Appendix D-3

Paleontological Resources Assessment Report, Crescent Gardens Cemetery Project
August 28, 2023
prepared by CRM Tech

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

Crescent Gardens Cemetery Project

ASSESSOR'S PARCEL NUMBERS 349-170-003 TO –007; -009 TO -013; 349-180-002, -004 TO -008, -016, -020 AND –035

Meadowbrook Area of Riverside County, California

CUP230002

For Submittal to:
Riverside County Planning Department
County Administrative Center
4080 Lemon Street
Riverside, CA 92501

Prepared for:
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August 28, 2023

Approximately 81 acres
USGS Elsinore, Calif., 7.5' (1:24,000) quadrangle
Section 22, T5S R4W, San Bernardino Baseline and Meridian
CRM TECH Project No. 3810

EXECUTIVE SUMMARY

Between March and April 2021, at the request of the Muslim Mortuary and Cemetery Committee, CRM TECH performed a paleontological resource assessment on approximately 81 acres of land in the Meadowbrook area of Riverside County, California. The subject property consists of a total of twenty (19) parcels of the land that is planned as being the "cemetery" area (16 parcels of land that are planned as being the "cemetery" area [APNs 349-170-003 to -007; 349-170-011 to -013; 349-180-002, 349-180-004 to -008, 349-180-016, and 349-180-020] and three [3] parcels in the area of the proposed access road, parking lot, and facilities [APNs 349-170-009, -010, and 349-180-035]) at the "entrance" to the cemetery area. The property is located east of the intersection of Robert Street and Garfield Street, in the southeast quarter of Section 22, T5S R4W, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the proposed development of a cemetery and facilities, with associated roads. The County of Riverside, 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 County with the necessary information and analysis to determine whether the proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA, and to design a paleontological mitigation program, if necessary.

In order to identify any paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a paleontological records search, conducted a literature review, and carried out a field inspection of the project area. The results of these research procedures suggest that the majority of the site is situated on top of tonalite sediments that date to the Cretaceous period and Mesozoic-age phyllite sediments with a north-south trending, late- to middle-Pleistocene band of alluvial-channel deposits in the mid-south-southeastern part of the project area. The tonalite and phyllite deposits are considered to be of low paleontological sensitivity. The old alluvial channel deposits, however, have a higher paleontological sensitivity. The paleontological records search indicated that no paleontological localities have been reported within the project area or within one mile of its borders. Numerous fossil localities have been reported throughout Riverside County in old alluvial channel deposits similar to those present in the mid-south-southeastern portion of the project area, making these types of sediments to be considered highly sensitive for paleontological resources.

Therefore, CRM TECH recommends to the County of Riverside that the proposed project's potential to impact significant, nonrenewable paleontological resources is low except in the old alluvial-channel deposits in the mid-south-southeastern corner of the project area. The project's potential to impact significant, nonrenewable paleontological

resources in those channel deposits appears to be high and CRM TECH, therefore, recommends that a paleontological resource impact mitigation program be developed and implemented prior to the beginning of the project to prevent such impacts or reduce them to a level less than significant only within the old alluvial channel deposits in mid-south-southeastern portion of the project area. Paleontological monitoring is not recommended/required in other parts of the project area.

A mitigation program could consist of test excavations in the form of a series of backhoe pits/trenches to better assess the paleontological sensitivity of those alluvial-channel deposits. This assemblage, if any is to be recovered, will help determine the sensitivity of the soil in that unit and whether further mitigation needs to be undertaken during project related earth-moving activities in that area. Alternatively, a mitigation program may consist of spot checking the construction-related earth-moving activities in the alluvial channel deposits during the project by a qualified paleontologist to determine the sensitivity level of the channel deposits and whether a more intensive monitoring program may be needed. Once either of these alternative conditions has been met, the proposed project may be cleared to proceed in compliance with CEQA provisions regarding paleontological resources.

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INTRODUCTION

Between March 2021 and August 2023, at the request of the Muslim Mortuary and Cemetery Committee, CRM TECH performed a paleontological resource assessment on approximately 81 acres of land on numerous parcels in the Meadowbrook area of Riverside County, California (Figure 1). The subject property consists of sixteen (16) parcels of land that are planned as being the "cemetery" area (APNs 349-170-003 to -007; 349-170-011 to -013; 349-180-002, 349-180-004 to -008, 349-180-016, and 349-180-020) and three (3) parcels in the area of the proposed access road, parking lot, and facilities (APNs 349-170-009, -010, and 349-180-035) at the "entrance" to the cemetery area (Figure 2). The property is located east of the intersection of Robert Street and Garfield Street, in the southeast quarter of Section 22, T5S R4W, San Bernardino Baseline and Meridian (Figure 3).

The study is part of the environmental review process for the proposed development of a cemetery with associated facilities, roads, and open space. The County of Riverside, as the lead agency for the project, required the paleontological study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the County with the necessary information and analysis to determine whether the proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA, and to design a paleontological mitigation program, if necessary.

In order to identify any known or potential paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a paleontological records search, conducted a literature review, and carried out a field inspection of the project area. The following report is a complete account of the methods, results, and final conclusion of this study. Qualifications of the principal personnel that participated in the study are provided in Appendix 1.

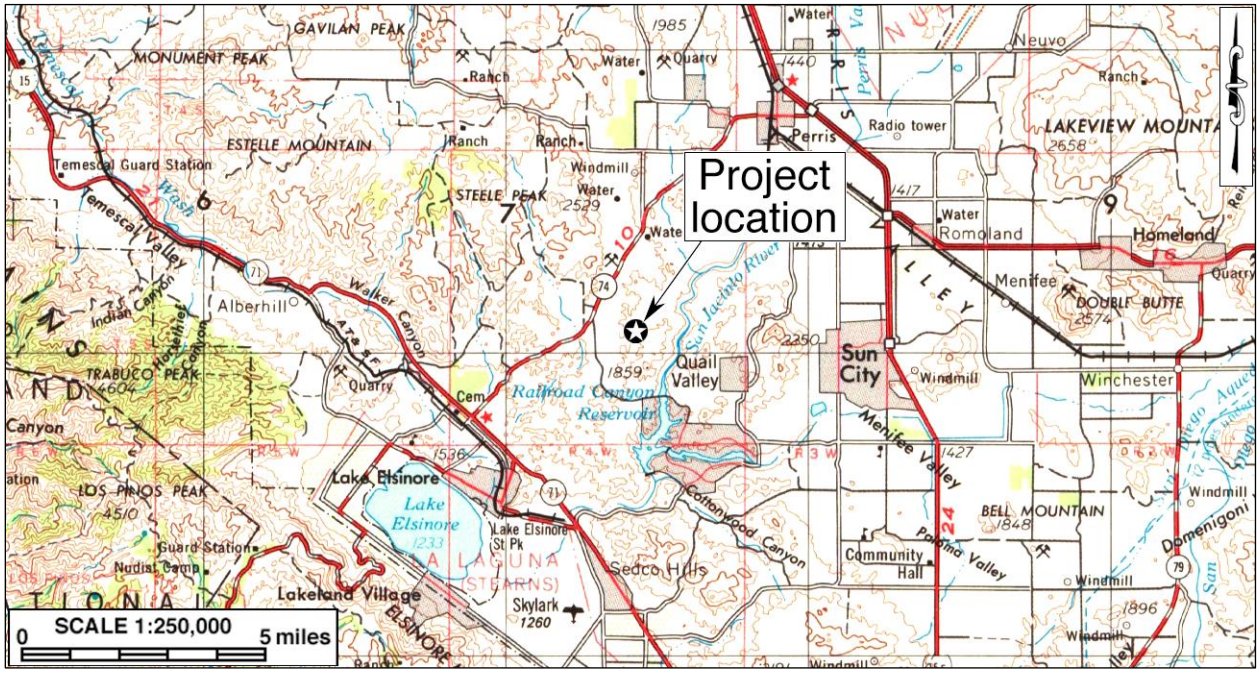

Figure 1. The project vicinity; based on the USGS Santa Ana, Calif., 120'x60' quadrangle.

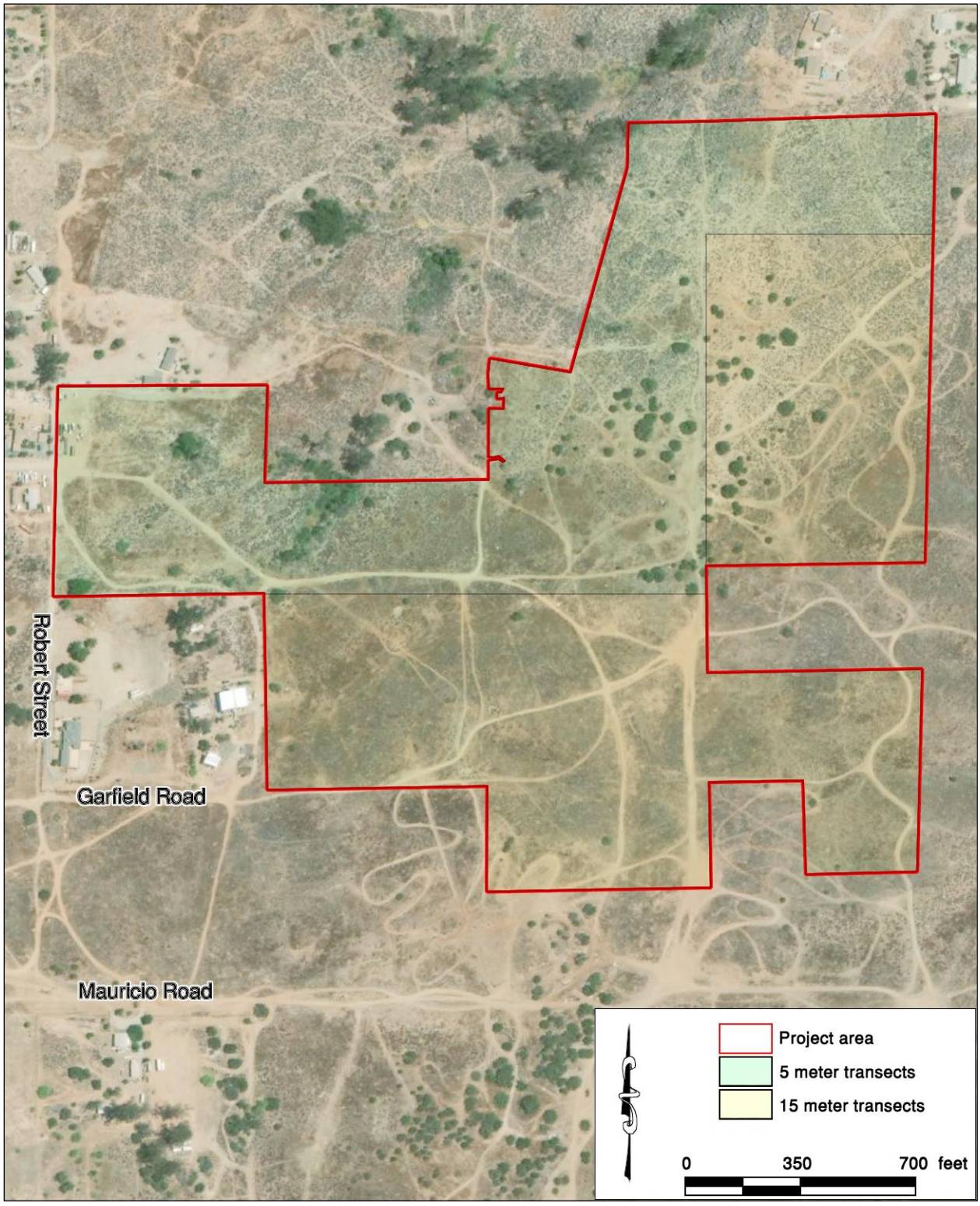

Figure 2. Recent aerial view of the project area and vicinity, also showing the levels of survey intensity.

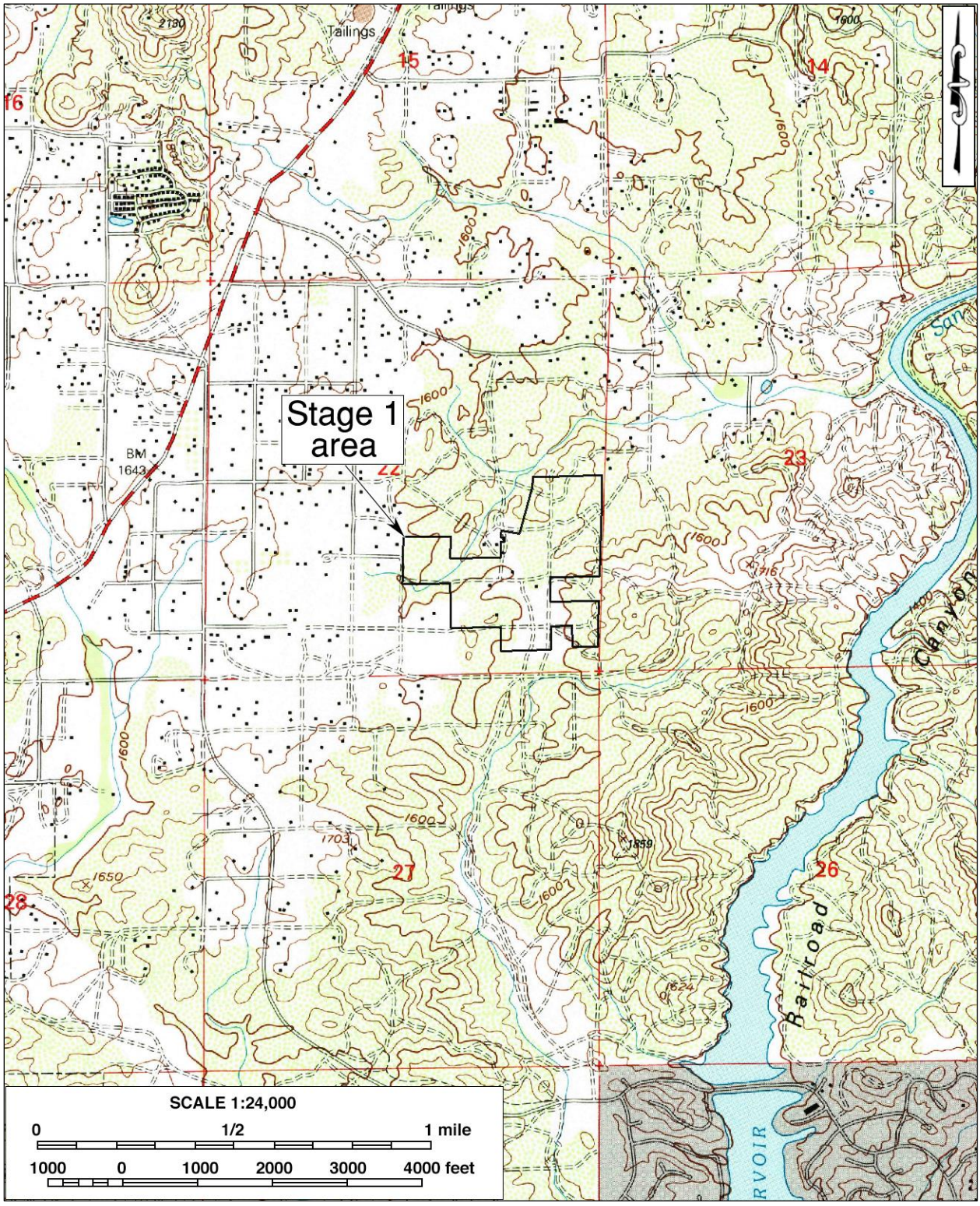

Figure 3. The project area shown on the USGS map (a portion of the USGS Elsinore, Calif. 7.5' quadrangle)

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, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint 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, 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 in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Scott and Springer (2003:6), 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 the formation's 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. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential**: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential**: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low Potential**: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential**: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

SETTING

The unincorporated community of Meadowbrook is located approximately four miles northeast of the City of Lake Elsinore. The project area sits at the southeast edge of the town of Meadowbrook, approximately one mile outside of the center of the town. As such, the project area is located within the Peninsular Range physiographic province (Jenkins 1980:40-41; Harms 1996:150). The Peninsular Ranges province is made up of a series of northwest-southeast trending structural blocks consisting of uplifted mountains that are separated by valley basins developed along the intervening fault zones. The mountains are made up mainly of igneous intrusive rocks, metasedimentary rocks, and some metavolcanic rocks (Harden 2004:466-468). The non-crystalline rocks in the eastern portion of the mountains contain mainly metasedimentary rocks of Paleozoic and older age, while the crystalline basement rocks consist mainly of Mesozoic-age granitic rocks with some scattered gabbroic intrusions (Harden 2004:466-468, 471-472).

The Lake Elsinore area is a part of a prominent geomorphic feature known as the Perris Block, one of the structural blocks in the Peninsular Ranges province. Situated between the San Jacinto and Elsinore-Chino fault zones, the Perris Block includes many tectonically controlled valley-and-ridge systems (English 1926). It is 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 (English 1926). This structural block is considered to have been active since Pliocene time (Woodford et al. 1971:3421). Colluvial/alluvial sediments of varying thickness derived from the erosion of the elevated portions of the region fill the low-lying areas of the Perris Block.

The project area lies in the southeastern portion of the town of Meadowbrook. The shape of the project is not uniform but, generally, the project area is bounded on the west by Robert Street, on the south by Garfield Road or stretching toward but not reaching Mauricio Road, and by undeveloped land on the north and the east (Figure 2). The natural landscape in the project area is comprised of mixed terrain, including relatively level ground, rolling hills, bedrock outcrops and drainages (Figure 4). Elevations within the project area range from 1,550 feet to 1,660 feet above mean sea-level. Vegetation within the project area consists of non-native grasses (*Avena sp*., *Bromus sp.*) providing the majority of the ground cover. Portions of the project area contained scatters of large California juniper (*Juniperus californicus*) and within the drainages, eucalyptus trees were found. Riparian species included stands of bulrushes (*Scirpus spp.*) and cattails (*Typha spp.*), bunch grasses (*Stipa sp.*), rushes (*Juncus sp.*), and sedges (*Carex sp.*).

METHODS AND PROCEDURES

RECORDS SEARCH

The paleontological records search service for this study was provided by the Western Science Center (WSC) in Hemet. The WSC maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify previously performed paleontological resource assessments and known paleontological localities within a one-mile radius of the project location. A copy of the records search results is attached to this report in Appendix 2.

Figure 4. Typical landscape in the project area (March 30, 2021; facing east)

LITERATURE REVIEW

In conjunction with the records search, CRM TECH paleontologist Charly Shelton reviewed geological literature pertaining to the project vicinity. Sources consulted during the review include primarily published literature on regional geology, topographic, geologic, and soil maps of the Lake Elsinore area, the County of Riverside GIS database, satellite and aerial images available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software, the USDA Natural Resources Conservation Service maps, and other materials in the CRM TECH library, including unpublished reports produced during similar studies in the vicinity.

FIELD INSPECTION

The fieldwork was carried out under the direction of CRM TECH Principal Investigator Michael Hogan by Field Director Daniel Ballester and project paleontologists Hunter C. O'Donnell, Nina Gallardo, Rebecca Brierty, Deirdre Encarnacion, John Goodman and Charly Shelton. Chris Yearyean, a Native American monitor for the Pechanga Band of Luiseno Indians, was present during all of the fieldwork. The fieldwork phase of the study was conducted between March 30 and April 6, 2021. In areas of higher archaeological sensitivity, the survey was completed by walking parallel transects oriented north-south or east-west (depending on the terrain) spaced 5 meters (approximately 15 feet) apart. In the areas of lower archaeological sensitivity and accessibility (areas of rolling, hilly terrain with few bedrock outcrops) parallel north-south transects spaced at 15 meters (approx. 50 feet) were employed to inspect the ground surface (see Figure 2).

In this way, the ground surface in the entire project area was systematically and carefully examined for any paleontological resources. Edges of erosional slopes and soil indentations were closely examined for evidence of any fossilized remains or trace fossils. Bedrock outcrops were inspected for any evidence of embedded paleontological resources. Photographs were taken of the project area for visual documentation of the property. Due to varying vegetation types and growth, ground visibility was poor (10%) in some areas (generally in the southern and southeastern part of the study area) to good (70%) in other areas. Overall, ground visibility was sufficient to be able to detect any surficial deposits of paleontological resources.

RESULTS AND FINDINGS

RECORDS SEARCH

The records search conducted by the Western Science Center (WSC) identified no known paleontological localities within the project area, nor within a one-mile radius (Radford 2021; see App. 2). According to the WSC, the geologic formation in the majority of the project area consists of Cretaceous tonalite with segments of Mesozoic phyllite along the eastern half of the project area (Radford 2021). The WSC does not consider either of these geologic units to be paleontologically sensitive (Radford 2021). However, a small section of old alluvial channel deposits found in the southeastern area of the project area is considered to be highly paleontologically sensitive (Radford 2021). In the records search, no localities were found within the project area or within one mile of its borders but elsewhere in Riverside County alluvial channel deposits have yielded many fossil localities.

The WSC did not offer recommendations regarding the proposed project but noted that, based upon the geologic makeup of the soils underlying the project area, “Should excavation activity associated with the development of the project area extend into the Pleistocene alluvial units, paleontological resources would be possible. However, under current project parameters, and with the geologic units described, it would be unlikely for fossil material to be preserved in the tonalite and phyllite units that make up the majority of the project area” (Radford 2021:1). Geologic mapping provided by the WSC shows the location of the tonalite in purple, the phyllite in green, and the alluvial channel deposits in yellow (see App. 2).

LITERATURE AND MAP REVIEW

As noted by Radford (2021), Morton and Weber indicate that the geologic formations in the majority of the project area are primarily Cretaceous tonalite (**Kgt**) and Mesozoic phyllite (**Mzp**) (Morton and Weber 2003; Figure 5). The **Kgt** formation is described as brown-weathering, massive, relatively heterogeneous, hypersthene-bearing biotite-hornblende tonalite (Morton and Weber 2003). The **Mzp** formation is described as fissile black phyllite that commonly has sheen produced by very fine-grained white mica on a planar surface (Morton and Weber 2003). Neither of these formations are considered to be paleontologically sensitive. However, old alluvial channel deposits (**Qoa**) are shown as being present in the mid-south-southeastern portion of the project area (Figure 5). Morton and Weber describe these old (late to middle Pleistocene) alluvial-channel deposits as fluvial

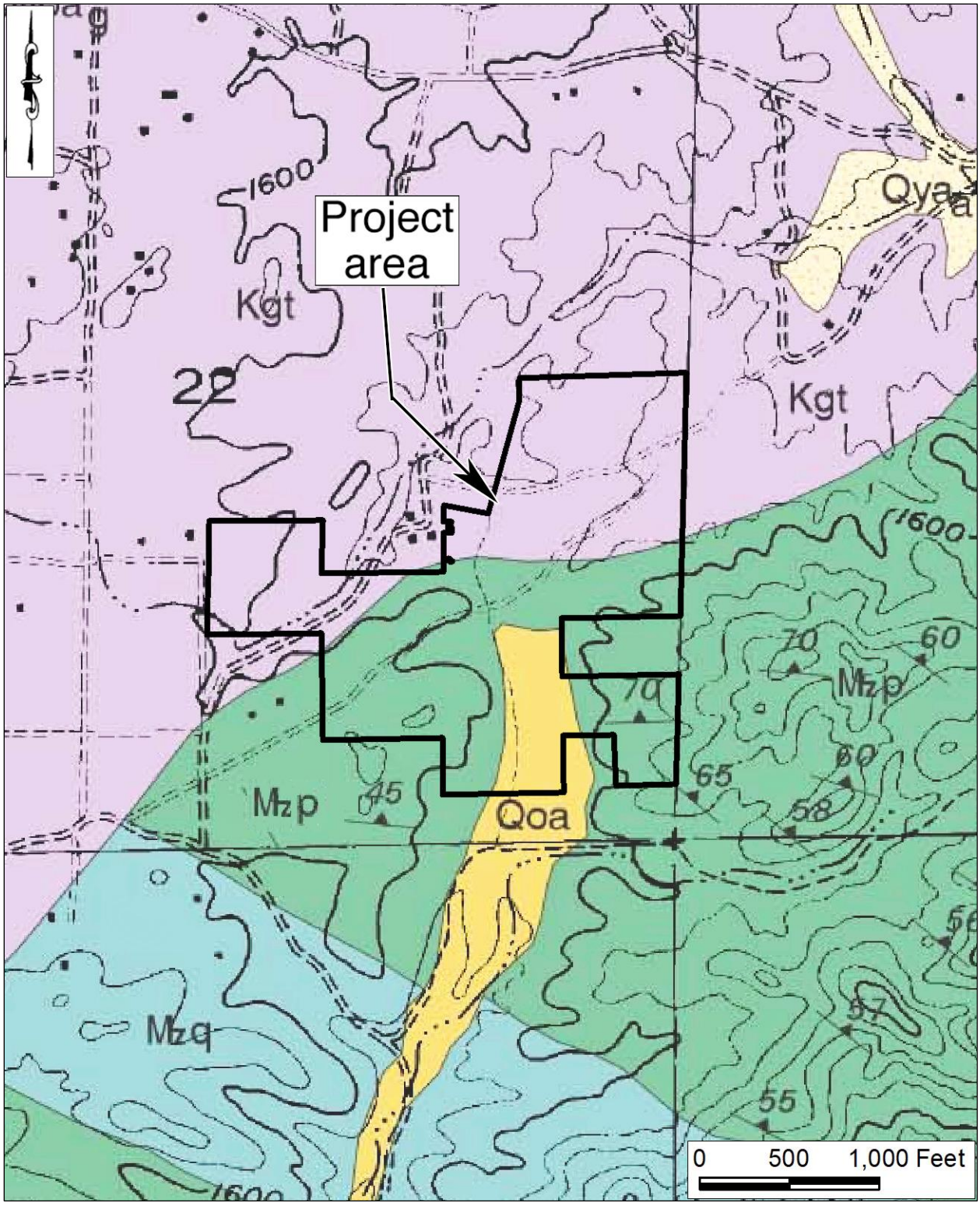

Figure 5. The geologic formations in the project area and vicinity (Morton and Weber 2003).

sediments consisting of moderately indurated, commonly slightly dissected gravel, sand, silt, and clay-bearing alluvium that were deposited on canyon floors (Morton and Weber 2003). Morton and Weber note that in some locations these sediments may be capped by thin, discontinuous alluvial deposits of Holocene age (Morton and Weber 2003). Fossil localities have been found in similar old alluvial-channel deposits throughout Riverside County. Therefore, these sediments are considered to be paleontologically sensitive. The area mapped as **Qoa** includes approximately 8 acres within the current project area.

According to the Riverside County GIS data regarding paleontological sensitivity most of the project area has been assigned a low potential to contain paleontological resources, though approximately 20% of the total project area is mapped as having an "undetermined potential" (RCIT nd) (Figure 6). As we have seen, though, Morton and Weber mapped what is essentially the area of undetermined potential as **Mzp**, which has a very low paleontological sensitivity (compare Figures 5 and 6). The old alluvial channel deposits are mostly in the area of the undetermined potential.

Figure 6. Paleontological sensitivity according to the County GIS database. (Source: Riverside County Information Technology GIS)

This information is essentially collaborated by the geotechnical report for the project (RGS 2021). While they did not conduct any excavations in the area of the old alluvial channel deposits (**Qoa**) (RGS 2021:14 [their Figure 3]), all of the exploratory trenches that they did excavate either encountered bedrock (decomposed granite [Kgr] or quartzite and phyllite metamorphics) at the surface or very near the surface (RGS 2021:18-31 [their Exploratory Trench Logs]).

FIELD SURVEY

No surface manifestation of any paleontological remains was observed within the project area during the field inspection. The soils on the surface of most of the project area consist of gravelly sands with some silts and loams. The parent material of these sediments would be the tonalite and phyllite

of the surrounding hills. There are several areas where granitic outcrops are abundant. The area where the old alluvial channel deposits are mapped was noted as being a lower-lying area between the existing rolling hills.

The surface soils in this area, however, were not noted as being different from the surrounding areas, indicating that the channel area has been filled by more Recent sands and gravels that have been deposited there from the surrounding hills since the beginning of the Holocene. Based on the contours (Figure 3) and the presence of denser vegetation to the south of the project area (Figure 2) along the course of old alluvial channel deposits (Figure 5), it is likely that the course of the old alluvial channel deposits is accurately mapped but that the older channel deposits are present below the surface.

CONCLUSION AND RECOMMENDATIONS

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that, during the environmental review process, public agencies in the State of California must determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource". The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable 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.

Most of the project area consist of geologic formations that are not considered sensitive for paleontological resources. Paleontological monitoring is not recommended in those areas. However, an area (approximately 8 acres) of old alluvial channel deposits is mapped in the mid-south-southeastern portion of the project area. Significant paleontological resources have been recovered from such sediments in Riverside County. Therefore, CRM TECH recommends to the County of Riverside that the proposed project's potential to impact significant, nonrenewable paleontological resources in the mid-south-southeastern portion of the project area appears to be high and recommends that a paleontological resource impact mitigation program be developed and implemented prior to the beginning of the project to prevent such impacts or reduce them to a level less than significant.

Potential impacts to significant paleontological resources that may be present in area of the old alluvial channel deposits could be mitigated in at least one of two different ways. One method would be for a team of paleontologists to conduct test excavations in the sensitive area to determine if paleontological resources are present. Based on the likely presence of Recent sediments on top of the older deposits, and to explore more area more quickly, the excavations could be conducted using a backhoe with the paleontologists controlling the placement and rate of the excavations. Besides visually examining the excavated soils and trenches for evidence of paleontological resources, samples of older sediments should be processed through increasingly smaller mesh screens to look for smaller fossils. If resources are encountered additional excavations should take place to ensure that a complete sample of all types of resources that are present is recovered.

Alternatively, a program of paleontological monitoring in the area of the older alluvial channel deposits could be implemented. Within this option, standard paleontological resources monitoring procedures shall be employed. These include following earthmoving equipment and observing the freshly exposed soils for any evidence of paleontological resources. During any trenching operations, monitors shall observe the trench bottom, sidewalls, and back dirt for any indication of paleontological resources. Monitors shall also examine the sidewalls of any cut exposures for evidence of stratigraphic deposition. If applicable, a sidewall profile that delineates the various geologic strata and identifies soil horizons will be generated. Notes will be taken daily and recorded on Daily Monitoring Logs. Photographs will be taken to document various activities and the types of soils that are being impacted. The paleontological resources monitoring program is designed to protect not only paleontological resources that are exposed, but also significant contextual data associated with these resources. For this reason, the paleontological resource monitor will note daily where work is occurring, plot resource locations, document any stratigraphic layers, and photograph the work activities, the soils, and the resources, etc.

The paleontological monitor will be properly equipped with tools and supplies to allow rapid documentation and removal of specimens. If fine-grained sediments (e. g., mudstones, clays, paleosols; etc.) or other indicators of potential micro-vertebrate fossils are encountered, the paleontological monitor will recover some of the matrix and sift it through wire mesh screens on-site to look for smaller fossils. If evidence of micro-fossils is found in these "hand samples," then additional bulk samples will be collected and taken to the paleontological lab for processing and closer inspection. If fossils, a fossil bed, or potentially fossiliferous soils are encountered, the monitor will have the authority to halt or divert earthmoving activities from area so that a more thorough examination and recovery could be conducted.

Using either of these methods, any recovered paleontological assemblage from the area could provide information regarding the paleo-environment, paleo-lifeforms and relationships between paleo-organisms and/or other information important in the study of paleontology. By reporting the recovered resources, including detailed analyses and interpretations, impacts to the paleontological resource would be mitigated. Curating the recovered resources in an appropriate repository would ensure that they would be available for any additional future examination and study.

Implementing either one of these paleontological resource impact mitigation programs would allow the proposed project to proceed in compliance with CEQA provisions on paleontological resources.

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APPENDIX 1:
PERSONNEL QUALIFICATIONS

RON SCHMIDTLING, M.S.
Project Paleontologist

Education

1995	M.S., Geology, University of California, Los Angeles.
1991	Pasadena City College, Pasadena, California.
1985	B.A., Archaeology, Paleontology, Ancient Folklore, and Art History, University of Southern Mississippi, Hattiesburg.

Professional Experience:

2020-	Principal Paleontologist, CRM TECH, Colton, California.
2014-	Instructor of Earth Science, History of Life, Ecology, and Evolutionary Biology, Columbia College Hollywood, Reseda, California.
2013, 2015	Volunteer, excavation of a camarasaur and a diplodocid in southern Utah, Natural History Museum of Los Angeles County, California.
1993-2014	Consultant, Getty Conservation Institute, Brentwood, California.
	• Geological Consultant on the Renaissance Bronze Project, characterizing constituents of bronze core material;
	• Paleontological Consultant for Antiquities/Conservation, identifying the foraminifera and mineral constituents of a limestone torso of Aphrodite;
	• Scientific Consultant on the Brentwood Site Building Project, testing building materials for their suitability in the museum galleries.
1999-2001	Archaeological and Paleontological Monitor, Michael Brandman Associates, Irvine, California.
1997	Department of Archaeology, University of California, Los Angeles.
1994	Scientific Illustrator and Teaching Assistant, Department of Earth and Space Sciences and Department of Biological Sciences, University of California, Los Angeles.

Memberships

AAPS (Association of Applied Paleontological Sciences), USA; CSEOL (Center for the Study of Evolution and the Origin of Life), Department of Earth Sciences, University of California, Los Angeles.

Publications and Reports

Author, co-author, and contributor on numerous paleontological publications and paleontological resource management reports.

CHARLY O'KEEFE SHELTON, B.A.
Staff Paleontologist/Paleontological Surveyor

Education

2017	B.A., Anthropology, California State University, Los Angeles.
2016	Archaeological Field School, Department of Anthropology, California State University, Los Angeles.
2012	Geology and Anthropology Studies, Pasadena City College, Pasadena.

Professional Experience

2019-	Project Archaeologist/Paleontologist, CRM TECH, Colton, California.
2014	Paleontological Consultant, Los Angeles County Sherriff 's Department, Montrose Search and Rescue Team.
2012-	Filmmaker, Cinematic Choice/Fulcrum, La Crescenta, California
2009-	Reporter/Editor/Tech Officer, *Crescenta Valley Weekly*, La Crescenta, California.
2005-2008	Field Excavation Crew Member, Department of Paleontology, Natural History Museum, Los Angeles.
2005	Lecturer, various venues in the Los Angeles area. • Paleontology/Geology lectures for all ages, specializing in interactive teaching displays for elementary school children.
2003-2009	Reporter, *Crescenta Valley Sun* (*Los Angeles Times* insert), La Cañada.

Publications

2009-present	Weekly publication in Travel and Leisure Section, *Crescenta Valley Weekly*.

Memberships

The Archaeological Conservancy; American Association for the Advancement of Science.

MICHAEL HOGAN, PH.D.
Principal Investigator

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2021	"An Introduction to Geoarchaeology: How Understanding Basic Soils, Sediments, and Landforms can make you a Better Archaeologist." SAA Online Seminar.
2002	"Section 106—National Historic Preservation Act: Federal Law at the Local Level," UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Field Director/Project Archaeologist/Paleontologist, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U.C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U.C. Riverside.
1984-1998	Project Director, Field Director, Crew Chief, and Archaeological Technician for various southern California cultural resources management firms.

Research Interests

Paleo-environments, Paleo-Biodiversity, Evolutionary Relationships, Stratigraphic Relationships; Paleontological and Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture.

Paleontological and Cultural Resources Management Reports

Principal investigator for, author or co-author of, and contributor to numerous paleontological and cultural resources management study reports since 1986.

Memberships

Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

DANIEL BALLESTER, M.S.
Staff Paleontologist/Field Director

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.

2021 "An Introduction to Geoarchaeology: How Understanding Basic Soils, Sediments, and Landforms can make you a Better Archaeologist." SAA Online Seminar.
2007 Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.

- 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.
- Report writing, site record preparation, and supervisory responsibilities over all aspects of fieldwork and field crew. Manages and updates CRM TECH's GIS database, produces maps and extracts data using GIS. Manages field crews during paleontological and archaeological field surveys, testing and data recovery projects. Oversees work to ensure correct procedures.

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 Paleontologist/Archaeologist, CRM TECH, Riverside, California.
- Conducted paleontological and archaeological field surveys, excavations, and monitoring.

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 and Cultural Resources Management Reports

Co-author and contributor to numerous paleontological and cultural resources management reports since 2002.

APPENDIX 2

RECORDS SEARCH RESULTS

WESTERN SCIENCE CENTER

December 2, 2021

CRM TECH
Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Dear Ms. Gallardo,

This letter presents the results of a record search conducted for the Meadowbrook Project Crescent Gardens Cemetery in the city of Lake Elsinore, Riverside County, California. The project site is located on 111.23 acres of land west of Irma Street and between Wallace Street and Mauricio Street in Section 22, Township 5 South, and Range 4 West on the *Lake Elsinore, CA* USGS 7.5 minute quadrangle.

The geologic units underlying the project area are mapped primarily as tonalite dating to the Cretaceous period with segments of Mesozoic phyllite along the eastern half of the project area and a small section of old alluvial channel deposits in the southeast corner (Morton & Weber, 2003). Tonalite and phyllite units are considered to be of low paleontological sensitivity, however the small segment of alluvial channel deposits are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a one mile radius, but does have many fossil localities throughout Riverside County in similarly mapped alluvial units.

Should excavation activity associated with the development of the project area extend into the Pleistocene alluvial units, paleontological resources would be possible. However, under current project parameters, and with the geologic units described, it would be unlikely for fossil material to be preserved in the tonalite and phyllite units that make up the majority of the project area.

If you have any questions, or would like further information, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

Crescent Garden Cemetary - Meadowbrook Project

Project area, one mile radius, geologic mapping, and any WSC fossil localities.

Legend

- Kgt: Tonalite (Cretaceous)
- Mzp: Phyllite (Mesozoic)
- Project area and one mile radius
- Qoa: Old alluvial channel (Middle to Late Pleistocene)

Meadowbrook

Greenwald Ave

Railroad

Google Earth

1 mi

N