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May 5, 2020

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Transmitted via email to [max.antono@thealtumgroup.com](mailto:max.antono@thealtumgroup.com)

**RE: Paleontological Resource Assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California**

Dear Mr. Antono:

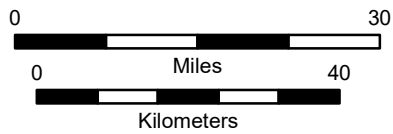
At the request of The Altum Group, PaleoWest conducted a paleontological resource assessment for the Coachella Airport Business Park Project in Coachella, Riverside County, California. The goal of the assessment is to identify the geologic units that may be impacted by development of the Project, determine the paleontological sensitivity of geologic units within the Project area, assess potential for impacts to paleontological resources from development of the Project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources, as necessary.

This paleontological resource assessment included a fossil locality records search conducted by the Natural History Museum of Los Angeles County (NHMLAC) and by the San Bernardino County Museum (SBCM), as well as a search of the University of California Museum of Paleontology's (UCMP) online database. The records search was supplemented by a review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed Project vicinity and region. This technical memorandum, which was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010), has been prepared to support environmental review under the California Environmental Quality Act (CEQA).

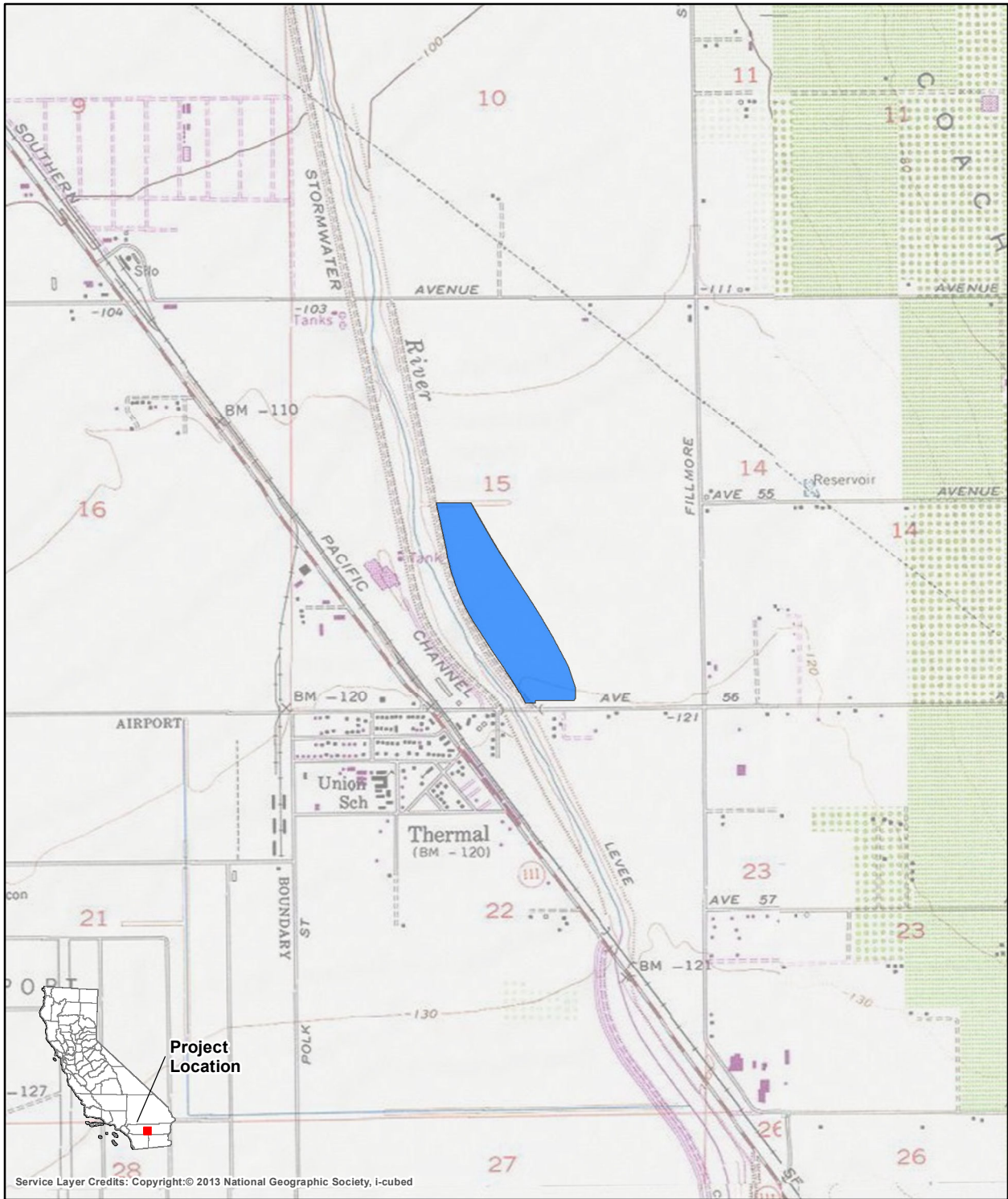
## **PROJECT DESCRIPTION**

The proposed Project is located at the northwest corner of State Route (SR) 86 and Airport Boulevard and is comprised of three parcels totaling approximately 43 acres in size. The Assessor's Parcel Numbers (APNs) of the Project area are 763-330-013, 763-330-017, and 763-330-018. The Project area is bordered to the north by a vacant, undeveloped property; to the west, the Project area is bordered by the Whitewater River Storm Channel; to the east, bordered by State Route 86; and to the south, by Airport Boulevard (Figure 1). The Project area is situated within Section 15, Township 6 South, Range 18 East, San Bernardino Baseline and Meridian (SBBM), as depicted on the Indio, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 2). The elevation of the Project area ranges between 110 and 120 feet below mean sea level (bmsl).

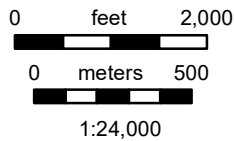




**Figure 1**  
**Project Vicinity Map**  
**USGS 7.5' Quadrangle:**  
**Riverside West, Ca (1981)**  
**T3S R5W Sec 4**  
**NAD 83 UTM Zone 11**



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**Figure 2**  
**Project Location Map**  
 USGS 7.5' Quadrange:  
 Indio, Ca (1977)  
 T6S R8W Sec 15  
 NAD 83 UTM Zone 11

 Project Area

The service station/mini mart and drive-thru coffee shop are proposed to be developed at the southern end of the Project area near the Project's two primary access points along Airport Boulevard within close proximity to the SR 86 off ramp. North of these two retail buildings will be the small business sector that will be comprised of 18 leasable buildings for office and/or warehouse uses. Beyond the small business sector to the north will be the brick yard sector of the business park that will contain a total of four hangar type buildings with a centralized courtyard-type green space. The brick yard sector will be designed for storage of automobile models and motorsport vehicles. The self-storage sector will be located within the western portion of the center of the Project area and be comprised of 16 buildings ranging in size. The small warehouse sector will be located within the eastern portion of the center of the Project area and will consist of four warehouse buildings. The large warehouse sector will be located within the northern portion of the Project area and will consist of four to six warehouses. Both the large and small warehouse sectors will be built to accommodate both logistical/distribution-related uses (i.e., fulfillment centers) and for cannabis-related uses (i.e., cultivation, manufacturing, and distribution). Located at the northwest corner of State Highway 86 and Airport Boulevard, the Coachella Airport Business Park Project (Project) site consists of three parcels totaling approximately 43-acres. The Project will be completed in phases and will be utilized as a mixed-use business park with a focus on warehouse/commercial cannabis, small business and service station-related land uses including a Large Warehouse, Small Warehouse, Small Business, Brick Yard, Self-Storage, Service Station/Mini Mart and Drive-Thru Coffee Shop totaling 676,997 square feet of building space. The site can be found in Township 6S, Range 8E, and sections 9, 10, 11, 14, 15, 16, 21, 22, 23 and 25.

## REGULATORY CONTEXT

### CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that public agencies and private interests identify the potential environmental consequences of their Projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G, Section VII, Part f) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?"

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and Federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP 2010, page 11):

"Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally

important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and therefore considered significant.

## CALIFORNIA PUBLIC RESOURCES CODE

Section 5097.5 of the Public Resources Code (PRC) states:

“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, 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.”

As used in this PRC 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. Consequently, public agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

## LOCAL

The City of Coachella General Plan (2035) covers seven elements, one of which includes Sustainability and the Natural Environment. This element includes one goal and one associated policy related to paleontological resources, as follows:

Goal 12. Cultural Resources and Sites. Preserved and protected cultural resources that provide the community with significant cultural, scientific, or educational value.

Policy 12.7 Paleontological resources. Require any paleontological artifacts found within the City or Sphere of Influence be reported to the City and temporarily loaned to local museums like the Western Science Center for Archaeology and Paleontology, in Hemet, CA.

## METHODOLOGY

Determining the probability that a given project site might yield paleontological resources requires a knowledge of the geology and stratigraphy of the project area, as well as researching any nearby fossil finds by: 1) reviewing published and unpublished maps and reports; 2) consulting on-line databases; 3) seeking any information regarding pertinent paleontological localities from local and regional museum repositories, and 4) if needed, conducting a reconnaissance site visit or paleontological resources field survey. The UCMP online paleontological database was used to document previously recorded paleontological findings in the Project vicinity. In addition, paleontological record searches documenting fossil localities in the Project area were obtained from the NHMLAC on April 1, 2020 (McLeod 2020) and SBCM on April 10, 2020 (Cortez 2020). Published geologic and paleontological literature of the Project area were also reviewed. Using this information, geologic units identified within the Project vicinity are categorized according to SVP (2010) guidelines as possessing high, low, undetermined, and no paleontological resource potential.

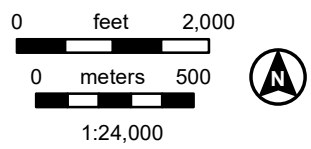
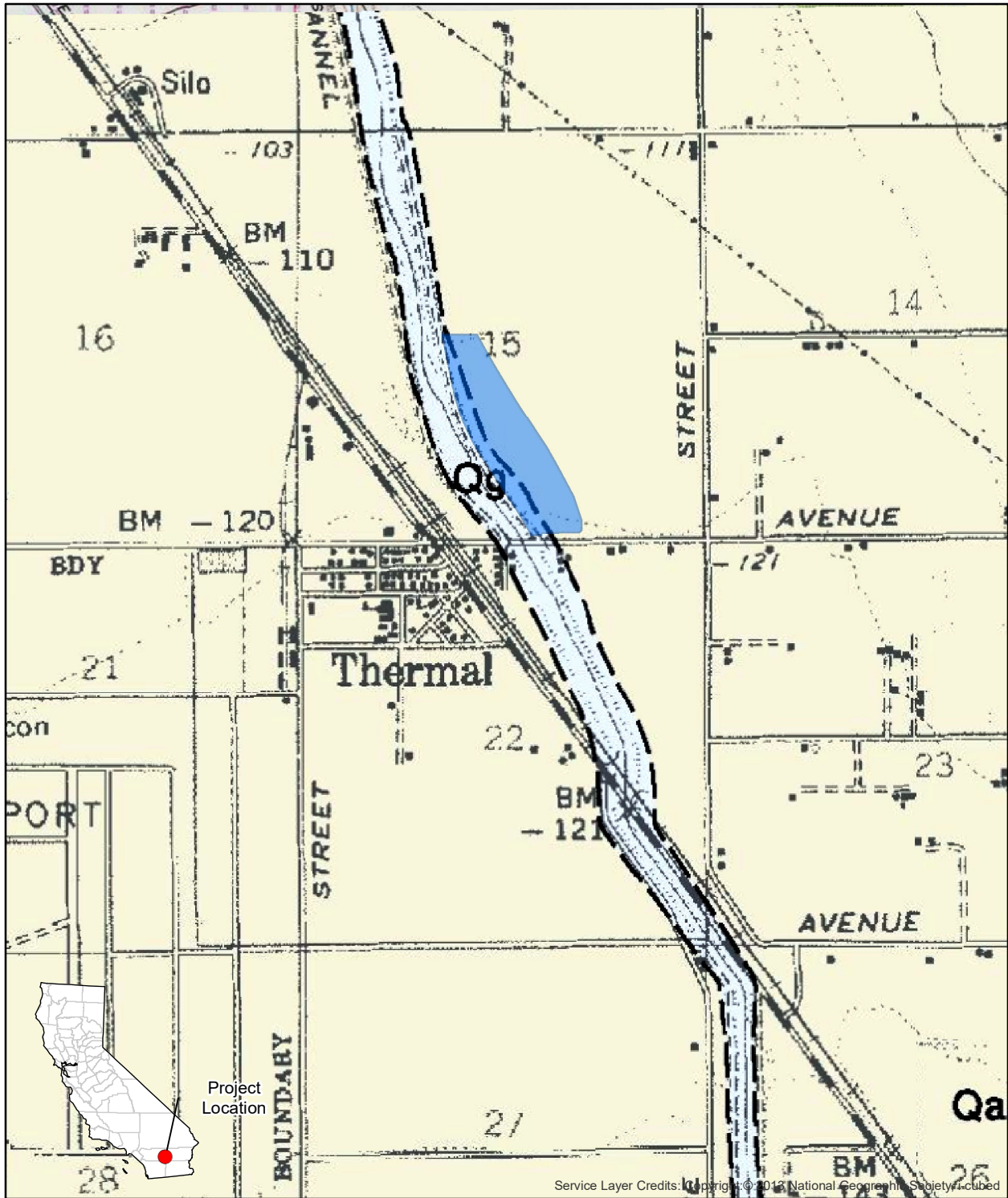
## GEOLOGIC CONTEXT

The Project area is located in the Coachella Valley within the Colorado Desert geomorphic province of California. A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history. The Colorado Desert extends from the Mojave Desert to the north, the Colorado River on the east, the Peninsular Ranges on the west, and south into Mexico. Dominant features within the Colorado Desert include the Salton Trough, the Colorado River, and the Orocopia, Chocolate, Palo Verde, and Chuckwalla mountains (Norris and Webb 1976). Coachella Valley is within the Salton Trough—a large structural depression that extends from the San Geronio Pass in the north to the Gulf of Mexico in the south (Norris and Webb 1976). The Salton Trough formed due to tectonic activity associated with the San Andreas Fault Zone and the East Pacific Rise spreading ridge that opened the Gulf of California (Alles 2011). Since the late Quaternary, the freshwater Lake Cahuilla periodically occupied the Salton Trough. The lake formed, drained, and reformed between approximately 37,000 to 300 years before present (BP) due to the fluctuations in the course of the Colorado River, and the subsequent diversion of its mouth from the Gulf of California to the Salton Trough (Deméré 2002; Norris 1979). Lake Cahuilla reached a maximum depth of 300 ft, 105 mi long, and 35 mi across at its last high stand at approximately 45 ft above sea level in the Imperial Valley.

## SITE SPECIFIC GEOLOGY AND PALEONTOLOGY

According to published geologic maps, the Project area is immediately underlain by Holocene age surficial alluvial sediments (Qa. Qg) (Dibblee and Minch 2008) (Figure 3). Based on previous stratigraphic, archaeological, paleontological, hydrogeological, and tectonic studies, Holocene-age Lake Cahuilla silt deposits are known to underlie surficial alluvial deposits at shallow depth (Alles 2011; Deméré 2002; Norris 1979; Waters 1983; Whistler et al. 1995). In turn, older Pleistocene-age “ancient” Lake Cahuilla deposits underlie the surficial lacustrine silt at depth. The depth of the contact between the Holocene-age and Pleistocene-age Lake Cahuilla deposits in the Project area is unknown; however, radiocarbon dating derived from an exposure of Lake Cahuilla deposits located approximately 5 miles south of Indio, indicates that lacustrine silt sediments at a depth of 20 feet below ground surface have an age of approximately 4,000 years BP (Waters 1983). Pleistocene-age ancient Lake Cahuilla sediments are likely present at a moderate depth below the Holocene deposits. The Pleistocene to Holocene-age Lake Cahuilla deposits are generally composed of weakly consolidated, shallow to moderately deep lacustrine sands, silts and clays, with tufa and travertine rock coatings, coarse alluvial deposits, and beach sands (Norris 1979; Waters 1983). The Lake Cahuilla sediments range from several feet deep at the margin of the Coachella Valley to as much as 300 feet thick in the center of the Salton Trough (Arnal 1961; Norris and Webb 1976).

Late Quaternary-age lacustrine deposits derived from ancient Lake Cahuilla have proven to yield scientifically significant mollusk shells within the Salton Trough (Whistler et al. 1995). Fossil specimens of diatoms, spores, pollen, land plants, sponges, ostracods, freshwater gastropods, fresher bivalves, fish, and small terrestrial vertebrate have been recovered from the Lake Cahuilla Beds (McLeod 2020). In addition, Holocene-age, non-mineralized, mollusk shells are also found in the Lake Cahuilla silt deposits, their recovery and subsequent dating have helped researchers with studies in archaeology, geology, and seismology (Norris and Webb 1976).



**Figure 3**  
**Geology Map**  
 USGS 7.5' Quadrangle:  
 Indio, Ca (1977)  
 T6S, R8E; Sec15 NAD  
 83 UTM Zone 11

 Project Area

## PALEONTOLOGICAL SENSITIVITY

Absent agency guidelines, paleontologists often follow guidelines set forth by the Society of Vertebrate Paleontology (2010) to assist in developing mitigation recommendations for a given project. These guidelines for assessment of the paleontological resource potential of affected geologic units also outline measures to mitigate potential adverse impacts from project development. Analyzing information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) underlying a project area can be assigned to one of four categories defined by SVP (2010). These categories include high, undetermined, low, and no paleontological resource potential.

- **High Sensitivity:** Vertebrate fossils, as well as the respective stratigraphic units in which these vertebrate fossils were discovered, are likely present, and likely have significant scientific value. In areas of high sensitivity, full-time monitoring is recommended during project-related ground disturbance.
- **Low Sensitivity:** Stratigraphic units that have yielded few fossils in the past, based upon review of available literature and museum collections records, are considered to possess low paleontological sensitivity. Monitoring is usually not recommended during excavation within a stratigraphic unit of low sensitivity, although spot monitoring may be recommended to confirm that disturbance remains restricted to low-sensitivity units.
- **Undetermined Sensitivity:** In certain instances, the lack of available literature on a particular geologic unit, or absence of exposures of that unit, make it difficult to determine a unit's likelihood of yielding fossiliferous remains. Under these circumstances, further studies may be recommended to assess the unit's paleontological resource potential (i.e., field survey). If a unit remains of "undetermined" paleontological sensitivity, then it is treated as possessing "high" sensitivity for purposes of initial monitoring and mitigation.
- **No Sensitivity:** This category includes geological strata that are either too young (<10,000 years old), too weathered, metamorphosed, or too coarse-grained to preserve significant fossilized remains. Metamorphic and plutonic igneous rocks normally do not contain fossils due to the high heat and pressure during their formation, and commonly possess no paleontological sensitivity.

## MUSEUM RECORDS SEARCH RESULTS

The NHMLAC does not have on record any previously recorded vertebrate fossil localities directly within the proposed Project boundaries; however, several fossil localities from sedimentary deposits similar to those found at the Project site have been recorded somewhat nearby. Directly west-southwest of the Project site on both sides of Madison Street north of 58<sup>th</sup> Avenue, several fossil localities have been recognized from the Lake Cahuilla beds. During mitigation activities for the construction of the PGA West Tom Weiskopf Signature Golf Course, localities LACM 6252, 6253, and 6255 were collected from a single trench west of Madison Street consisting of a fauna of terrestrial and freshwater vertebrates as well as diatoms, land plants, clams, snails and crustaceans (McLeod 2020). In addition, LACM 6256 produced a single jaw of the bighorn sheep *Ovis canadensis*, east of Madison Street. A search of the UCMP database revealed two vertebrate fossil localities, each yielding fossil specimens of *Gopherus agassizii* (desert tortoise). Finally, the SBCM records search did not produce any paleontological resource localities within the Project area nor within a 3-mile buffer (Cortez 2020). The results of the museum records searches are presented in Table 1 below.



**Table 1  
Vertebrate Localities Reported near the Project Area**

<b>LOCALITY NO.</b>	<b>GEOLOGIC UNIT</b>	<b>AGE</b>	<b>TAXA</b>
LACM 6252, 6253, 6255	Unspecified Quaternary-age deposits	Pleistocene	<i>Xyrauchen texanus</i> (razorback sucker), <i>Gila elegans</i> (bonytail), <i>Cyprinodon macularius</i> (desert pupfish), <i>Phrynosoma platyrhinos</i> (desert horned lizard), <i>Sceloporus magister</i> (desert spiny lizard), <i>Uma inornate</i> (Coachella Valley fringe-toed lizard), <i>Urosaurus graciosus</i> (long-tailed brush lizard), <i>Chionactis occipitalis</i> (western shovel-nosed snake), <i>Hypsiglena torquata</i> (night snake), <i>Pituophis melanoleucus</i> (gopher snake), <i>Sonora semiannulata</i> (western ground snake), <i>Crotalus cerastes</i> (sidewinder rattlesnake), <i>Passeriformes</i> (advanced land birds), <i>Sylvilagus</i> (cottontail rabbit), <i>Neotoma lepida</i> (desert wood rat), <i>Peromyscus</i> (white-footed mouse), <i>Dipodomys</i> (kangaroo rat), <i>Perognathus longimembris</i> (pocket mouse), <i>Ammospermophilus leucurus</i> (antelop ground squirrel)
LACM 6256	Unspecified Quaternary-age deposits	Pleistocene	<i>Ovis canadensis</i> (bighorn sheep)
UCMP 197573	Unspecified Quaternary-age deposits	Pleistocene	<i>Gopherus agassizii</i> (desert tortoise)

LOCALITY NO.	GEOLOGIC UNIT	AGE	TAXA
UCMP 197574	Unspecified Quaternary-age deposits	Pleistocene	<i>Gopherus agassizii</i> (desert tortoise)

Sources: UCMP 2020; McLeod 2020

## FINDINGS

Shallow excavations in the Project area (approximately 10 feet in depth or less) are unlikely to yield any significant paleontological resources because younger Quaternary deposits are void of fossils and near-surface alluvium is usually too young to contain fossils, and therefore possesses low sensitivity. As a result, no effects to paleontological resources would occur from earth-moving activities at shallow depths at the Project site. However, deeper excavations that may extend down into older Quaternary (Pleistocene) Lake Cahuilla beds are more likely to unearth fossil vertebrate remains (McLeod 2020). Older Quaternary deposits underlying the Project area are considered to have a high paleontological sensitivity because they have proven to yield significant paleontological resources (i.e., identifiable vertebrate fossils). Generally, ground-disturbing activities exceeding depths beyond Holocene soils and younger Quaternary alluvium would encounter older Quaternary alluvium and, consequently, should be monitored by a qualified paleontological monitor to identify and effectively salvage any recovered resources while minimizing discovery-related delays.

## RECOMMENDATIONS

In general, the potential for a given project to result in negative impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project; thus, the higher the amount of ground disturbances within geological deposits with a known paleontological sensitivity, the greater the potential for negative impacts to paleontological resources. Since this Project entails grading and excavations, new ground disturbances are anticipated. Consequently, the likelihood of impacting scientifically significant fossils because of Project development is high. Therefore, a qualified paleontologist should be retained to develop and implement a Paleontological Resources Monitoring and Mitigation Plan (PRMMP). The following mitigation measures have been developed in accordance with SVP guidelines; if implemented, these measures will satisfy the requirements of CEQA. These measures have been used by professional paleontologists for many years and have proven to be effective in reducing or eliminating adverse impacts to fossil resources as a result of private and public development.

### WORKER'S ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of the proposed Project activities, all field personnel will receive a worker's environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, the role of the paleontological monitor, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Project Paleontologist. The training will be developed by the Project Paleontologist and can be delivered concurrent with other training including cultural, biological, safety, etc.

## PALEONTOLOGICAL MITIGATION MONITORING

Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a PRMMP for the proposed Project. The PRMMP will describe the monitoring required during excavations that extend into older Quaternary (Pleistocene) age sediments, and the location of areas deemed to have a high paleontological resource potential. Part-time monitoring, or spot checking, may be required during shallow ground-disturbances (< 10 feet below ground surface) to confirm that sensitive geologic units are not being impacted. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls.

## FOSSIL DISCOVERIES

In the event that a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the Project Paleontologist shall complete the following:

1. Salvage of Fossils. If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor, and/or Project Paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the Project Paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological as outlined in the PRMMP prepared for the project. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.
2. Fossil Preparation and Curation. The PRMMP will identify the museum that has agreed to accept fossils that may be discovered during project-related excavations. Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossils specimens will be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 90 days after all fieldwork is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

## FINAL PALEONTOLOGICAL MITIGATION REPORT

Upon completion of ground disturbing activity (and curation of fossils if necessary) the Project Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

It has been a pleasure working with you on this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,

**PALEOWEST**



**Niranjala Kottachchi, MSc |**  
Senior Paleontologist



**Jessica DeBusk, B.S., M.B.A. |**  
Principal Investigator/Program Manager

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