

October 10, 2022

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T&B Planning, Inc.
3200 El Camino Real, Suite 100
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Transmitted via email to canderson@tbplanning.com

RE: Paleontological Resource Assessment for the Lancaster Forbes Industrial Project, City of Lancaster, Los Angeles County, California

Dear T&B Planning, Inc.,

At the request of T&B Planning, Inc., PaleoWest, LLC (PaleoWest) conducted a paleontological resource assessment for the Lancaster Forbes Industrial Project (Project) in the city of Lancaster, Los Angeles County, California. The goal of the assessment is to identify the geologic units that may be impacted by the development of the Project, determine the paleontological sensitivity of geologic units within the Project area, assess the potential for impacts to paleontological resources from the 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 (NHMLA) in Los Angeles, California. 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); the City of Lancaster is the Lead Agency for CEQA compliance.

PROJECT LOCATION AND DESCRIPTION

The Project area consists of approximately 12.44 acres of undeveloped land on Assessor's Parcel Number 3128-008-009 and is bounded by West Avenue L8 to the south, commercial properties to the north, an unpaved extension of Division Street to the east, and undeveloped desert to the west (Figure 1-1). The Project area is within Section 34 of Township 7 North, Range 12 West, Mount Diablo Baseline and Meridian, as depicted on the Lancaster West, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle maps (Figure 1). The elevation of the Project area is approximately 2500 feet (ft) above mean sea level (amsl). The Project involves the development of the parcel for industrial warehouse purposes. Two warehouse buildings are planned, along with associated docks and parking areas, as well as two detention basins.

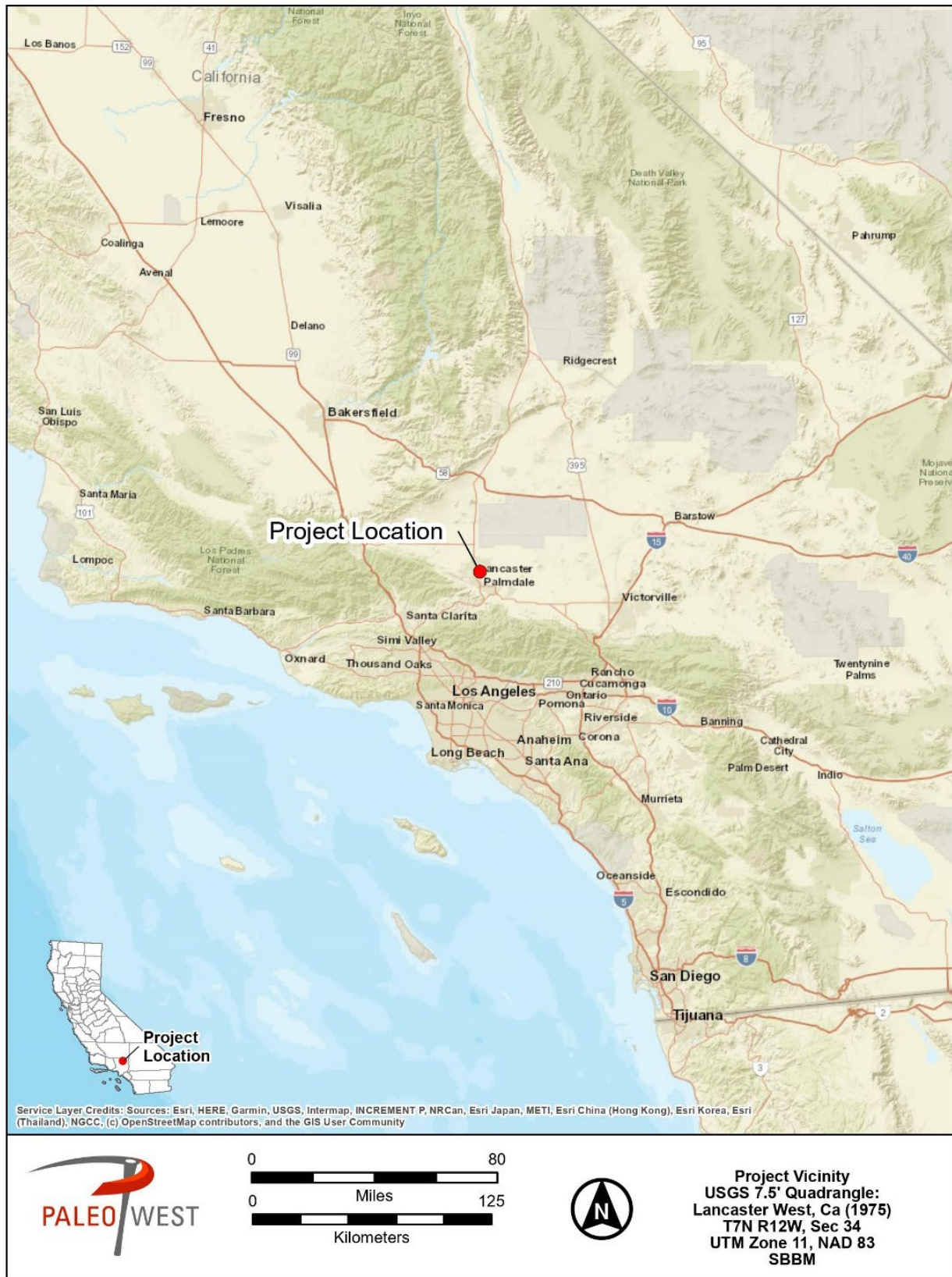


Figure 1. Project vicinity map.

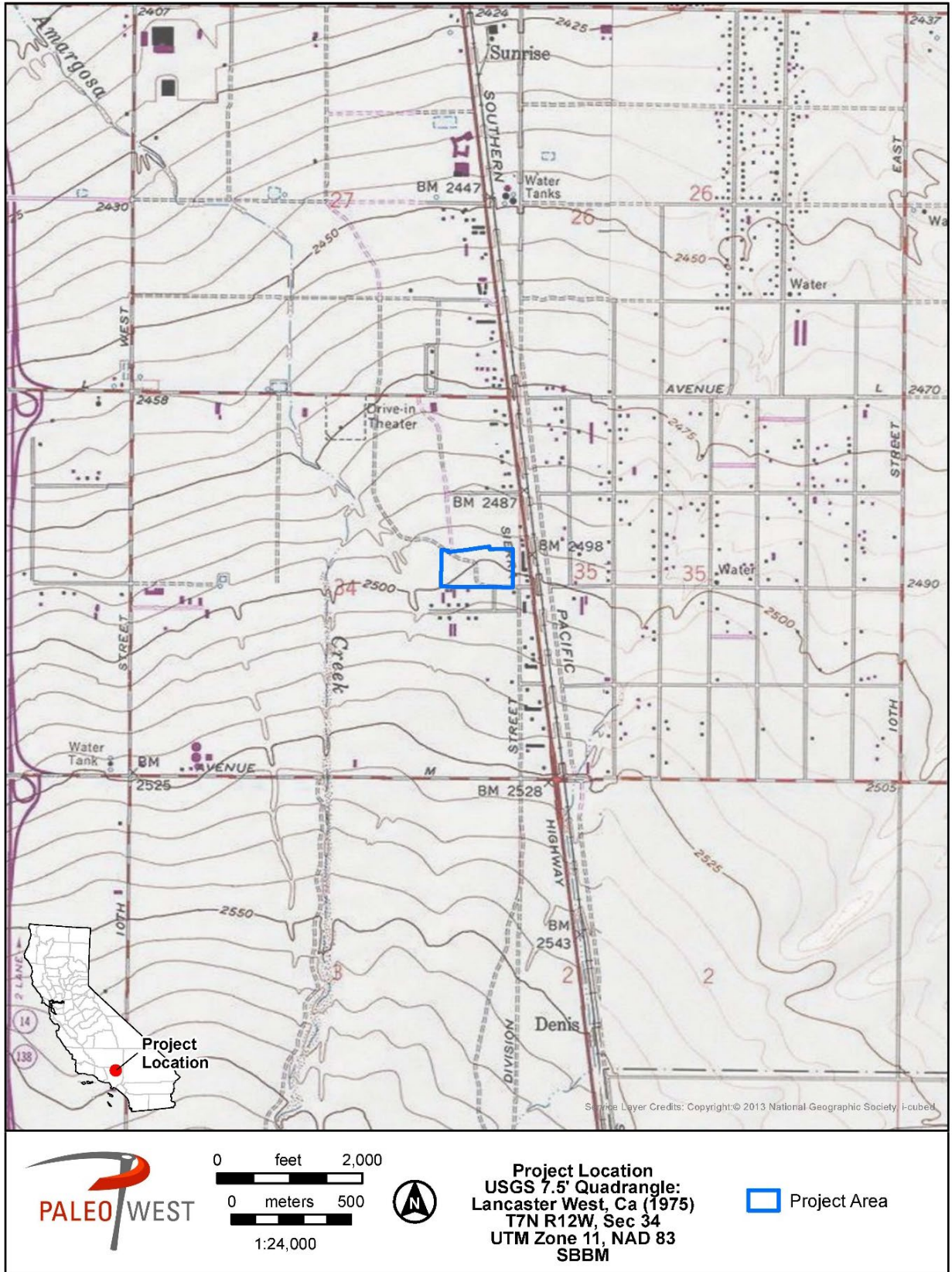


Figure 2. Project location map.

REGULATORY CONTEXT

Paleontological resources (i.e., fossils) are considered nonrenewable scientific resources because once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws and regulations. Laws pertinent to this Project are discussed below.

STATE LAWS AND REGULATIONS

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 SVP has provided guidance specifically designed to support state and Federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP, 2010):

“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 General Plan’s Plan for Active Living includes measures to protect cultural resources, as follows:

GOAL 12: To promote community appreciation for the unique history of the Antelope Valley and the City of Lancaster and to promote community involvement in the protection, preservation, and restoration of the area’s significant cultural, historical, or architectural features.

Objective 12.1: Identify and preserve and/or restore those features of cultural, historical, or architectural significance.

- Policy 12.1.1: Preserve features and sites of historical and cultural value consistent with their intrinsic and scientific values.
 - Specific Action 12.1.1(a): As part of the CEQA review process, require site-specific historical, archaeological, and/or paleontological studies where there exists a possibility that significant environmental impacts might result or where there is a lack of sufficient documentation on which to determine potential impacts.
 - Specific Action 12.1.1(e): Work with area schools and historical/archaeological/paleontological preservation support groups to establish educational programs relates to all phases of Lancaster’s cultural and historical heritage.

In Addition, the City of Lancaster General Plan 2030 Program Environmental Impact Report (City of Lancaster, 2009) includes measures to protect paleontological resources to be implemented by the City. They include:

- CR-1 In the event that cultural resources (archeological, historical, paleontological) resources are unearthed during excavation and grading activities of any future development project, the contractor shall cease all earth-disturbing activities within a 100-meter radius of the area of discovery and shall retain a qualified archaeologist to evaluate the significance of the finding and appropriate course of action. Salvage operation requirements pursuant to Section 15064.5 of the CEQA Guidelines shall be followed. After the find has been appropriately mitigated, work in the area may resume.

PALEONTOLOGICAL RESOURCE POTENTIAL

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by SVP (2010) to determine the course of paleontological mitigation for a given project. These guidelines establish protocols for the assessment of the paleontological

resource potential of underlying geologic units and outline measures to mitigate adverse impacts that could result from project development. Using baseline information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) (or members thereof) underlying a project area can be assigned to one of four categories defined by SVP (2010) . Although these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted the following guidelines.

HIGH POTENTIAL (SENSITIVITY)

Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant non-renewable fossiliferous resources. These units include sedimentary formations and some volcanic formations which contain significant nonrenewable.

LOW POTENTIAL (SENSITIVITY)

Sedimentary rock units that are potentially fossiliferous but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

UNDETERMINED POTENTIAL (SENSITIVITY)

Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

NO POTENTIAL

Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

METHODS

To assess whether a particular area has the potential to contain significant fossil resources at the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered “sensitive” for paleontological resources if they are known to contain significant fossils anywhere in their extent. Therefore, a

search of pertinent local and regional museum repositories for paleontological localities within and nearby the Project area is necessary to determine whether fossil localities have been previously discovered within a particular rock unit. For this Project, a formal museum records search was conducted at the NHMLA (Bell, 2022), and informal records searches were conducted of the online University of California Museum of Paleontology Collections (UCMP) (2022) and other published and unpublished geological and paleontological literature of the area.

RESOURCE CONTEXT

GEOLOGIC SETTING

The Project area is within the western Mojave Desert geomorphic province in southeastern California (Norris and Webb, 1976). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and tectonic history. The Mojave Desert geomorphic province extends from the San Andreas and Garlock faults toward the Great Basin Province and Colorado Desert (Dibblee, 1967). The Mojave Desert province is a physiographic designation for the smallest of the North American deserts (MacMahon and Wagner, 1985). Uplift of the San Bernardino and Sierra Nevada mountain ranges during Neogene time (Meisling and Weldon, 1989; Unruh, 1991) resulted in orographic aridification of the leeward region which is now the Mojave Desert. The western portion of this region is tectonically controlled by rotation of the Mojave crustal block, which was coincident with the formation of the Transverse Ranges and a westward step over of the San Andreas plate boundary during the Miocene (MacFadden et al., 1990). This area is dominated today by high angle normal fault bound horsts separated by half grabens. Grabens are typically filled with Neogene sedimentary basin fill, Neogene volcanics, and Quaternary basin fill. Basin centers can have dry Pleistocene pluvial lake pans or playas (Reheis et al., 2014), whereas basin peripheries can contain fault-controlled ground water discharge deposits (Pigati, et al., 2011).

SITE SPECIFIC GEOLOGY AND PALEONTOLOGY

According to the Geologic Map of the Lancaster West 7.5' Quadrangle (Hernandez, 2010) the Project area is immediately underlain by Holocene age surficial alluvium (Qa) and Holocene age alluvial fan deposits (Qf) (Figure 3). The Project is in Antelope Valley, a basin at the far western edge of the Mojave Desert, south of the Garlock fault and Tehachapi Mountains, and north of the Transverse Ranges (Ponti, 1985). Sediment basin accumulated within the last two million years, associated with uplift of the San Gabriel Mountains (Ponti, 1985). Sedimentary facies include alluvial fans, washes, and playa deposits (Ponti, 1985). The area around the Project is underlain by Holocene fan facies of the Qa and Qf of Hernandez (2010). Alluvial fans are inherently low in fossil preservation potential due to the energy and clast distribution of the rheology of their formative depositional events (Swanson-Hysell and Barbeau, 2007). According to the museum records search, there are no Holocene specimens within the Project area, and there are no significant specimens older than Holocene within one mile (Bell, 2022).

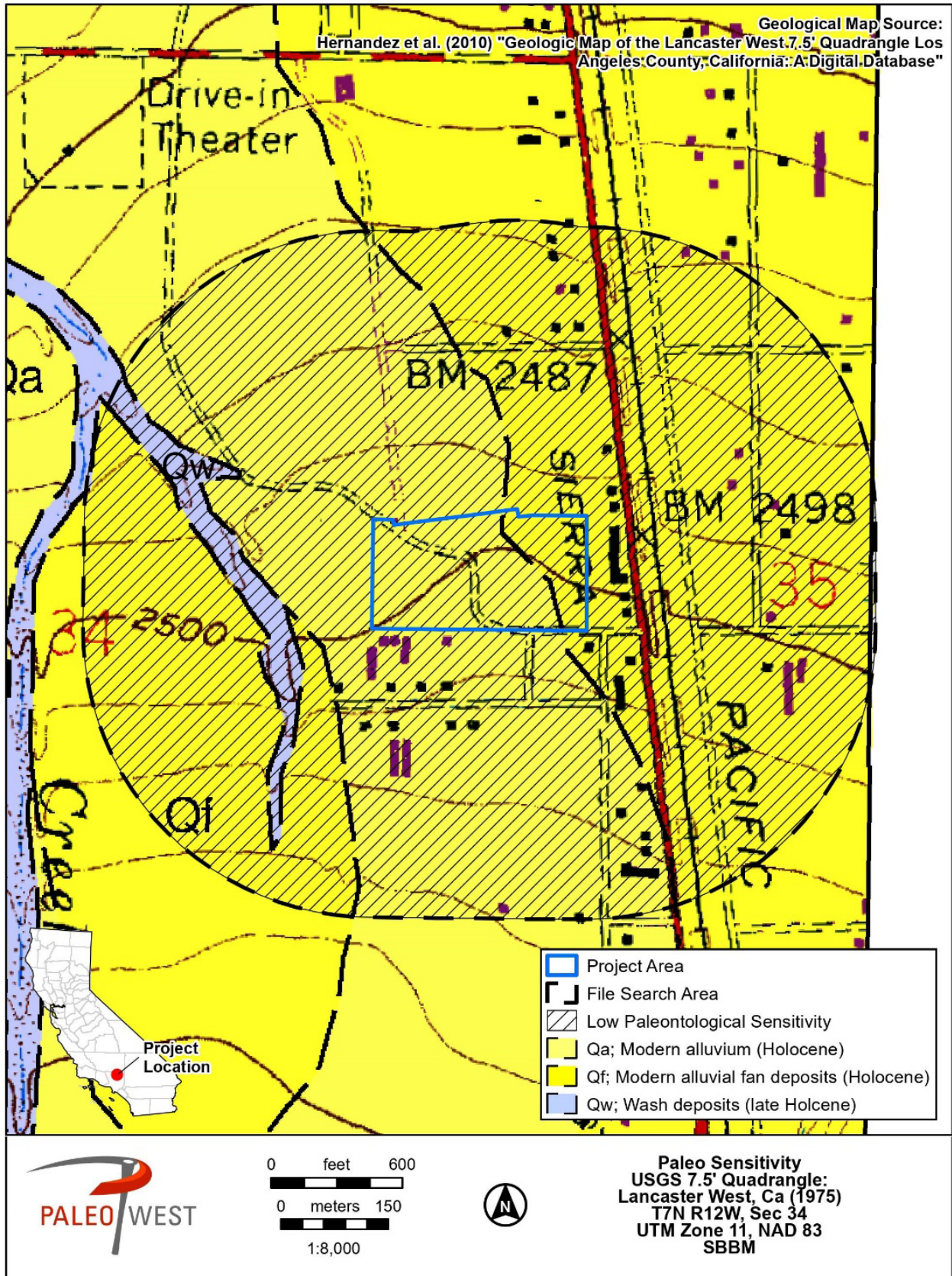


Figure 3. Geologic map.

RECORDS SEARCH RESULTS

The NHMLA records search did not produce any fossil localities from within the Project area or from the same geologic unit within five miles (Bell, 2022); however, one fossil locality for a camel (*Camelops hesternus*) was recorded approximately four miles away in Pleistocene sediments (fluvial brown clayey silt). These sediments are a unit older than the Qa and Qf of the Project area. Searches of online databases (UCMP, 2022) and other literature did not produce any additional fossil localities within one mile.

FINDINGS

Based on the literature review and museum records search results, the paleontological sensitivity of the Project area was determined in accordance with the SVP's (2010) sensitivity scale. The Quaternary alluvium mapped at the surface of the Project area have a low potential to contain intact paleontological resources because they are typically too young to contain fossilized remains. These sediments may be underlain at an unknown, depth by older Pleistocene deposits which have proven to yield significant vertebrate fossils in the vicinity of the Project area and elsewhere (Bell, 2022; McLeod, 2009). Project excavation is expected to be relatively shallow and any sensitive older geologic deposits present at depth in the Project area are unlikely to be impacted by Project development. As a result, the potential for encountering fossil resources during Project-related ground disturbance is low; therefore, impacts to paleontological resources are not anticipated and no further paleontological mitigation is recommended at this time. In the event that a fossil discovery is made during the course of Project development, then in accordance with SVP (2010) guidelines, a qualified professional Paleontologist should be retained to examine the find and to determine if further paleontological resources mitigation is warranted.

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 the excavation for a building, new ground disturbances are anticipated; however, the underlying sediment is likely to be Holocene in age to a significant depth, and ground disturbances are not anticipated to impact paleontological resources. PaleoWest does not recommend paleontological monitoring for this Project.

Thank you for contacting PaleoWest for this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,
PALEOWEST



Michaela Adler | Associate Paleontologist

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