LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614
949.553.0666 TEL
949.553.8076 FAX
BERKELEY
CARLSBAD
FRESNO
PALM SPRINGS
PT. RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

April 23, 2015

Johnathan Weldy
Meridian Land Development
19153 Town Center Drive, Suite 106
Apple Valley, CA 92308

Subject: Paleontological Assessment for the Lancaster 40 Residential Project, City of Lancaster, Los Angeles County, California

Dear Mr. Weldy:

LSA Associates, Inc. (LSA) conducted a paleontological assessment (locality search and survey) for the proposed Lancaster 40 Residential Project (project) in Antelope Valley in the City of Lancaster, County of Los Angeles, California. The project is located in the southeast corner of West Avenue K and 55th Street West. A residential development is proposed to be constructed. The project area is within the northeast quarter of Section 26, Township 7 North, Range 13 West, San Bernardino Baseline and Meridian. It is depicted on the United States Geological Survey (USGS) *Lancaster West, California* 7.5-minute topographic quadrangle map (Figure 1; all figures attached). The project site is currently vacant.

This report contains the results of an examination of the geology of the project area, a paleontological locality search by the Natural History Museum of Los Angeles County (LACM), and a pedestrian survey on the northern 20-acre (ac) portion of the project site, as well as recommended mitigation to ensure that any potential project impacts to paleontological resources are fully mitigated.

PROJECT DESCRIPTION

The proposed development consists of the construction of a new residential development of single-family residences, associated streets, and utilities such as water, sewer, natural gas, electrical, and storm drains. Based on the relatively flat grade of the project site, only a limited amount of remedial grading will be required to develop this project.

PURPOSE OF INVESTIGATION

State

Under State law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

Under Appendix G of CEQA, Lead Agencies are required to consider impacts to the direct or indirect destruction of unique resources that are of value to the region or State. Appendix G is a checklist with several choices given, including: Potentially Significant Impact, Less than Significant with Mitigation

Incorporation, Less than Significant Impact, and No Impact. Specifically, in Appendix G, Section V(c), Lead Agencies are required to consider impacts to paleontological resources.

Local

California State law requires that cities and counties prepare and adopt long-term, comprehensive General Plans for future developments. These plans are usually integrated and internally consistent with a compatible statement of goals, objectives, policies, and programs that provide a decision-making basis for future conservation and development, and the future needs and desires of the community in order to create a healthful and pleasant environment for the city's or county's residents. In a sense, General Plans not only serve as a guide to the type of community that is desired, but also provide the means by which the community may achieve that desired future.

Within the Plan for Active Living section of the City of Lancaster General Plan 2030 (City of Lancaster, 2009, Chapter 4) is Goal 12, which is designed to protect cultural and paleontological resources within the City. The following is taken directly from the City's General Plan:

> **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.
>
> **Historical, Archaeological, and Cultural Resources**
> Lancaster and the Antelope Valley have a rich history. Unfortunately, many of the physical reminders of that history have been destroyed. If Lancaster is to reaffirm its own identity and image as being a desirable place to live, it is important that residents have an appreciation of the community's history. The General Plan therefore seeks to preserve remaining physical reminders of the area's history and prehistory.
>
> **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 significant historical and cultural value consistent with their intrinsic and scientific values.
> >
> > > **Specific Actions:**
> > > **12.1.1(a)** As part of the CEQA review process, require site-specific historical, archaeological, and/or paleontological studies when there exists a possibility that significant environmental impacts might result or when there is a lack of sufficient documentation on which to determine potential impacts.
> > >
> > > **12.1.1(b)** Include a condition of approval on all development projects that addresses State and Federal regulations with respect to the disposition of cultural resources.

12.1.1(c) Process requests for inclusion in state and federal historic registers those historic and prehistoric sites and features which meet state or federal criteria.

12.1.1(d) Prior to permitting demolition of any historic structure, require that an evaluation of the condition of the structure, potential adaptive reuse of the structure, and the cost of rehabilitation be undertaken.

Society of Vertebrate Paleontology Guidelines

According to the Society of Vertebrate Paleontology (SVP; 2010), Paleontological Potential is the potential for the presence of scientifically important, nonrenewable paleontological resources. All sedimentary rocks, some volcanic rocks, and some metamorphic rocks have potential for the presence of scientifically important, nonrenewable paleontological resources, and review of available literature may further refine the potential of each rock unit, formation, or facies. The SVP has four categories of Potential or Sensitivity: High, Low, None, and Undetermined. If a geographic area or geological unit is classified as having Undetermined Potential for paleontological resources, studies must be undertaken to determine whether that rock unit has a Sensitivity of High, Low, or None. These categories are described in more detail below.

High Potential. Rock units from which vertebrate or scientifically important invertebrate, plant, or trace fossils have been recovered are considered to have a High Potential for containing additional scientifically important paleontological resources. Rock units classified as having High Potential for producing paleontological resources include, but are not limited to: sedimentary formations and some volcaniclastic formations (e.g., ashes or tephras), some low-grade metamorphic rocks that contain scientifically important paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones; argillaceous and carbonate-rich paleosols; cross-bedded point bar sandstones; and fine-grained marine sandstones). Paleontological potential consists of both (1) the potential for yielding abundant or scientifically important vertebrate fossils or for yielding a few scientifically important fossils, large or small, vertebrate, invertebrate, plant, or trace fossils; and (2) the importance of recovered evidence for new and scientifically important taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units that contain potentially datable organic remains older than late Holocene (including deposits associated with animal nests or middens) and rock units that may contain new vertebrate deposits, traces, or trackways are also classified as having High Potential.

Low Potential. Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have a Low Potential for yielding scientifically important fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or, based on general scientific consensus, fossils will only be preserved in rare circumstances; the presence of fossils is the exception, not the rule (e.g., basalt flows or Recent colluvium). Rock units with Low Potential typically will not require impact mitigation measures to protect fossils.

No Potential. Some rock units have No Potential to contain scientifically important paleontological resources (e.g., high-grade metamorphic rocks [such as gneisses and schists] and plutonic igneous rocks [such as granites and diorites]). Rock units with No Potential require no protection or impact mitigation measures relative to paleontological resources.

Undetermined Potential. Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have Undetermined Potential. Further study is necessary to determine whether these rock units have High, Low, or No Potential to contain scientifically important paleontological resources. A field survey by a qualified professional to specifically determine the paleontological resource potential of these rock units is required before a Paleontological Resource Impact Mitigation Program (PRIMP) can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

Given the range of criteria that may be used, assessments of scientific importance should be based on the recommendations of a professional Principal Paleontologist with expertise in the region under study and the resources found in that region. An evaluation of a particular rock unit's scientific importance rests on the known importance of specific fossils. Often this scientific importance is reflected as a sensitivity ranking of the rock unit relative to other rock units in the same region. Regardless of the format used by a paleontologist to rank formations, the importance of any rock unit must be explicitly stated in terms of specific fossils known or suspected to be present (and if the latter, why such fossils are suspected), and why these fossils are of paleontological importance. Some agencies may require the use of specific guidelines to assess scientific importance, whereas others may defer to the expertise of local paleontologists and provide little guidance.

If a paleontological resource is determined to be of High Sensitivity or of scientific importance, a mitigation program must be developed and implemented. Mitigation can be initiated prior to and/or during construction. As a practical matter, no consideration is generally afforded paleontological sites for which scientific importance cannot be demonstrated. If a paleontological resource assessment results in a determination that the site is scientifically unimportant or of Low Sensitivity, this conclusion should be documented in the project's environmental document to demonstrate compliance with applicable statutory requirements.

METHODS

Locality Search

A paleontological locality search was conducted through the LACM and geological and paleontological records maintained at LSA. It included a review of the area geology and any known paleontological resources recovered from the surrounding area as well as the geologic units that will likely be encountered during excavation activities associated with the project. As geologic formations and units can be exposed over large geographic areas but contain similar lithologies and fossils, the literature review and fossil locality search includes areas well beyond the project area.

The purpose of the locality search was to establish the status and extent of previously recorded paleontological resources within and adjacent to the project. With this knowledge, LSA could make an informed assessment of the potential effects of the proposed project on paleontological resources

and evaluate the types of fossils that might be uncovered during ground-disturbing activities. In addition, the sensitivity of the sediments expected to be encountered within the project could be determined.

Pedestrian Survey

The geology of the entire 40 ac project area has been mapped as Quaternary Alluvial sediment, with the upper layers likely from the Holocene (less than 11,700 years ago). These sediments do not contain paleontological resources. On January 20 and 21, 2015, LSA paleontologist Brooks Smith conducted a pedestrian survey to confirm the geological mapping as well as to determine whether there are any previously unknown paleontological resources present. Mr. Smith determined that it was unnecessary to survey the entire project area because the geology mapping was the same throughout the entire project area, which is flat with no potential fossil-bearing outcrops present. Therefore, Mr. Smith surveyed only the northern 20 ac. The ground surface was intensively examined by walking transects at approximate 10-meter intervals. Observation of the subsurface was limited to a few rodent burrows and the accompanying rodent backdirt piles, as well as the historic reservoir present on the central-east portion of the project site that extends several feet beneath the surface.

RESULTS

Geology

The project area is located within the Mojave Desert Geomorphic Province (California Geological Survey, 2002). The Mojave Desert Geomorphic Province is a triangular province roughly bound on the north by the Garlock Fault and on the west by the San Andreas Fault, the Transverse Ranges Geomorphic Province, and the Colorado Desert Geomorphic Province. In California, its eastern boundary corresponds to the California-Nevada border and the California-Arizona border, although the province does extend into Nevada and Arizona. It has interior enclosed drainage with many playas, or dry lakes, that currently only fill during rain events. In the past, however, some of these areas may have held water year-round. The Mojave Desert Geomorphic Province is characterized by broad interior regions of isolated mountain ranges separated by broad desert plains and playas. This province also contains some of the oldest rocks in California, with exposures of Precambrian marble and granite that are more than 570 million years old. The project is located at the western end of the Mojave Desert Geomorphic Province in an area known as the Western Antelope Valley. Within the project area, the elevations range from approximately 2,385 feet (ft) to 2,410 ft above mean sea level (amsl), with a very shallow (approximately 1 percent) slope to the north.

The Antelope Valley was formed by streams flowing off the mountain to the north, west, and south and depositing their sediment load onto the valley floor. The Antelope Valley contains thick deposits of both alluvial (stream) and lacustrine (lake) deposits. According to the geology map compiled by Hernandez (2010), the surface of the project is located within sediments composed of Younger Alluvial Fan Deposits from the Holocene to late Pleistocene that range in age from 126,000 years ago to the present, with the older Pleistocene sediments likely beginning at depths of 5 ft and greater (see Figure 2).

These sediments, also called surficial sediments, or Holocene to Late Pleistocene Alluvium, consist of loosely consolidated mixtures of gravel, sand, and clay. The sand ranges from poorly sorted to well

sorted and is composed of mainly quartz, but also can contain feldspar and biotite. The sand grains are generally subangular to subrounded, while the gravels and cobbles tend to be rounded to well rounded. Colors are usually yellow-brown to reddish-brown, but are often dependent on upstream geology. According to Hernandez (2010), within the project the sediment is composed of dark yellowish-brown, fine- to medium-grained arkosic sand with gravels that are primarily from a granitic source. Based on the project's location, the Holocene (less than 11,700 years ago) portion of these sediments likely extends to depths of 5 ft or more beneath the surface before the Late Pleistocene (126,000 to 11,700 years ago) sediments are encountered.

Paleontology

The upper 5 ft of the Younger Alluvial Fan Deposits present within the surface of the project area is likely from the Holocene; is from between 11,700 years ago and the present; and is generally considered too young to contain fossils. Although younger alluvium can contain remains of plants and animals, generally not enough time has passed for the remains to become fossilized. In addition, the remains are contemporaneous with modern species and are usually not considered to be scientifically important except for those from the early Holocene that can contain Ice Age species of animals.

However, once a depth of 5 ft is reached it is possible that these sediments will be from the Late Pleistocene (126,000 to 11,700 years ago). Fossils have been collected in similar deposits from excavations for roads, housing developments, and quarries within California (Jefferson, 1991a and 1991b; Miller, 1971). Remains of Rancholabrean animals, including elephants, horses, bison, camels, saber-tooth cats, deer, and sloths, are known from these localities. The potential exists to encounter similar fossils in all Pleistocene Alluvium.

Museum Search Results

The Locality Search Results letter from the LACM (attached) was received by LSA on February 11, 2015. According to the LACM, the entire proposed project area has surficial deposits composed of younger Quaternary Alluvium beneath soil that was derived as alluvial fan deposits from the Portal Ridge hills just to the south. The LACM does not know of any vertebrate fossil localities that are located within the proposed project boundaries. However, the LACM does know of localities from the same time period within the same type, or similar type, of sedimentary deposits that may occur within the proposed project area. Its closest vertebrate fossil locality in younger Quaternary deposits is LACM 7884, located east-northeast on the northern side of Lancaster near Avenue I (approximately 2 miles [mi] away), which produced a fossil specimen of a camel (*Camelops hesternus*) from a depth of 4 ft below the surface within sediments mapped as Holocene to Late Pleistocene Playa Deposits (Hernandez, 2010). The LACM's next closest locality, LACM 7853, is situated north of LACM 7884 (approximately 4 mi northeast of the current project) and produced a rich suite of fossils from screened matrix at a depth of 3 ft below the surface that included fossil specimens of: smelt (Osmeridae), western whiptail lizard (*Aspidocelis tigris*), desert iguana (*Dipsosaurus dorsalis*), desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), desert night lizard (*Xantusia vigilis*), skink (*Plestiodon* sp.), whip snake (*Masticophis* sp.), leaf-nosed snake (*Phyllorhynchus* sp.), western lyre snake (*Trimorphodon biscutatus*), wood rat (*Neotoma* sp.), field mouse (*Peromyscus* sp.), pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys* sp.), pocket mouse (*Perognathus* sp.), Audubon's cottontail rabbit (*Sylvilagus audubonii*), antelope ground squirrel (*Ammospermophilus leucurus*), and camel (*Camelops* sp.). Like

LACM 7884, these sediments are mapped as originating in Holocene to Late Pleistocene Playa Deposits (Hernandez, 2010). The LACM's next closest vertebrate fossil localities from Quaternary deposits are LACM 5942–5953, which came from pipeline excavations along Avenue S from Little Rock eastward (over 15 mi to the southeast of the current project) and produced a fauna of small vertebrates, including gopher snake (*Pituophis* sp.), kingsnake (*Lampropeltis* sp.), leopard lizard (*Gambelia wislizenii*), cottontail rabbit (*Sylvilagus* sp.), pocket mouse (*Chaetodipus* sp.), kangaroo rat (*Dipodomys* sp.), and pocket gopher (*Thomomys* sp.). These sediments are mapped as being Quaternary Alluvial Deposits (Dibblee, 1959), the same as those within the current project area. No depth was given, but considering the project was for a pipeline, these likely came from a depth of 4 to 6 ft below the surface.

The LACM believes that surface grading or shallow excavations in the Younger Quaternary Alluvium that underlies the project are unlikely to uncover scientifically important vertebrate fossils. Deeper excavations that extend down into older deposits, however, may encounter scientifically important vertebrate fossil remains. The LACM recommends that any substantial and deep excavations in the proposed project area be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding the development of the project. It also believes that any fossils that are recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Survey Results

Ground visibility during the survey was fair to poor at approximately 30 percent, and was obscured by a growth of weeds and brush, as well as abundant modern trash, especially along the margins of the project adjacent to existing roads. The project area has been disturbed by past agricultural activity that has likely created a disturbed plow zone that extends to a depth of at least 2 ft below the surface. Sediments observed on the surface are composed of a reddish-brown silty sand with occasional gravels. Sediment looks like what is often called "decomposed granite" or "DG." This sediment is consistent with the Holocene-Late Pleistocene Alluvium that has been mapped as occurring within the project by Hernandez (2010).

Summary of Results

The project is located in the western portion of the Mojave Desert Geomorphic Province. Within this area are sediments of Late Pleistocene to Holocene Alluvium mapped as occurring on the surface that range in age from 126,000 years ago to the present. There are no known paleontological localities within or immediately adjacent to the project area. The closet known localities are at least 2 to 4 mi to the northeast and within Late Pleistocene to Holocene lake deposits that are a of a different depositional environment but are from the same time period. The closest locality within similar alluvial deposits is over 15 mi to the southeast. These surficial sediments have a Low Paleontological Potential, or Sensitivity, and likely extend down to a depth of at least 5 ft beneath the surface, based on the known LACM localities. Once a depth of 5 ft is reached, older sediments from the Pleistocene may be encountered that have a High Paleontological Potential, or High Paleontological Sensitivity.

RECOMMENDATIONS

Based on the results of an examination of the area geology, the results of a locality search at the LACM, the results of a field survey, and the likely maximum depth of proposed excavation during remedial grading activities associated with this project (no deeper than 5 ft below the surface), there is very little likelihood of encountering sediments that have a potential to contain paleontological resources during remedial grading activities. However, if there are excavations associated with the development of the project (such as trenching for utilities that extend deeper than 5 ft below the surface), there is a potential to encounter sediments that have the potential to contain paleontological resources.

Therefore, for excavation and grading associated with this project that extends no deeper than 5 ft beneath the surface, it is recommended that paleontological mitigation not be required. However, if excavation within the project extends deeper than 5 ft beneath the surface, paleontological monitoring under the direction and supervision of a professional paleontologist should occur beginning at that 5 ft depth to mitigate potential impacts to scientifically important paleontological resources that may exist within the project. In addition, in the unlikely event that paleontological resources are observed over the course of the project and a paleontologist is not on site, work in the immediate area of the find should be diverted and a professional paleontologist contacted to assess the find for scientific importance, and if necessary, collect the find from the field and make recommendations.

If excavation extends deeper than 5 ft beneath the surface or if there are unanticipated discoveries at shallower depths, a PRIMP should be prepared by a professional paleontologist to help guide the mitigation effort. The PRIMP should contain monitoring procedures and state that any fossils collected should be prepared to the point of identification, identified to the lowest taxonomic level, and curated into an accredited institutional repository. At the conclusion of the monitoring effort, a report of findings shall be prepared by the professional paleontologist to document the results of monitoring.

Sincerely,

LSA ASSOCIATES, INC.

Brooks Smith
Associate

Attachments: References Cited
Figure 1: Project Location
Figure 2: Geology
Locality Search Results letter from the LACM (dated February 11, 2015)

REFERENCES CITED

California Geological Survey
2002 *California Geomorphic Provinces*. California Geologic Survey Note 36. California Department of Conservation.

City of Lancaster
2009 City of Lancaster General Plan 2030. Adopted July 14, 2009.

Dibblee, T.W.
1959 *Geologic Map of the Alpine Butte Quadrangle, California*. U.S. Geological Survey, Mineral Investigations Field Studies Map MF-222. Scale 1:62,500.

Hernandez, Janis L.
2010 *Geologic Map of the Lancaster West 7.5' Quadrangle Los Angeles County, California*, a Digital Database, Version 1.0. Digital Database by: Janis L. Hernandez, Carlos I. Gutierrez, and George J. Saucedo. Prepared by the California Department of Conservation, California Geological Survey. Map Scale 1:24,000.

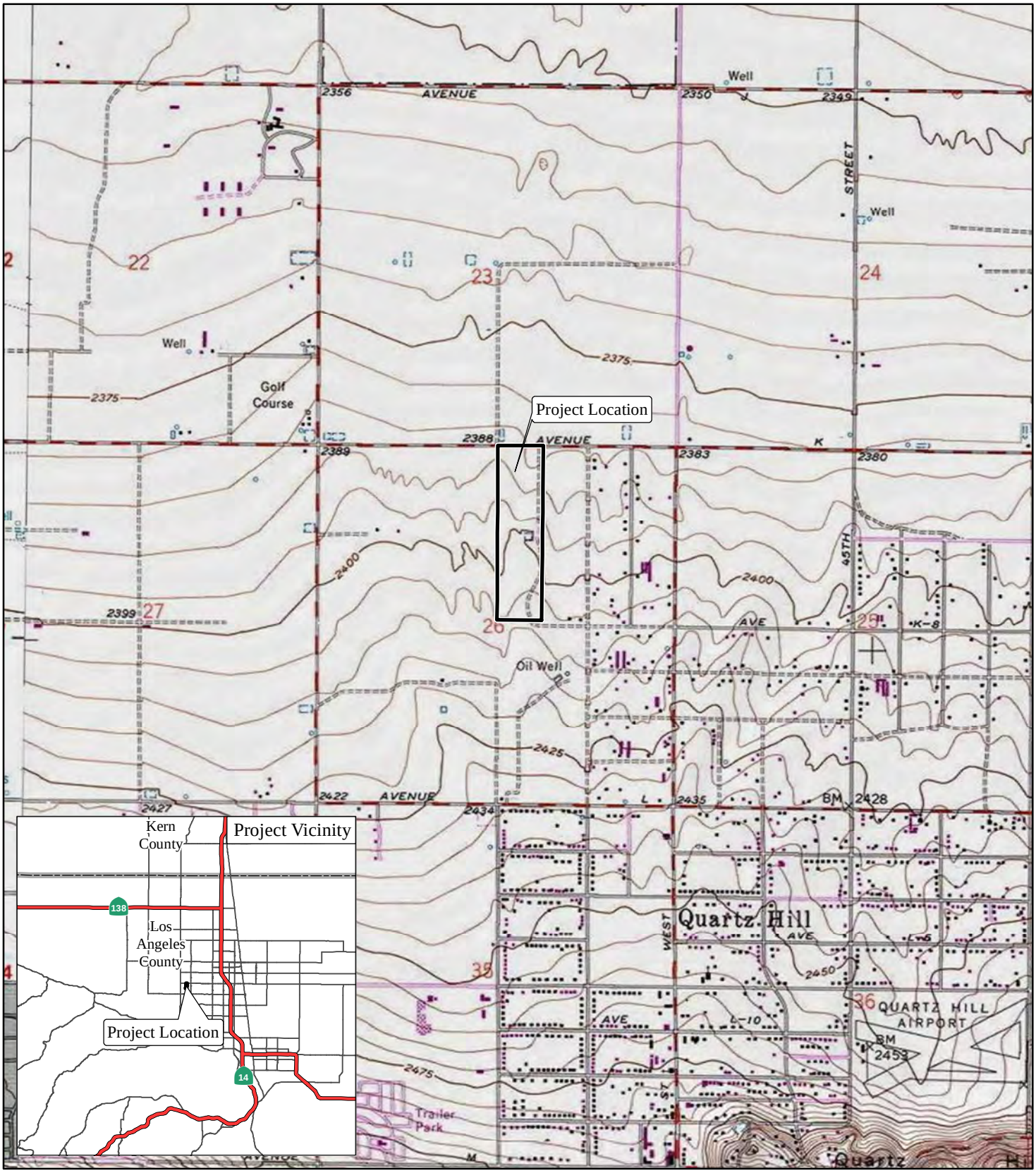
Jefferson, G.T.
1991a *A Catalogue of Late Quaternary Vertebrates from California: Part One. Non-marine Lower Vertebrate and Avian Taxa*. Natural History Museum of Los Angeles County Technical Reports Number 5, Los Angeles.

1991b *A Catalogue of Late Quaternary Vertebrates from California: Part Two. Mammals.* Natural History Museum of Los Angeles County Technical Reports Number 7, Los Angeles.

Miller, W.E.
1971 *Pleistocene Vertebrates of the Los Angeles Basin and Vicinity* (*Exclusive of Rancho La Brea*), Los Angeles County Museum of Natural History Bulletin, Science: No. 10.

Society of Vertebrate Paleontology (SVP)
2010 *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, Society of Vertebrate Paleontology. Impact Mitigation Guidelines Revision Committee. Pages 1–11.

United States Geological Survey (USGS)
1958 *Lancaster West, California* 7.5-minute Topographic Quadrangle Map. Scale 1:24,000. Topography by planetable surveys 1929-1931 Revised from aerial photographs taken in 1956 and field checked in 1958. Revisions shown in purple and compiled from aerial photographs taken in 1974 Not field checked. United States Geological Survey, Denver, Colorado, 80225.



LSA

LEGEND

Project Boundary

FIGURE 1

N

0 1000 2000

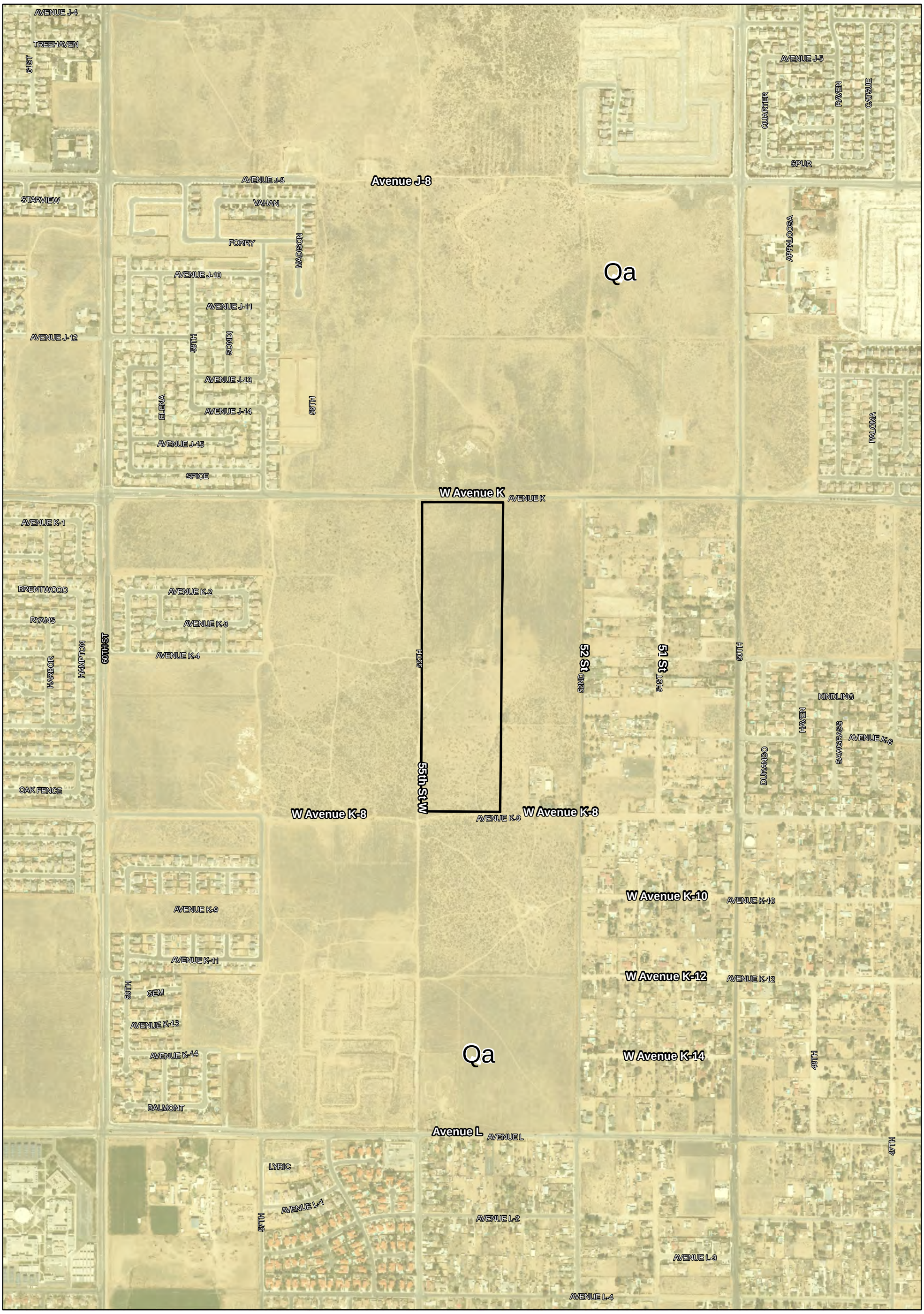
FEET

SOURCE: USGS 7.5' Quad - Lancaster West (1974), CA

I:\MEV1501\GIS\ProjectLocation.mxd (1/23/2015)

40-acre Residential Lancaster Project

Project Vicinity and Location



LSA

LEGEND

Project Boundary

Qa - Holocene Alluvial Gravel, Sand, and Silt

FIGURE 2

N

0 375 750

FEET

SOURCE: LARIAC (2013), Dibblee (1960)

I:\MEV1501\GIS\Geology.mxd (3/30/2015)

40-acre Residential Lancaster Project

Geology Map

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325
Fax: (213) 746-7431
e-mail: smcleod@nhm.org

11 February 2015

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, California 92614

Attn: Brooks Smith, Associate, Cultural & Paleontological Resources Group

re: Paleontological Resources Records Check for the proposed Lancaster 40 Project, LSA project # MEV1501, in the City of Lancaster, Los Angeles County, project area

Dear Brooks:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Lancaster 40 Project, LSA project # MEV1501, in the City of Lancaster, Los Angeles County, project area as outlined on the portion of the Lancaster West USGS topographic quadrangle map that you sent to me via e-mail on 29 January 2015. We do not have any vertebrate fossil localities that lie directly within the proposed project site boundaries, but we do have localities nearby from the same sedimentary units that occur in the proposed project area.

The surface deposits in the entire proposed project area are composed of younger Quaternary Alluvium beneath soil, derived as alluvial fan deposits from the Portal Ridge hills just to the south. Although these types of sedimentary deposits frequently do not contain significant vertebrate fossils, at least in the uppermost layers, our closest vertebrate fossil locality from these deposits is LACM 7884, east-northeast of the proposed project area on the northern side of Lancaster near Avenue I, that produced a fossil specimen of camel, *Camelops hesternus*, from four feet below the surface. Our next closest fossil vertebrate locality from these deposits is LACM 7853, northeast of the proposed project area east of north of locality LACM 7884 near Avenue F, that from screened matrix collected at a three foot depth produced a suite of fossil vertebrates including smelts, Osmeridae, whipsnake, *Masticophis*, leaf-nosed snake,

Phyllorhynchus, lyre snake, *Trimorphodon biscutatus*, desert iguana, *Dipsosaurus dorsalis*, alligator lizard, *Elgaria*, desert spiny lizard, *Sceloporus magister*, side-blotched lizard, *Uta stansburiana*, horned lizard, Phrynosomatidae, skink, *Plestiodon*, western whiptail, *Aspidoscelis tigris*, desert night lizard, *Xantusia vigilis*, rabbit, *Sylvilagus audubonii*, wood rat, *Neotoma*, deer mouse, *Peromyscus*, pocket gopher, *Thomomys bottae*, kangaroo rat, *Dipodomys*, pocket mouse, *Perognathus*, ground squirrel, *Ammospermophilus leucurus*, and camel, *Camelops*.

Somewhat further to the east-southeast of the proposed project area, along Avenue S from Little Rock eastward, we have localities LACM 5942-5953 from pipeline excavations in the Quaternary Alluvium and older Quaternary sediments that produced a fauna of small vertebrates including gopher snake, *Pituophis*, kingsnake, *Lampropeltis*, leopard lizard, *Gambelia wislizenii*, cottontail rabbit, *Sylvilagus*, pocket mouse, *Chaetodipus*, kangaroo rat, *Dipodomys*, and pocket gopher, *Thomomys*.

Surface grading or very shallow excavations in the proposed project area are unlikely to encounter significant vertebrate fossils in the uppermost layers of younger Quaternary Alluvium. Deeper excavations that extend down into older deposits, however, may well uncover significant fossil vertebrate remains. Any substantial excavations in the proposed project area below the uppermost layers, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Because some of the localities from similar sedimentary deposits have produced only very small fossils that would be missed in paleontological monitoring of typical construction projects, it is recommended that sediment samples be collected to determine the small vertebrate fossil potential in these rock units. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. 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.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice