yields fossils of marine molluscan faunas (Engel 1959; Schoellhamer et al. 1981). Based on the presence of the Paleocene guide fossil snail, *Turritella pachecoensis* (“*T. infragranulata pachecoensis*”), found in the Silverado Formation, the age of the Silverado Formation falls within the “Martinez” provincial molluscan stage (Saul 1983). The “Martinez” stage ranges from approximately 55 to 61 million years ago (Squires 2003). The Mesozoic metasediments are generally unfossiliferous.

#### **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 (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 (see Section II of this report).

##### **Professional Standards**

The 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**

Previous record searches from past Brian F. Smith and Associates, Inc. (BFSA) projects conducted by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (LACM) have documented the presence of fossil mammal bones from Pleistocene alluvial deposits at the northern and southern limits of Temescal Valley. Southeast of the Glen Ivy Senior Community Project, at a distance of over 11 miles, two localities east of Lake Elsinore produced fossil bones of a horse, *Equus* (LACM loc. 6059) and those of a camel, *Camelops hesternus* (LACM loc. 5168). To the northwest at a distance of approximately 12 miles, fossil bones of a Pleistocene deer were found in Corona near the intersection of Highway 91 and Interstate 15 (I-15) (LACM loc. 1207). These vertebrate fossil localities are apparently the closest to the project as recorded by the LACM.

Another records search for a past BFSA project, the Toscana Project, was performed by the Division of Geological Sciences at the San Bernardino County Museum (SBCM; Scott 2014). The Toscana Project is located approximately one mile east of the Glen Ivy Senior Community Project and encompassed much of Section 36 and Section 1 (see Figure 2). Scott (2014) indicated the SBCM had no records of fossil resources from within the project, or from at least one mile from the Toscana Project in any direction. Conversely, for another project encompassing the unimproved hills along the east side of I-15, less than one mile east of the project, the SBCM reported a locality (SBCM loc. 5.5.1) consisting of a fossil horse tooth of the Pleistocene genus *Plesippus* sp., mixed with plant fossils that were collected in 1965, about a half a mile east of the project (Hoover et al. 2004). The report suggested the horse tooth was collected from the coarse, arkosic sandstones observed in the locality area, mapped as Quaternary very old alluvial fan deposits (Hoover et al. 2004). Oddly, the plant fossils were reportedly derived from the Paleocene Silverado Formation, outcrops of which are nearby, indicating the locality consists of a mixed collection.

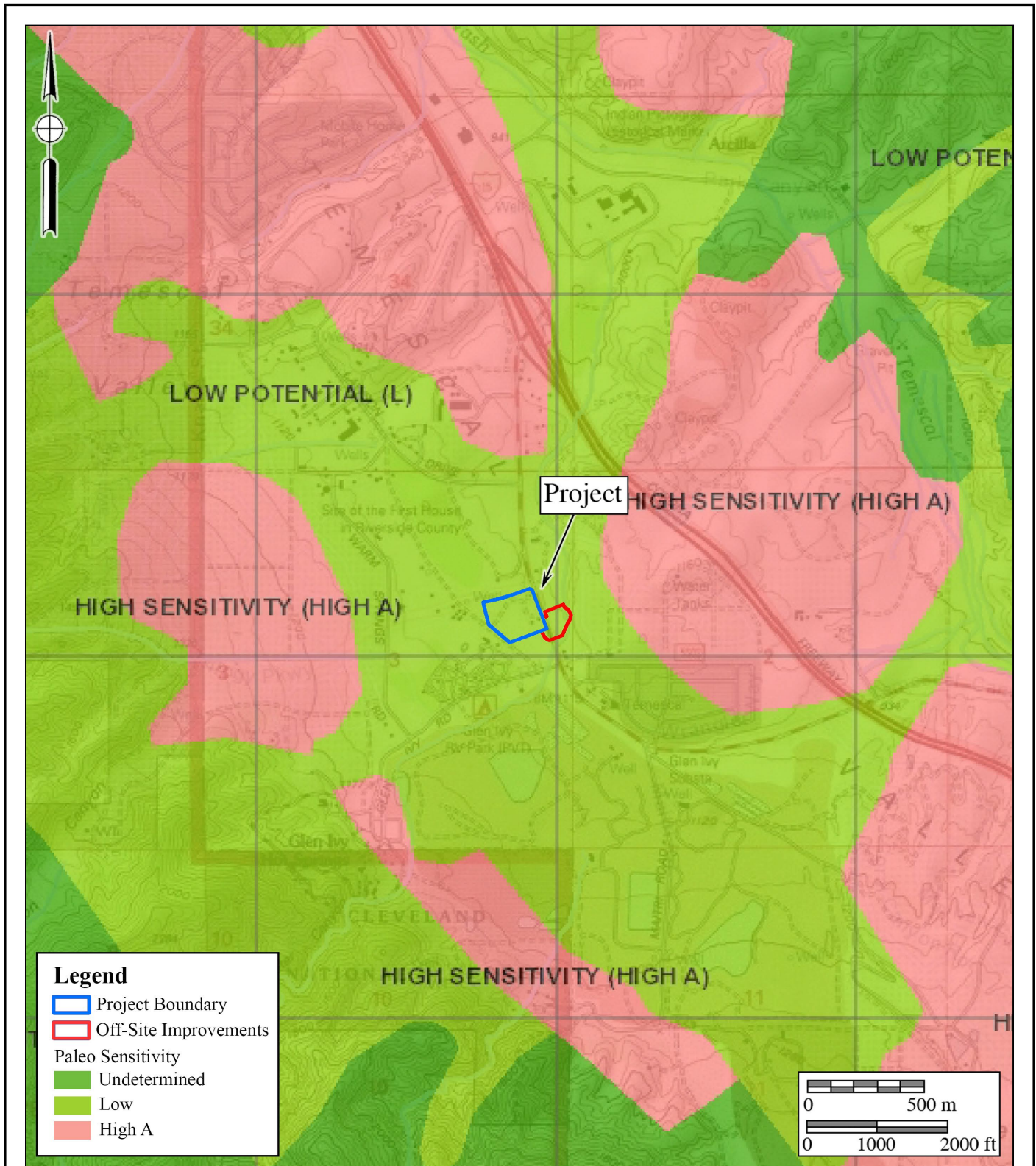
The Silverado Formation (historically termed the “Martinez Formation”) in the Temescal Valley is characterized by occurring as relatively small, scattered outcrops, but is nevertheless fossiliferous. Engel (1959) records the presence of Paleocene molluscan fossils from his locality El-2 in Section 12 within the southernmost portion of the *Lake Mathews* USGS quadrangle, about two miles southeast of the Glen Ivy Senior Community Project and lists nine bivalve and four gastropod species. A similar locality, El-1, is located approximately a half mile southeast of El-2, and included plant remains as well as marine shell fossils.

## **V. PALEONTOLOGICAL SENSITIVITY**

A paleontological sensitivity map generated by the Riverside County Land Information System in February 2020 (Figure 4) ranks the majority of the project as having a “Low” Paleontological Potential/Sensitivity (light green areas on Figure 4), which is defined as:

Following a literature search, records check and a field survey, areas may be determined by a qualified vertebrate paleontologist as having low potential for containing significant paleontological resources subject to adverse impacts. (County of Riverside Land Information System n.d.)

Assignment of a “Low” sensitivity reflects rocks that generally do not contain fossils, such as modern (Holocene) sedimentary deposits and igneous rocks. Holocene deposits are generally too young to yield fossils. Since a “Low” assignment has been applied to a wide spectrum of rock units, the Riverside County Land Information System has suggested that a qualified professional conduct an inspection of the site to determine its suitability to yield fossils. Formations typically assigned a “high” paleontological sensitivity by the County include Quaternary old and very old alluvial fan deposits, including the nearby deposits that are the source for the fossil horse tooth discussed above. Across the Inland Empire, these types of Quaternary sediments have a well-documented record of yielding important Ice Age, and older, fossils, such as large terrestrial vertebrates (*e.g.*, bison, mammoth, mastodon, horse, camel, giant ground sloth, short-faced bears, sabre-tooth cats, and others [*e.g.*, Jefferson 1991]). Due to the inaccurate scaling by the County’s website, the colored areas on Figure 4 do not closely match the associated geology as shown on Figure 3. In fact, the hill immediately to the east of the project, mostly composed of very old alluvial fan deposits and the Silverado Formation, should be indicated as having a mostly High Potential/Sensitivity (pale red tint) with respect to these formations on Figure 3.



**Figure 4**

**Paleontological Sensitivity Map**

The Glen Ivy Senior Community Project

After Riverside County Land Information System



## **VI. PALEONTOLOGICAL RESOURCE IMPACT MITIGATION PROGRAM**

The Glen Ivy Senior Community Project is underlain by potentially thick deposits of young (Holocene and late Pleistocene) alluvial valley sediments. These near-surface deposits likely do not contain significant paleontological resources. The recorded presence of the fossil horse tooth discovered nearby in likely Quaternary very old alluvial fan deposits is significant, however these deposits are mapped as separated from the young alluvial valley deposits underlying the project by a major fault trace. Nevertheless, the stratigraphy underlying the project is poorly known, and impacts to the older alluvial fan deposits that underlie the young deposits at the surface potentially exist. Furthermore, the County of Riverside has suggested that a qualified professional conduct an inspection of a site, when assigned a “Low” paleontological sensitivity, to determine its suitability to yield fossils (County of Riverside Land Information System n.d.), supporting the recommendation that paleontological monitoring starting from the surface in undisturbed formational sediments be required during all mass grading, excavation (utility trenching, etc.), and drilling activities to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources, on a spot-check basis. Periodic “spot check” monitoring will consist of approximately one to two scheduled site visits per week by a paleontological monitor during construction ground disturbance. If fossils are discovered, full-time monitoring for paleontological resources is warranted.

In accordance with the Planning Department of Riverside County, submittal of a PRIMP is required prior to issuance of grading permits. The PRIMP is based on the recommendations stated above. The specific guidelines contained within a PRIMP are outlined below, which are consistent with the provisions of CEQA, the County of Riverside, and the guidelines of the SVP (2010) for any mass grading and excavation-related activities, including utility trenching, during construction within the 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 following list addresses the required items typically included with PRIMP reports in Riverside County:

1. Description of the proposed site and planned grading operations: See Section I of this report.
2. Description of the level of monitoring required for all earthmoving activities in the project area: All mass grading, excavation, and trenching activities within the project are to be monitored on a part-time or “spot-check” basis for paleontological resources. Periodic “spot check” monitoring will consist of approximately one to two scheduled site visits per week by a paleontological monitor during construction ground disturbance. If fossils are discovered, full-time monitoring for paleontological

resources is warranted. Prior to initiation of any grading and/or excavation activities, a preconstruction meeting will be held and attended by the paleontologist of record, representatives of the grading contractor and subcontractors, the project owner or developer, and a representative of the lead agency. The nature of potential paleontological resources shall be discussed, as well as the protocol that is to be implemented following discovery of any fossiliferous materials.

3. Identifications and qualifications of the qualified paleontological monitor to be employed for grading operations monitoring: The primary paleontological monitor will either be Todd A. Wirths, the project paleontologist and a California Professional Geologist (P.G. No. 7588), who has numerous years of experience doing geological investigations, paleontological monitoring, and salvage recovery in southern and central California, or Clarence L. Hoff, who has approximately 17 years of experience with BFSAs doing paleontological monitoring and salvage recovery in the southern California area. Other qualified BFSAs staff may also conduct monitoring under the direction and supervision of Mr. Wirths.
4. Identification of personnel with authority and responsibility to temporarily halt or divert grading equipment to allow for the recovery of large specimens: In the field, the primary monitor (Todd A. Wirths or Clarence L. Hoff) or the monitors under the direction and supervision of Mr. Wirths will be the responsible persons on-site with the assigned authority and responsibility to control all grading operations that might adversely affect any salvage efforts. Todd A. Wirths, P.G., the principal investigator for paleontology for this project and a listed qualified paleontologist with the County of Riverside, will be the primary person for this task.
5. Direction for any fossil discoveries to be immediately reported to the property owner, who in turn, will immediately notify the County of Riverside of the discovery: All paleontological monitors automatically inform the BFSAs office upon the discovery of fossils while monitoring. It is BFSAs's practice to immediately notify all concerned parties (client and lead agency [*i.e.*, the County of Riverside]) at the time of any discovery.
6. Means and methods to be employed by the paleontological monitor to quickly salvage fossils as they are unearthed to avoid construction delays: Paleontological salvage on trenching activities is typically from the trench spoils and does not delay the trenching activity. 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 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. All grading activities within 50 feet of the discovery site should be suspended until fossil recovery has been completed. Fossils are collected

in a similar manner, with notes and photographs being taken before removing fossils. If the site involves a large terrestrial vertebrate, for example, large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a field crew will be sent to the site to excavate around the find, encase the discovery within a plaster jacket, and remove it after the plaster has set. For large fossils, use of the contractor's construction equipment is solicited to remove the jacket to a safe location before it is returned to the BFSA laboratory facility. It sometimes happens that fossils are found by construction workers when a paleontological monitor is not on site, or is occupied elsewhere on a grading project. In such cases, all work should be halted within 50 feet of the discovery location until it can be properly evaluated by the paleontological monitor or professional paleontologist.

7. Sampling of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates: Sediments containing small invertebrate and/or vertebrate fossils are considered just as important as larger fossils and will always be collected (see below). When vertebrate fossil remains are recovered, additional sediment samples will be taken from the same location to process for micro-vertebrate specimens.
8. Procedures and protocol for collecting and processing samples and specimens: Isolated fossils are collected by hand, wrapped in paper, and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils removed to a safe place. Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained by 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 micro-vertebrate fossils, the standard test is usually the observed presence of small pieces of bone within the sediments. If bone is 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. If, after five buckets have been wet-screened and have failed to yield any micro-vertebrate or other fossil material under microscopic examination, then this process can be terminated. In the laboratory, any recovered fossils are cleaned of extraneous matrix, any breaks are repaired, and the specimen, if necessary, is stabilized by soaking in an archivally approved acrylic hardener (e.g., a solution of acetone and Paraloid B-72).
9. Fossil identification and curation procedures to be employed: Fossils will be identified by an adjunct invertebrate or vertebrate paleontology specialist, depending upon the group of fossils needing identification (e.g., mollusks, reptiles, birds, mammals, or fish). Standard museum curation steps will be utilized by, or under the direct supervision of, the principal investigator, who has nine years of paleontological



curatorial experience. Curation steps include cleaning, preparing, sorting, identifying, painting, numbering, and labeling all specimens before submittal to the receiving institution.

10. Identification of the permanent repository to receive any recovered fossil material: Pursuant to the County of Riverside's "SABER" Policy, paleontological materials (fossils) found in Riverside County should, by preference, be directed to the Western Science Center on Searl Road in Hemet, Riverside County, California. A written agreement between the project developer and the preferred archival institution should be in hand before grading begins. The project owner/developer will assume financial responsibility for any institutional curation fees for the project.
11. All pertinent exhibits, maps, and references: See text and attachments of this PRIMP report.
12. Procedures for reporting findings: A final written report will be produced by BFSAs and authored by the principal investigator, California Professional Geologist Todd A. Wirths, P.G. 7588, an approved Riverside County paleontologist, and submitted to the County Geologist of Riverside County at the conclusion of grading activities for the project. The report will include sections on general background information, previous studies (both geologic and paleontologic), results of findings and analysis, discussion of all recovered fossils, and a fossil list identified to the lowest taxonomic level possible, as well as a list of references cited and index and locality maps and graphics to show the locations of all fossil localities, etc. A letter documenting receipt and acceptance of the fossil collections by the receiving institution must be included in the final report, a copy of which is to be archived with the fossil collection. If fossils are not recovered during the project, the final report will be in a shortened letter format.
13. Identification and acknowledgement of the developer for the content of the PRIMP, as well as acceptance of financial responsibility for monitoring, reporting, and curation fees: Brian F. Smith, President of BFSAs, acknowledges that the developer or owner will assume financial responsibility for the PRIMP and any associated curation fees for the project.

## **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.

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April 19, 2021

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

Date

## **VIII. REFERENCES**

- County of Riverside. 2008. County of Riverside general plan, Chapter 5: Multipurpose Open Space Element.  
[https://planning.rctlma.org/Portals/14/genplan/general\\_plan\\_2008/general\\_plan/Chapter\\_5\\_Multipurpose\\_Open\\_Space\\_Element\\_2008.pdf](https://planning.rctlma.org/Portals/14/genplan/general_plan_2008/general_plan/Chapter_5_Multipurpose_Open_Space_Element_2008.pdf).
- County of Riverside. 2015. Environmental Impact Report No. 521. Public Review Draft: [http://planning.rctlma.org/Portals/0/genplan/general\\_plan\\_2015/DEIR\\_521/04-09\\_CulturalAndPaleoResrcs.pdf](http://planning.rctlma.org/Portals/0/genplan/general_plan_2015/DEIR_521/04-09_CulturalAndPaleoResrcs.pdf).
- County of Riverside Land Information System. n.d. Map My County; Paleontological Sensitivity: [https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC\\_Public](https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public).
- Engel, R. 1959. Geology of the Lake Elsinore quadrangle, California. Geology and mineral deposits of the Lake Elsinore quadrangle, California: State of California Dept. of Natural Resources, Division of Mines, Bulletin 146, p. 9-58, pl. 1-3.
- Hoover, A.M., Blevins, K.R., Wagner, H.M., and Van Wormer, S. 2004. An archaeological and paleontological Phase I survey, a Phase II significance testing program and a historic properties evaluation report: The Serrano Specific Plan (SSP), Case # 441, APNs [numerous listings], 483-acre property, County of Riverside. Unpublished consulting report prepared for Rosetta Advisors, Corona, California, by L & L Environmental, Inc., Corona, California.
- Gray, C.H., Morton, D.M., and Weber, F.H., Jr. 2002. Geologic map of the Corona South 7.5' quadrangle, Riverside and Orange Counties, California. U.S. Geological Survey Open-File Report 02-21, scale 1:24,000.

- 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.
- Morton, D.M. 2004. Preliminary geologic map of the Santa Ana 30' x 60' quadrangle, southern California. U.S. Geological Survey Open-File Report 99-172, v. 2.0 - 2004, two sheets.
- Morton, D.M., and F.H. Weber. 2001. Geologic map of the Lake Mathews 7.5' quadrangle, Riverside County, California. U.S. Geological Survey Open-File Report 01-479, scale 1:24,000.
- Saul, L.R. 1983. Notes on Paleogene turrnellas, venericardias, and molluscan stages of the Simi Valley area, California; *in* Squires, R.L., and M.V. Filewicz, *eds.*, Cenozoic geology of the Simi Valley area, southern California: Pacific Section, SEPM, Fall Field Trip Volume and Guidebook, p. 71-80.
- Schoellhamer, J.E., J.G. Vedder, R.F. Yerkes, and D.M. Kinney. 1981. Geology of the northern Santa Ana Mountains, California. U.S. Geological Survey Prof. Paper 420-D.
- Scott, E. 2014. Paleontological literature and records review, the Toscana Property project, Temescal Canyon area, Riverside County, California. Unpublished letter by the San Bernardino County Museum, Division of Geological Sciences, Redlands, California, to Brian F. Smith and Associates, Poway, California.
- Squires, R.L. 2003. Turnovers in marine gastropod faunas during the Eocene-Oligocene transition, west coast of the United States; *in* Prothero, D.R., L.C. Ivany, and E.A. Nesbit, *eds.*, From greenhouse to icehouse: the marine Eocene-Oligocene transition. Columbia University Press, New York.
- Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources; by the SVP Impact Mitigation Guidelines Revision Committee: [http://vertpaleo.org/Membership/Member-Ethics/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx).

**APPENDIX A**

**Qualifications of Key Personnel**

# Todd A. Wirths, MS, PG No. 7588

## Senior Paleontologist

Brian F. Smith and Associates, Inc.

14010 Poway Road • Suite A •

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



## Education

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

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

## Professional Certifications

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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

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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

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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

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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 Resource Impact Mitigation Program (PRIMP) for the Speedway TPM 37676 Project, Temescal Valley, Riverside County, California.* Prepared for Speedway Development. 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.