APPENDIX 3C

Paleontological Report (Millcreek)

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

MILLCREEK PROMENADE PROJECT

City of Menifee
Riverside County, California

For Submittal to:

Community Development Department
City of Menifee
29995 Evans Road, West Annex
Menifee, CA 92586

Prepared for:

Sherman & Huan, LP
31103 Rancho Viejo Road, #535
San Juan Capistrano, CA 92675

Prepared by:

Harry M. Quinn, Geologist/Paleontologist
Ben Kerridge/Report Writer
CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Michael Hogan, Principal Investigator
Bai "Tom" Tang, Principal Investigator

May 13, 2016

CRM TECH Project No. 3038P
Approximately 39 acres
USGS Romoland, Calif., 7.5' quadrangle
Section 15, T6S R3W, San Bernardino Baseline and Meridian

EXECUTIVE SUMMARY

Between February and May 2016, at the request of Sherman & Haun, LP, CRM TECH performed a paleontological resource assessment on approximately 39 acres of vacant land in the City of Menifee, Riverside County, California. The subject property of the study consists of Assessor's Parcel Numbers 360-350-011 and -017, located between Haun Road and Sherman Road and to the south of Garbani Road, in the northeast quarter of Section 15, T4S R5E, San Bernardino Baseline and Meridian. The study is part of the environmental review process for a proposed mixed-use development project known as Millcreek Promenade, which entails the construction of a 392-unit apartment community, an industrial park, and a retail shopping center with office buildings, a restaurant, and water features. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the City of Menifee with the necessary information and analysis to determine whether the proposed project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA. In order to identify any paleontological resource localities that may exist in or near the project area and to assess the possibility for such resources to be encountered in future excavation and construction activities, CRM TECH reviewed the results of a recent records search on an adjacent property, conducted a literature search, and carried out a systematic field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology.

Based on the findings from these research procedures, the proposed project's potential to impact significant paleontological resources is determined to be low in the coarse-grained surface sediments but high in the finer-grained, older Pleistocene sediments potentially present at depth, especially for significant vertebrate fossils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent such impacts or reduce them to a level less than significant. As the primary component of the mitigation program, all earth-moving operations at or below the depth of two feet, or at shallower depths if the paleontologically sensitive soils are encountered, should be monitored for any evidence of significant, nonrenewable paleontological resources.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Between February and May 2016, at the request of Sherman & Haun, LP, CRM TECH performed a paleontological resource assessment on approximately 39 acres of vacant land in the City of Menifee, Riverside County, California (Figure 1). The subject property of the study consists of Assessor's Parcel Numbers 360-350-011 and -017, located between Haun Road and Sherman Road and to the south of Garbani Road, in the northeast quarter of Section 15, T4S R5E, San Bernardino Baseline and Meridian (Figure 2). The study is part of the environmental review process for a proposed mixed-use development project known as Millcreek Promenade, which entails the construction of a 392-unit apartment community, an industrial park, and a retail shopping center with office buildings, a restaurant, and water features. The City of Menifee, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.).

The purpose of the study is to provide the City of Menifee with the necessary information and analysis to determine whether the proposed project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA. In order to identify any paleontological resource localities that may exist in or near the project area and to assess the possibility for such resources to be encountered in future excavation and construction activities, CRM TECH reviewed the results of a recent records search on an adjacent property, conducted a literature search, and carried out a systematic field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

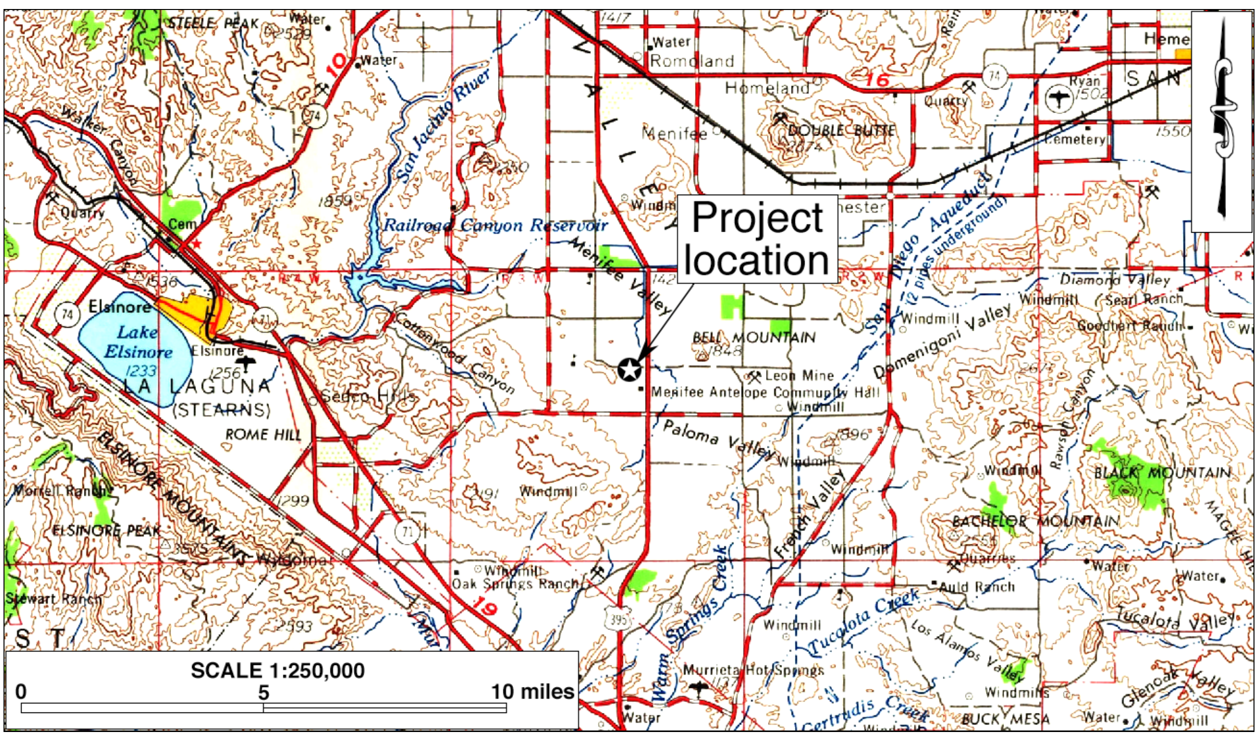

Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 1:250,000 quadrangle, 1979 edition)

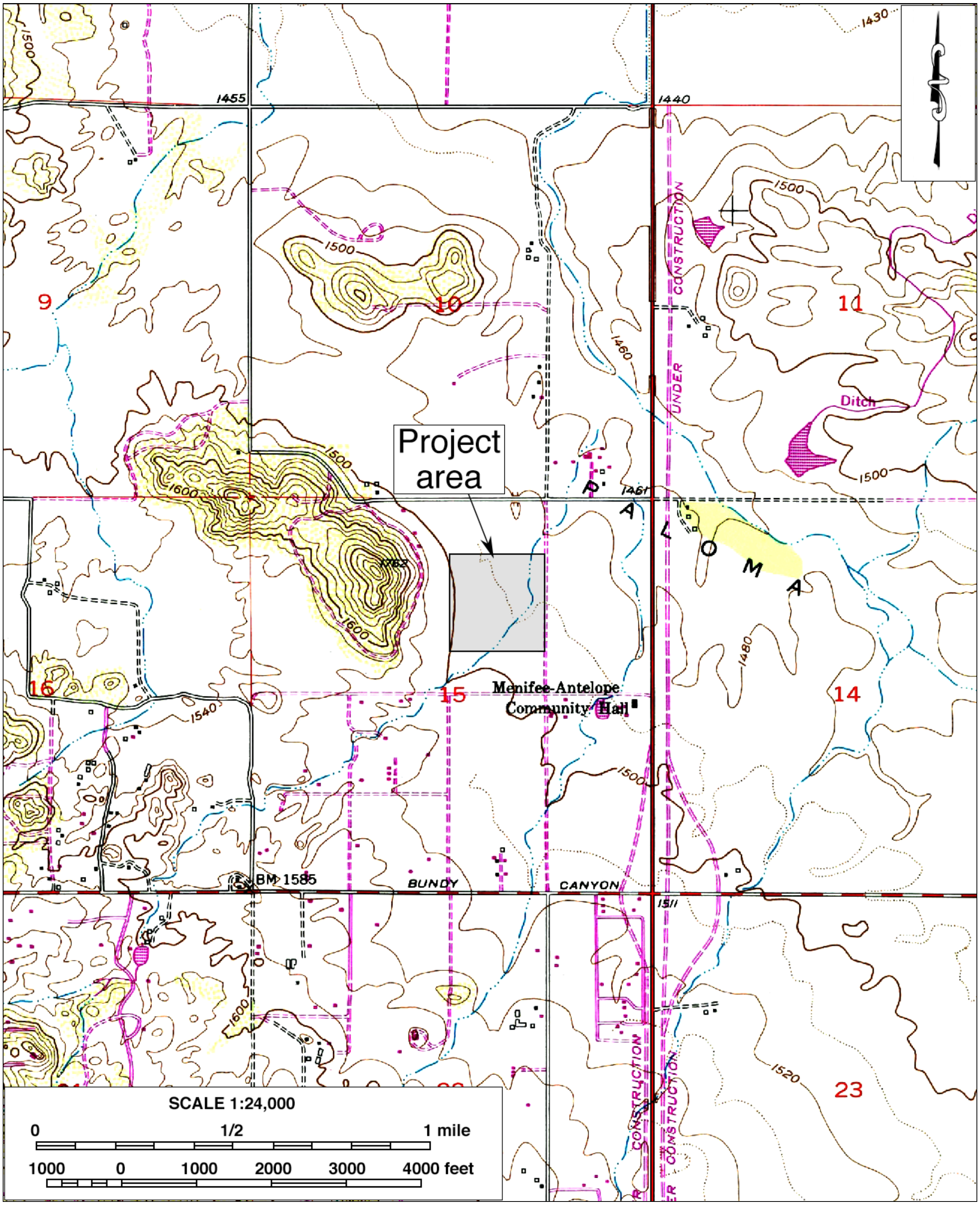

Figure 2. Project area. (Based on USGS Romoland, Calif., 1:24,000 quadrangle, 1979 edition)

PALEONTOLOGICAL RESOURCES

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, which is typically regarded as older than 10,000 years, the generally accepted temporal boundary marking the end of the last late Pleistocene glaciation and the beginning of the current Holocene epoch.

Common fossil remains include marine shells; the bones and teeth of fish, reptiles, and mammals; leaf assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained, and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, limestone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found below the surface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Eric Scott and Kathleen Springer (2003:6) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed, and with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine its potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils, based on what fossil resources the formation has produced in the past at other nearby locations. Determinations must consider not only the potential for yielding vertebrate fossils but also the potential for a few significant fossils that may provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology (1995) issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The Society defined three potential categories of paleontological sensitivity for geologic units that might be impacted by a proposed project. These categories are described below, along with the criteria used to establish their sensitivity.

- **High sensitivity**: Geologic units assigned to this category are considered to have a high potential for significant nonrenewable vertebrate, invertebrate, marine, or plant fossils. Sedimentary rock units in this category contain a relatively high density of recorded fossil localities, have produced fossil remains in the vicinity, and are very likely to yield additional fossil remains.
- **Low sensitivity**: Geologic units are assigned to this category when they have produced no or few recorded fossil localities and are not likely to yield any significant nonrenewable fossil remains.
- **Undetermined sensitivity**: Geologic units are assigned to this category when there is limited exposure of the rock units in the area and/or the rock units have been poorly studied.

SETTING

REGIONAL GEOLOGIC SETTING

Geologically, the City of Menifee is located in the northern portion of the Peninsular Ranges province, which is bounded on the north by the Transverse Ranges province, on the northeast by the Colorado Desert province, and on the west by the Pacific Ocean (Jenkins 1980: 40-41; Harms 1996:150). The Peninsular Ranges province extends southward to the southern tip of Baja California (Jahns 1954).

The project area is located entirely in sedimentary material in the southern portion of the Perris Valley, along the eastern side of an outcropping ridge of basement rocks. The Perris Valley is one of the many tectonically controlled valleys within the valley-and-ridge systems in the Perris Block. These structurally depressed troughs are filled with sediments of upper Pliocene through Recent ages (Mann 1955:Plate 1; Kennedy 1977:5), and the ridges are composed of plutonic igneous rocks, metasedimentary rocks, and late-stage intrusive dikes.

English (1926) defined the Perris Block as the region between the San Jacinto and Elsinore-Chino fault zones, bounded on the north by the Cucamonga (San Gabriel) Fault and on the south by a vaguely delineated boundary near the southern end of the Temecula Valley. This structural block is known to have been active since Pliocene time (Woodford et al. 1971:3421).

CURRENT NATURAL SETTING

The project area consists of a square-shaped parcel of agricultural land that is currently under fallow. It is surrounded mostly by other parcels of open land but adjoins a commercial property to the south. The terrain on the property is relatively level (Figure 3), with elevations ranging approximately from

Figure 3. Current natural setting. (View to the west; photograph taken on March 14, 2016)

1,480 feet to 1,500 feet above mean sea level. The vegetation consists of crab grass, tomato plant, and scattered trees such as acacia. In general, the soil is a loosely packed fine-grained silty-clay loam with less than 10 percent pea-gravel. A small amount of angular and sub-angular granitic rocks is observed on the surface. An intermittent creek runs in a northeast-southwest direction across the southern portion of the property. Other than past farming operations, no significant disturbances are evident.

METHODS AND PROCEDURES

RECORDS SEARCH

In January 2016, the Natural History Museum of Los Angeles County (NHMLAC), which maintains the Regional Paleontological Locality Inventory, conducted a records search on the adjacent property to the north (McLeod 2016; see Quinn and Encarnación 2016). As that property lies upon largely the same geological formation, the records search results were used for this project as well. Sources consulted during the records search included regional paleontological site records in the museum's files as well as supporting maps and documents. The records search results are used to identify known paleontological localities in or near the project area.

LITERATURE REVIEW

In addition to the records searches, CRM TECH geologist/paleontologist Harry M. Quinn, California Professional Geologist #3477, pursued a literature review on the project area. Sources consulted during the part of the research include primarily topographic, geologic, and soil maps of the Menifee Valley area, published geologic literature pertaining to the project location, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

On March 14, 2016, CRM TECH paleontological surveyors Daniel Ballester and Salvadore Boites carried out the field survey of the project area under the direction of Harry M. Quinn. The survey was completed on foot by walking a series of parallel east-west transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geological formations, and to look for any indications of paleontological remains.

RESULTS AND FINDINGS

RECORDS SEARCHES

The records search results identified no known paleontological localities in the project vicinity, but indicate the presence of such localities "farther afield from sedimentary deposits similar to those that may occur subsurface" on the adjacent property to the north (McLeod 2016:1), which lies upon largely the same geological formation, as mentioned above. The nearest vertebrate fossil localities identified by the NHMLAC were LACM 5168 and LACM 6059, located near Canyon Lake and Lake Elsinore, respectively (*ibid.*).

According to the NHMLAC, the surface material in the project vicinity is composed of older Quaternary alluvial fan deposits that, lying close to the source hills immediately to the west, tend to be coarse and thus unlikely to contain significant vertebrate fossils (McLeod 2016:1). However, the NHMLAC observes that finer-grained material at depth may contain significant fossil vertebrate remains (*ibid.*). Therefore, the NHMLAC recommends that deeper excavations in this area be monitored for potential fossil findings (*ibid.*:2).

LITERATURE REVIEW

The surface geology within the project area was mapped by Rogers (1965) as **Qal**, or alluvium of Holocene age. This is the same material mapped as the surface material in the Domenigoni Valley, the site of important vertebrate paleontological finds in recent decades (Springer and Scott 1994:47A; Springer et al. 1998:79A; Springer et al. 1999:77A). Most of these fossil remains were recovered from depths greater than ten feet below the surface (Scott 2004). They were found because of the deep excavation required for a major reservoir construction, which is much deeper than normally required for typical development projects. One exception may be deep cuts used to develop onsite retention basins or to install utility lines.

Miller et al. (1991:Plate 1B) mapped the surface geology within the project area as **Qo**, defined as older alluvium of early Holocene age. It consists of poorly consolidated sand, gravel, and silt associated with essentially inactive drainages and alluvial fans (*ibid.*). Morton (1991) mapped the surface sediments in the project area as **Qia**, or alluvium of intermediate age (Holocene or Pleistocene). It is described as unconsolidated to well-indurated, brownish, sandy alluvium that in large part appears intermediate in age between **Qya** and **Qoa** (*ibid.*).

Morton (2003) later remapped the surface geology mostly as $\mathbf{Qof_a}$, with a minor amount of **Kt** in the southwestern corner (Figure 4). $\mathbf{Qof_a}$ is identified as old alluvial fan deposits of late to middle Pleistocene age, which Morton described as "reddish brown, gravel and sand deposits; indurated, commonly slightly dissected" that in places includes "thin alluvial fan deposits of Holocene age," while **Kt** is identified as intrusive tonalite of Cretaceous age (*ibid.*). Dibblee (2008) mapped the surface sediments in the project area as **Qa**, or alluvium of Holocene age. It is described as alluvial sand and gravel of valley areas and in places covered with gray clay soil.

Knecht (1971:Map Sheet 129) mapped the surface soils at the project location as mainly **YbC** and **LaC**, with a minor amount of **LaC2**. The **YbC**-type soils belong to the Yokohl Series and develop on old alluvial fans and terraces (*ibid.*:69). The **LaC**- and **LaC2**-type soils belong to the Las Posas Series and form on uplands with sediments composed of basic igneous rock material (*ibid.*:42).

FIELD SURVEY

The field survey yielded negative findings for potential paleontological resources, and no surficial indications of any fossil remains were observed within or adjacent to the project area. As the project area contains a former agricultural field, the surface soils have clearly been disturbed to some extent by past farming operations.

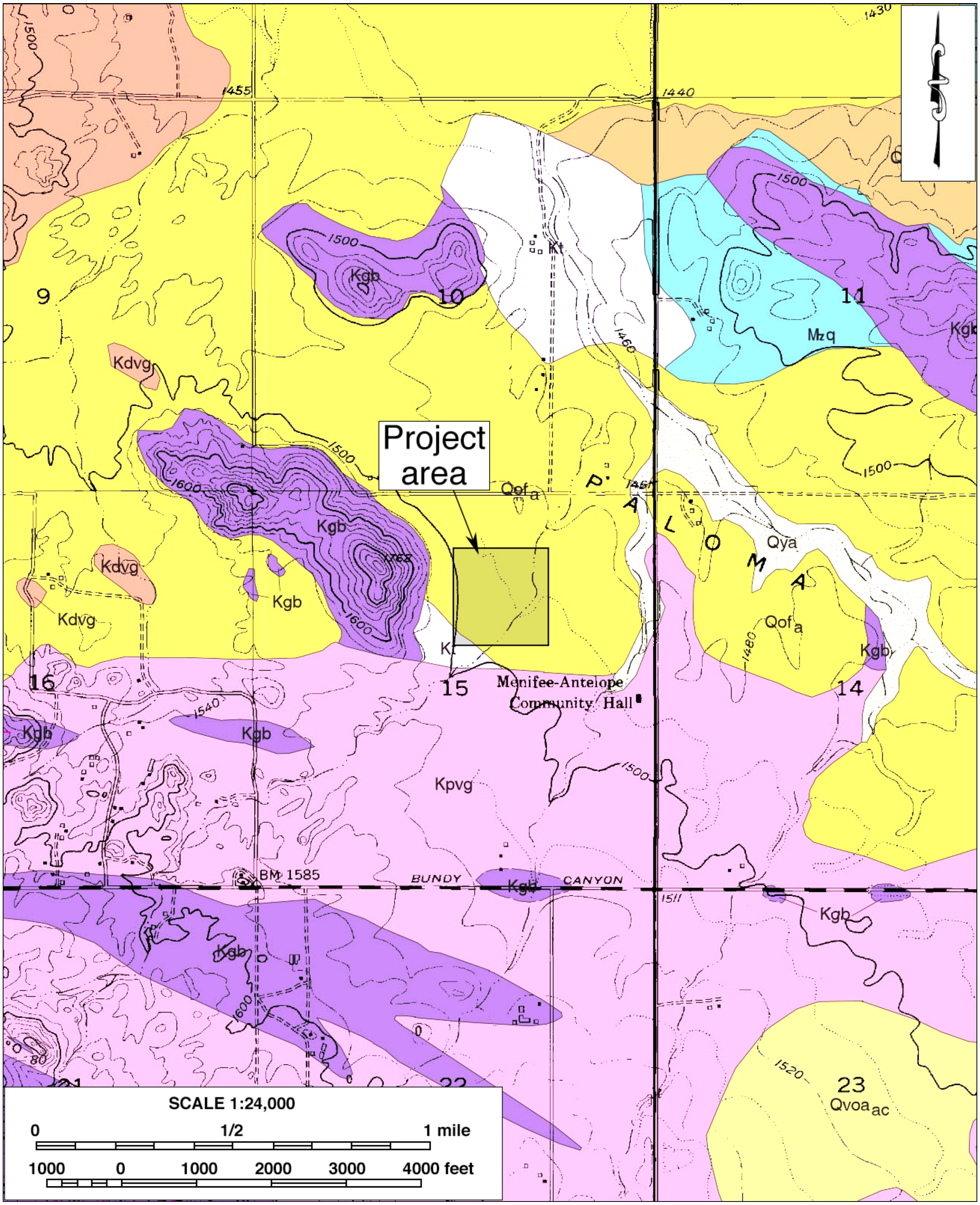

Figure 4. Geologic map of the project vicinity. (Based on Morton 2003)

DISCUSSION

The results of the records search and the literature research indicate that the soils in the project area are mostly sedimentary materials of Pleistocene or Holocene age, except in the southwestern corner where Morton (2003) indicates the presence of intrusive igneous rock. In many areas the younger surface sediments are known to rest directly on top of older Pleistocene sediments, but usually at depths greater than 10 feet (Scott 2004). Irish et al. (2003:18) show that most of the fossils recovered from similar situations have been found deeper than 10 feet, but can be found as shallow as three feet near the base of the hills.

The surface soils in this project area have evidently been farmed in the past, and the upper one to two feet have been disturbed, as observed during the field survey. Based on available information, the older sediments that are present at the surface may not be of a facies that normally contains fossil materials. The older sediments in this area are alluvial fan and terrace deposits. To date, the Pleistocene alluvial fan deposits have proven to be less fossiliferous than Pleistocene fluvial and lacustrine deposits. This may be due to the coarser nature of the sediments and/or the open area of alluvial fans that left animal remains available to scavengers. Burial of these remains would have been slow, whereas rapid burial is needed to best preserve fossil remains.

CONCLUSION AND RECOMMENDATIONS

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource" during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, nonrenewable paleontological resources that may exist within or adjacent to the project area and to assess the possibility for such resources to be encountered in future excavation and construction activities.

Based on the research results presented above, the proposed project's potential to impact significant paleontological resources is determined to be low in the coarse-grained surface sediments but high in the finer-grained older Pleistocene sediments potentially present at depth, especially for significant vertebrate fossils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent such impacts or reduce them to a level less than significant.

As the primary component of the mitigation program, all earth-moving operations at or below the depth of two feet, or at shallower depths if the paleontologically sensitive soils are encountered, should be monitored for any evidence of significant, nonrenewable paleontological resources. The mitigation program should be developed in accordance with the provisions of CEQA as well as the proposed guidelines of the Society of Vertebrate Paleontology (1995) and should include, but not be limited to, the following:

1. Earth-moving operations reaching the undisturbed older alluvium at depth, except in the southwestern corner, should be monitored by a qualified paleontological monitor. The monitor should be prepared to quickly salvage paleontological remains as they are unearthed to avoid

construction delays and must have the power to temporarily halt or divert construction equipment to allow for the removal of abundant or large specimens.

2. Samples of sediments should be collected and processed to recover small fossil remains.
3. Recovered specimens should be identified and curated at a repository with permanent retrievable storage that would allow for further research in the future.
4. A report of findings, including an itemized inventory of recovered specimens and a discussion of their significance when appropriate, should be prepared upon completion of the research procedures outlined above. The approval of the report and the inventory by the City of Menifee would signify completion of the mitigation program.

REFERENCES

Dibblee, Thomas W., Jr.
2008 Geologic Map of the Murrieta 15' Quadrangle, Riverside County, California. Dibblee Geology Map #DF-417. Santa Barbara, California.

English, W.A.
1926 *Geology and Oil Resources of the Puente Hills Region, Southern California*. U.S. Geological Survey Bulletin 146. Washington, D.C.

Harms, Nancy S.
1996 *A Precollegate Teachers Guide to California Geomorphic/Physiographic Provinces*. Far West Section, National Association of Geoscience Teachers, Concord, California.

Hill, Robert L., Dinah O. Shumway, and Russell V. Miller
1991 Geologic Map of the Northern Temescal Valley, Riverside County, California. In Russell V. Miller, Dinah O. Shumway, and Robert L. Hill (eds.): *Mineral Land Classification of the Temescal Valley Area, Riverside County, California*; Plate 1A. California Division of Mines and Geology Special Report 165. Sacramento.

Irish, Leslie Nay, Anna M. Hoover, Kristie R. Blevins, and Hugh M. Wagner
2003 Phase I Archaeological and Paleontological Survey Report for Tract 31537, APN 462-090-001-6, 462-110-001 to -007, 462-120-001 to -006, -012, and -014 to -016, Winchester, County of Riverside, California. Report prepared by L&L Environmental, Inc., Corona, California.

Jahns, R.H.
1954 Geology of the Peninsular Range Province, Southern California and Baja California. In R. H. Jahns (ed.): *Geology of Southern California*; Chapter II. California Division of Mines Bulletin 170, Part 3. San Francisco.

Jenkins, Olaf P.
1980 Geomorphic Provinces Map of California. *California Geology* 32(2):40-41. California Division of Mines and Geology Publication. Sacramento.

Mann, John F., Jr.
1955 *Geology of a Portion of the Elsinore Fault Zone, California*. California Division of Mines Special Report 43. San Francisco.

McLeod, Samuel A.
2016 Paleontological Resources for the Proposed Rancho Bonito Project, CRM TECH # 3027, in the City of Menifee, Riverside County. Records review letter report prepared by the Natural History Museum of Los Angeles County, Los Angeles, California.

Miller, Russell V., Dinah O. Shumway, and Robert L. Hill
1991 *Mineral Land Classification of the Temescal Valley Area, Riverside County, California*. California Division of Mines and Geology Special Report 165. Sacramento.

Morton, Douglas M.
1991 Geologic Map of the Romoland 7.5' Quadrangle, Riverside County, California. U.S. Geological Survey Open-file Report 90-701. Washington, D.C.
2003 Preliminary Geologic Map and Digital Database of the Romoland 7.5' Quadrangle, Riverside County, California. United States Geological Survey Open-file Report 03-102. Washington, D.C.

Quinn, Harry M., and Deirdre Encarnación
2016 Paleontological Resources Assessment Report: Rancho Bonito Project, City of Menifee, Riverside County, California. Report prepared by CRM TECH, Colton, California.

Raup, David M., and Steven M. Stanley
1978 *Principles of Paleontology*. W. H. Freeman and Company, San Francisco.

Rogers, Thomas H.
1965 Geological Map of California, Santa Ana Sheet (1:250,000). California Division of Mines and Geology, Sacramento.

Scott, Eric
2004 Personal communication with Harry M. Quinn.

Scott, Eric, and Kathleen B. Springer
2003 CEQA and Fossil Preservation in California. *Environmental Monitor* Fall:4-10. Association of Environmental Professionals, Sacramento, California.

Society of Vertebrate Paleontology
1995 Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22-27.

Springer, Kathleen B., and Eric Scott
1994 First Record of Late Pleistocene Vertebrates from the Domenigoni Valley, Riverside County, California. *Journal of Vertebrate Paleontology.* Abstract of Papers, 54th Annual Meeting, Seattle, Washington.

Springer, Kathleen B., Eric Scott, Lyndon K. Murray, and W.G. Spaulding
1998 Partial Skeleton of a Large Individual of *Mammut americanum* from the Domenigoni Valley, California. *Journal of Vertebrate Paleontology*. Abstracts of Papers, 58th Annual Meeting, Snowbird, Utah.

Woodford, Alfred O., John S. Shelton, Donald O. Doehring, and Richard K. Morton
1971 Pliocene-Pleistocene History of the Perris Block, Southern California. *Geological Society of America Bulletin* 82(12):3421-3448.

APPENDIX 1

PERSONNEL QUALIFICATIONS

PROJECT GEOLOGIST/PALEONTOLOGIST
Harry M. Quinn, M.S., California Professional Geologist #3477

Education

1968 M.S., Geology, University of Southern California, Los Angeles, California.
1964 B.S, Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington, California.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

2000-	Project Paleontologist, CRM TECH, Riverside/Colton, California.
1998-	Project Archaeologist, CRM TECH, Riverside/Colton, California.
1992-1998	Independent Geological/Geoarchaeological/Environmental Consultant, Pinyon Pines, California.
1994-1996	Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992	Project Geologist/Director of Environmental Services, STE, San Bernardino, California.
1987-1988	Senior Geologist, Jirsa Environmental Services, Norco, California.
1986	Consulting Petroleum Geologist, LOCO Exploration, Inc. Aurora, Colorado.
1978-1986	Senior Exploration Geologist, Tenneco Oil E & P, Englewood, Colorado.
1965-1978	Exploration and Development Geologist, Texaco, Inc., Los Angeles, California.

Previous Work Experience in Paleontology

1969-1973 Attended Texaco company-wide seminars designed to acquaint all paleontological laboratories with the capability of one another and the procedures of mutual assistance in solving correlation and paleo-environmental reconstruction problems.

1967-1968 Attended Texaco seminars on Carboniferous coral zonation techniques and Carboniferous smaller foraminifera zonation techniques for Alaska and Nevada.

1966-1972, 1974, 1975 Conducted stratigraphic section measuring and field paleontological identification in Alaska for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic and Mesozoic rocks and some Tertiary rocks, including both megafossil and microfossil identification, as well as fossil plant identification.

1965 Conducted stratigraphic section measuring and field paleontological identification in Nevada for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic rocks and some Mesozoic and Tertiary rocks. The Tertiary work included identification of ostracods from the Humboldt and Sheep Pass Formations and vertebrate and plant remains from Miocene alluvial sediments.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Association of Environmental Professionals; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum.

Publications in Geology

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas.

PALEONTOLOGICAL SURVEYOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.

- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

PALEONTOLOGICAL SURVEYOR
Salvadore Boites, M.A.

Education

2013	M.A., Applied Anthropology, California State University, Long Beach.
2003	B.A., Anthropology/Sociology, University of California, Riverside.

Professional Experience

2003-	Project Archaeologist, CRM TECH, Riverside/Colton, California.
2010-2011	Adjunct Instructor, Anthropology etc., Everest College, Anaheim, California.
2001-2002	Teaching Assistant, Moreno Elementary School, Moreno Valley, California.
1999-2003	Research Assistant, Anthropology Department, University of California, Riverside.

REPORT WRITER
Ben Kerridge, M.A.

Education

2014	Archaeological Field School, Institute for Field Research, Kephallenia, Greece.
2010	M.A., Anthropology, California State University, Fullerton.
2009	Project Management Training, Project Management Institute/CH2M HILL.
2004	B.A., Anthropology, California State University, Fullerton.

Professional Experience

2015- Project Archaeologist/Report Writer, CRM TECH, Colton, California.
2015 Teaching Assistant, Institute for Field Research, Kephallenia, Greece.
2009-2014 Publications Delivery Manager, CH2M HILL, Santa Ana, California.

- Led teams of editors, document processors, and graphic designers in production of technical documents in support of construction, remediation, and mitigation/monitoring projects of varying sizes around the world.
- Provided field and research support to cultural resources management teams on various projects.

2010- Naturalist, Newport Bay Conservancy, Newport Beach, California.
2009-2010 Senior Commentator, GameReplays.org.
2006-2009 Technical Publishing Specialist, CH2M HILL, Santa Ana, California.
2002-2007 Host and Head Writer, *The Rational Voice Radio Program*, Titan Radio, California State University, Fullerton.
2002-2006 English Composition/College Preparation Tutor, Various Locations, California.