

CULTURAL AND PALEONTOLOGICAL RESOURCES ASSESSMENT FOR THE LONGBOAT SOLAR PROJECT, SAN BERNARDINO COUNTY, CALIFORNIA

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Cogstone Project Number: 3097

Type of Study: Cultural Resources Phase I and Extended Phase I Study

Paleontological Localities: None

Archaeological Sites: P-36-002294

USGS 7.5' Topographic Quadrangles: Barstow 7.5'

Area: ~233.3 acres

Key Words: Holocene alluvium, Holocene wash sediments of the Mojave River, Holocene windblown sand, PFYC 2 – low sensitivity; Pleistocene alluvial sediments, PFYC 3a – moderate to patchy sensitivity, Mojave Desert

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EXECUTIVE SUMMARY

The purpose of this document is to identify potential adverse impacts to cultural and paleontological resources resulting from construction of the proposed Longboat Solar Project (Project). The proposed site is situated in the Desert Region of the County, near the City of Barstow and the Lenwood community.

No fossil localities are known from the Project nor a one-mile radius. The Project is mapped as Holocene alluvium, active wash sediments of the Mojave River, and wind-blown sand deposits. These deposits may be underlain by older Pleistocene sediments at depth.

A search for archeological and historical records was completed by Cogstone on August 7, 2014 at the San Bernardino Archaeological Information Center. The record search covered a one-mile radius around the Project boundaries. The results of these studies indicate that 17 cultural resources were previously identified and documented within a one-mile radius of the Project. These resources include five prehistoric sites, seven prehistoric isolates, a multicomponent site, and four historical built environment resources.

One of these resources, P-36-002294, was previously recorded on the Project. This prehistoric site was originally recorded in 1949 and subsequently updated in 2003 and 2007. The 1949 and 2003 site boundaries are mapped as covering approximately 119 acres of the Project. However, a 2007 survey determined that the 1949/2003 site boundaries were no longer correct due to extensive disturbance from agricultural activities and that only a remnant of the site located along flood control property south of the Project still remains.

A sacred lands record search was requested by Cogstone staff from the Native American Heritage Commission on August 1, 2014. The Commission responded on September 4, 2014 that there were no known cultural resources within a half mile and recommended contacting seven Native American individuals or tribes. Cogstone mailed a letter to each contact on September 9, 2014 requesting any information on heritage resources. No responses were received as of the date of this report.

A surface assemblage was present in the northwest quadrant of the Project and consisted of a sparse scatter of approximately 20 artifacts. Subsurface excavations in this area recovered five artifacts along with waterworn cobbles. The only other surface find on the Project was a single flake and the only other subsurface find was a metal plate. Modern refuse such as occasional modern glass fragments, all-aluminum beverage cans, or wire and railroad tie fences were observed within the Project. Within the Project, two rectangular earthen reservoirs stand. The entire Project has been disked for farming for many years and has also been used for pasturage by dairy cattle.

Conclusions. No fossils are known within the Project nor a one-mile radius and therefore the County Paleontologic Resources Overlay does not apply to the Project. The Holocene alluvium, active wash, and wind-blown sand deposits that cover the surface of the Project are too young in age to contain fossils. However, these young sediments may be underlain by paleontologically

sensitive Pleistocene alluvial sediments. No paleontological monitoring is recommended unless excavation below five feet encounters Pleistocene sediments.

An archaeological site recorded in the archaeological resources inventory of SBAIC was mapped on the Project. Consistent with the County Cultural Resources Overlay appropriate activities which included survey, mapping, subsurface excavation and site recordation were performed and this report was prepared. Results concurred with the 2007 site record update which stated that most of the site had been destroyed by agriculture and only a small intact remnant of the site still exists south of the Project on property owned by a flood control agency.

One highly disturbed surface and subsurface locus was identified in the northwest quadrant of the property. The work verified that no intact cultural deposits are present and there is no potential to contribute new information to prehistory (CRHR criterion 4). The sole artifact collected was a chert projectile point found on the surface in the northwest quadrant. This artifact will be curated at the San Bernardino County Museum. No Native American monitoring is required as the Project is not within a high sensitivity Cultural Resources Preservation Overlay District. As the Project will not create adverse impacts to a significant cultural resource, no mitigation is required.

INTRODUCTION

PURPOSE OF STUDY

The purpose of this document is to identify potential adverse impacts to cultural and paleontological resources resulting from construction of the proposed Longboat Solar Project (Project). The proposed site is situated in the Desert Region of the County, near the City of Barstow and the Lenwood community (Figure 1). This study was requested by the County of San Bernardino to meet their responsibilities as the lead agency under CEQA.

PROJECT DESCRIPTION AND LOCATION

The Project is a proposed solar energy facility that would generate up to 20 megawatts (MW) of alternative current electricity using single axis tracker solar photovoltaic (PV) technology within an approximately 228-acre portion of 345 acres of previously disturbed agricultural lands. The Project is located on unincorporated lands to the immediate northwest of the City of Barstow, and north of the community of Lenwood, in San Bernardino County, California. State Route 58 bounds the site to the east and north.

The Project would connect to the electrical grid by way of a line tap on an existing Southern California Edison (SCE) 33kV transmission line located adjacent to the site along Community Boulevard., at which point the power generated from the Project changes ownership from the project developer to SCE. SCE will undertake distribution line upgrades, repairs and modifications along the 33kV lines to SCE's Tortilla Substation located in the City of Barstow approximately 4.5 miles east of the Project site. SCE upgrade work will consist of eleven pole replacements, re-conductoring of 2900 feet of electrical line and several minor substation upgrades.

Community Boulevard transects the north and south portions of the Project site. The north and south sites will be electrically connected by underground conduit beneath Community Boulevard. The Project will also receive its data service from the existing Verizon telecom lines that are currently in the public right of way adjacent to the Project.

The Project is located in unincorporated San Bernardino County, approximately 1.6 miles north of the community of Lenwood and immediately northwest of the City of Barstow. The Project site is associated with County Assessor's Parcel Numbers (APNs) 0497-071-40, 0497-121-28, 0497-101-05, and 0497-101-14. The Project site is located within the U.S. Geological Survey (USGS) 7.5-minute Barstow quadrangle (Township 10 North, Range 2 West, Section 33 and Township 9 North, Range 2 West, Sections 4 and 5). The site is mostly flat with the elevation only increasing slightly from 2,167 feet above mean sea level (MSL) in the eastern portion of the site to 2,185 feet above MSL in the western portion. The site is bounded to the north and east by State Highway 58, Community Boulevard bounds much of the northern boundary and the south is bounded by undeveloped land adjacent to the Mojave River.

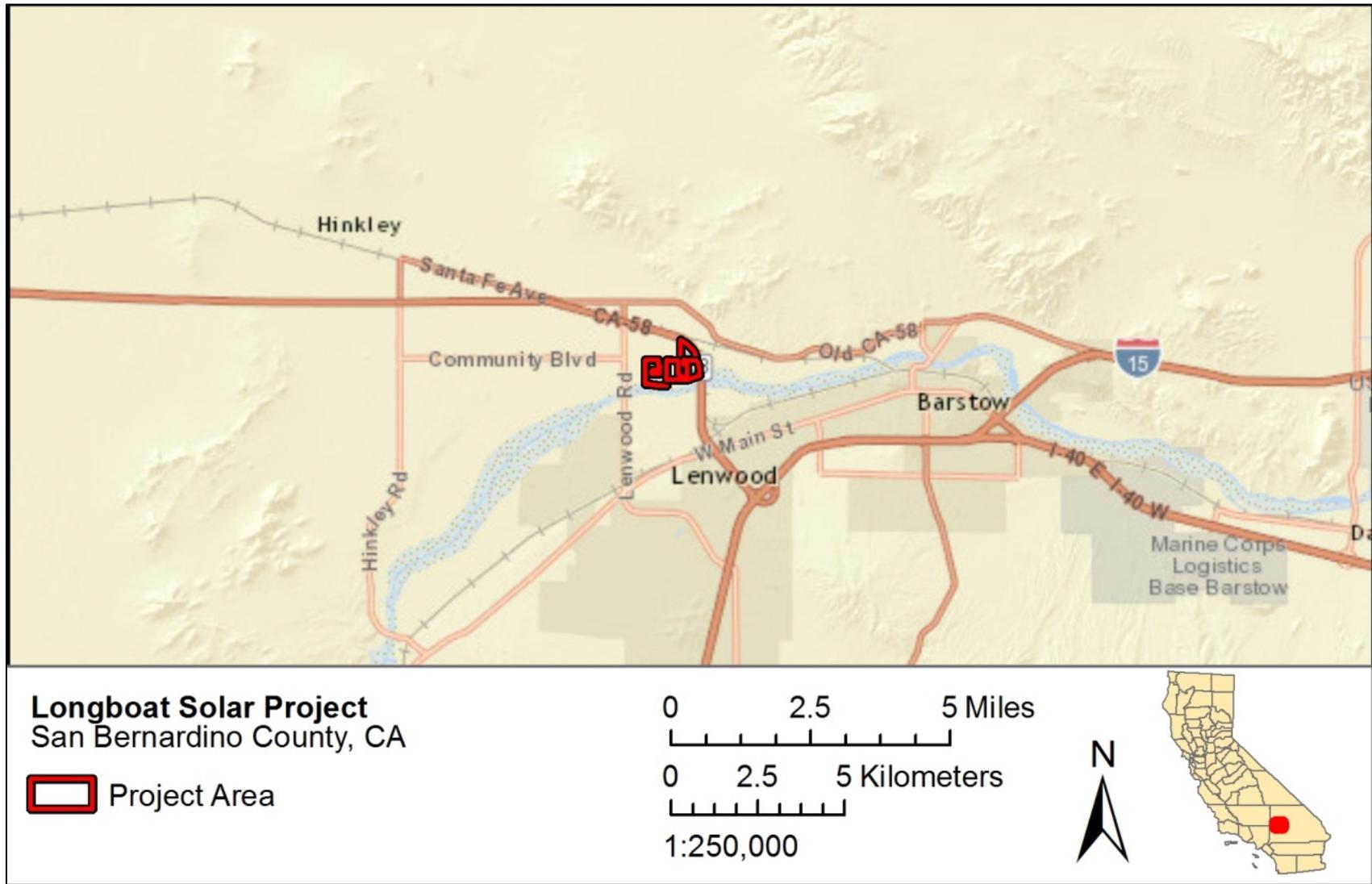


Figure 1. Project Vicinity

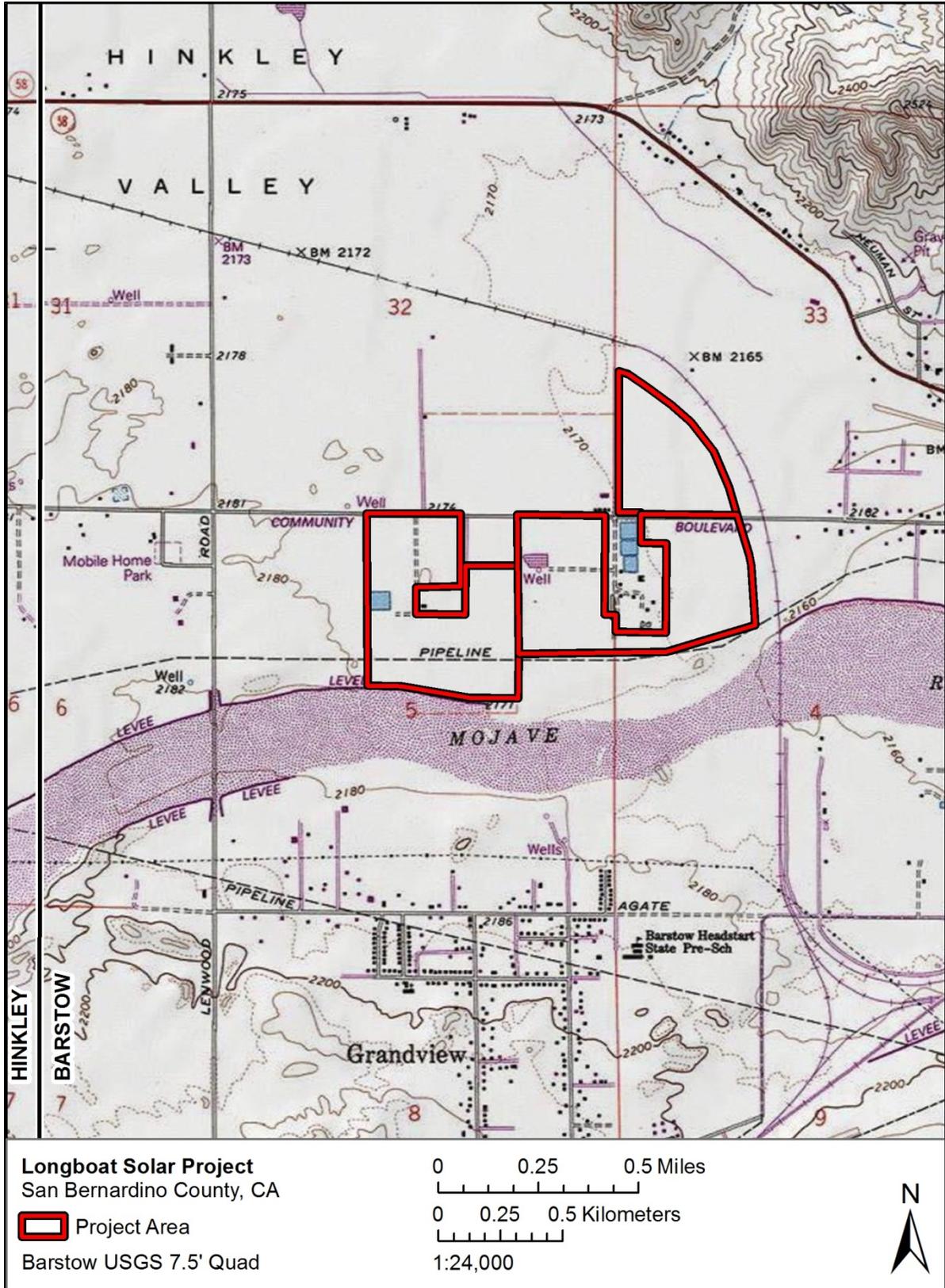


Figure 2. Location Map

PROJECT PERSONNEL

Cogstone Resource Management Inc. (Cogstone) conducted the cultural resources studies. Key personnel resumes are provided in Appendix A. Sherri Gust served as the Principal Investigator for the Project, supervised all work, and edited this report and prepared the recommendations. Gust is a Registered Professional Archaeologist and Qualified Principal Paleontologist. She has a Master of Science in Anatomy (Evolutionary Morphology) from the University of Southern California, a Bachelor of Science in Anthropology from the University of California at Davis and over 35 years of experience in California.

Molly Valasik and Dustin Keeler prepared sections of this report pertaining to cultural resources and prepared all maps. Valasik is a Registered Professional Archaeologist and holds a Master of Arts in Anthropology from Kent State University in Kent, Ohio. She has more than four years of experience in California archaeology. Keeler is a Registered Professional Archaeologist. He has Doctor of Philosophy and Master of Arts degrees in Anthropology from State University of New York at Buffalo, a Bachelor of Arts in Anthropology from Arizona State University, cross-training in paleontology, and over 14 years of experience. Courtney Richards wrote portions of this report related to paleontology. Richards has a Master of Science in Biological Sciences with an emphasis in Paleontology from Marshall University, a Bachelor of Science in Earth and Space Sciences from the University of Washington, and over three years of experience in California paleontology and geology.

Lynn Furnis supervised and participated in the extended identification field effort and prepared that section of this report. Furnis is a Registered Professional Archaeologist, with an Master of Arts in Anthropology from the University of Nevada, Reno, with more than 30 years of experience. Field crew included Lindsay Porras and Erica Hatch. Lindsay Porras has a Bachelor of Arts in Anthropology from the University of Nevada, Reno and more than six years of professional experience in California. Erica Hatch has a Bachelor of Arts in Anthropology from the University of Tennessee, Knoxville and nine months of experience.

REGULATORY ENVIRONMENT

STATE LAWS AND GUIDANCE

CALIFORNIA ENVIRONMENTAL QUALITY ACT

California Environmental Quality Act (CEQA) states that: It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA Guidelines state that CEQA is intended to: Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The State Historical Resources Commission has designed this program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The Register is the authoritative guide to the state's significant historical and archeological resources.

The California Register of Historical Resources (CRHR) program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under the California Environmental Quality Act.

To be eligible for listing in the California Register, a cultural resource must meet at least one of the following criteria:

- 1) Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States
- 2) Associated with the lives of persons important to local, California or national history
- 3) Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values
- 4) Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance. Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

PUBLIC RESOURCES CODE

Public Resources Code (PRC) Section 5097.5 states that no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section,

"public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

COUNTY OF SAN BERNARDINO ORDINANCES

CULTURAL RESOURCES ORDINANCE

Cultural resources are protected by county ordinance (4011) intended to provide for the identification and preservation of important archaeological and historical resources. This is necessary because many of the resources are unique and non-renewable and the preservation of cultural resources provides a greater knowledge of County history, thus promoting County identity and conserving historic and scientific amenities for the benefit of future generations.

The Cultural Resources Preservation Overlay may be applied to areas where archaeological and historic sites that warrant preservation are known or are likely to be present (Development Code §82.12.020). Specific identification of known cultural resources is indicated by listing in one or more of the following inventories: (a) California Archaeological Inventory; (b) California Historic Resources Inventory; (c) California Historical Landmarks; (d) California Points of Historic Interest; and/or (e) National Register of Historic Places.

The application for a project proposed within the Cultural Resources Preservation Overlay shall include a report prepared by a qualified professional that determines through appropriate investigation the presence or absence of archaeological and/or historical resources on the project site and within the project area, and recommends appropriate data recovery or protection measures (Development Code §82.12.030). The measures may include:

- (a) Site recordation;
- (b) Mapping and surface collection of artifacts, with appropriate analysis and curation;
- (c) Excavation of sub-surface deposits when present, along with appropriate analysis and artifact curation; and/or
- (d) Preservation in an open space easement and/or dedication to an appropriate institution with provision for any necessary maintenance and protection; and/or
- (e) Proper curation of archeological and historical resource data and artifacts collected within a project area pursuant to federal repository standards. Such data and artifacts shall be curated at San Bernardino County Museum.

In compliance with Development Code §82.12.040:

- (a) The proposed project shall incorporate all measures recommended in the report required by Section 82.12.030.
- (b) Archaeological and historical resources determined by qualified professionals to be extremely important should be preserved as open space or dedicated to a public institution when possible.

If Native American cultural resources are discovered during grading or excavation of a development site of the site is within a high sensitivity Cultural Resources Preservation Overlay District, the local tribe will be notified (Development Code §82.12.050). If requested by the

tribe, a Native American Monitor shall be required during such grading or excavation to ensure all artifacts are properly protected and/or recovered.

PALEONTOLOGICAL RESOURCES ORDINANCE

Paleontological resources are protected by county ordinance (4011). A Paleontologic Resources Overlay is created in recognition of the following:

- (a) The identification and preservation of significant paleontologic (fossil) resources is necessary as many such resources are unique and non-renewable.
- (b) Preservation of such paleontologic resources provides a greater knowledge of County natural history, thus promoting County identity and conserving scientific amenities for the benefit of future generations.

The Paleontologic Resources Overlay may be applied to those areas where paleontologic resources are known to occur or are likely to be present (Development Code §82.20.020). Specific identification of known fossil occurrences or potential paleontologic sensitivity is indicated by listing in the locality files of one or more of the following institutions:

- (a) San Bernardino County Museum;
- (b) University of California; and
- (c) Los Angeles County Museum.

When a land use is proposed within a Paleontologic Resources Overlay, the following criteria shall be used to evaluate the project's compliance with the intent of the overlay (Development Code §82.20.030).

- (a) Field survey before grading. In areas of potential but unknown sensitivity, field surveys before grading shall be required to establish the need for paleontologic monitoring.
- (b) Monitoring during grading. A project that requires grading plans and is located in an area of known fossil occurrence within the overlay, or that has been demonstrated to have fossils present in a field survey, shall have all grading monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Paleontologic monitors shall be equipped to salvage fossils as they are unearthed to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring is not necessary if the potentially-fossiliferous units described for the property in question are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.
- (c) Recovered specimens. Qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils is essential in order to fully mitigate adverse impacts to the resources.
- (d) Identification and curation of specimens. Qualified paleontologic personnel shall identify and curate specimens into the collections of the Division of Geological Sciences, San Bernardino County Museum, an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in

effective paleontologic mitigation and CEQA compliance. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until curation into an established museum repository has been fully completed and documented.

- (e) Report of findings. Qualified paleontologic personnel shall prepare a report of findings with an appended itemized list of specimens. A preliminary report shall be submitted and approved before granting of building permits, and a final report shall be submitted and approved before granting of occupancy permits. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into the collections of the San Bernardino County Museum, will signify completion of the program to mitigate impacts to paleontologic resources.
- (f) Mitigation financial limits. In no event shall the County require the applicant to pay more for mitigation as required by Subsections (b), (c), and (d), above within the site of the project than the following amounts:
 - (1) One-half of one percent of the projected cost of the project, if the project is a commercial or industrial project;
 - (2) Three-fourths of one percent of the projected cost of the project for a housing project consisting of one unit; and
 - (3) If a housing project consists of more than one unit, three-fourths of one percent of the projected cost of the first unit plus the sum of the following:
 - (A) \$200 per unit for any of the next 99 units;
 - (B) \$150 per unit for any of the next 400 units; and
 - (C) \$100 per unit for units in excess of 500.

Qualified professional paleontologists that are employed to conduct field surveys or monitor grading shall meet the following criteria to qualify to perform work within the County jurisdiction (Development Code §82.20.040):

- A. Education: An advanced degree (Masters or higher) in geology, paleontology, biology or related disciplines (exclusive of archaeology).
- B. Professional experience: At least five years professional experience with paleontologic (not including cultural) resources, including the collection, identification and curation of the resources.

PROFESSIONAL GUIDANCE ON FOSSIL SIGNIFICANCE

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends 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 interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
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.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important¹.

METHODS

PALEONTOLOGICAL RESOURCES

A search for known records of fossil localities was conducted by the San Bernardino County Museum and by Cogstone staff in both online and published sources. In addition, the project was mapped onto geological maps and the geological units represented were briefly researched to establish context. Based on the information from these sources, paleontological sensitivity analysis was performed using the Potential Fossil Yield Classification system² (PFYC). This provided an estimate of the likelihood of the project sediments producing fossils.

CULTURAL RESOURCES

A search for known archeological and historical records was completed by Cogstone on August 7, 2014 at the San Bernardino Archaeological Information Center (SBAIC) and covered a one-mile radius around the Project boundary. Historical maps, government land records and other sources were also consulted for information. A sacred lands search was requested from the Native American Heritage Commission (NAHC) on August 1, 2014. The NAHC responded on

1 Scott, E. and K. Springer, 2003, CEQA and fossil preservation in southern California. *The Environmental Monitor*, Winter: 4-10, 17.

2 Bureau of Land Management, 2007, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands.

http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/20080/im_2008-009.html

September 4, 2014. All Native American tribes and individuals recommended for contact regarding heritage resources were contacted by letter on September 9, 2014.

Fieldwork consisting of intensive pedestrian survey and subsurface exploration occurred October 20 through October 23, 2014. Survey transects were walked with 10-15 meter spacing over the entire Project and those portions of the mapped site which were outside the Project in both 2003 and 2007 site record updates. Subsequently, 16 locations within the Project were randomly selected for mechanical trenching to determine if any intact cultural features were present below the surface. Mechanical trenching was proposed by the Cultural Principal Investigator due to the sandy sediments as augers or shovel test pits would have collapsed losing all depth information. Four trenches were placed in the vicinity of a surface find consisting of a projectile point. At each location an 18 foot long, 3 foot wide trench was dug with each numbered and divided into A, B and C segments of six feet in length. Excavated soils from each six inch level of each segment were placed into separate dirt piles (Figure 3). A sample consisting of two five gallon buckets of sediment were screened from each dirt pile. If negative for cultural materials, the trench was backfilled. If positive for cultural materials, the remainder of the dirt from that level was screened. Upon conclusion of exploration, all trenches were backfilled and the surface smoothed. Documentation of the fieldwork utilized a handheld global positioning system (GPS) receiver, written forms, hand-drawn field sketch maps and photographs. An update to the existing State of California Department of Parks and Recreation (DPR 523 series) site record form was prepared for the known site. No new site records were needed.



Figure 3. Trench 3 with piles from six inch levels, view to north

BACKGROUND

PALEONTOLOGICAL SETTING

The Project lies within the Mojave Desert Geomorphic Province which consists of fault bounded isolated mountain ranges and large expanses of desert. The Project lies north of the San Andreas Fault Zone and east of the Garlock Fault Zone, both of which impact the alignment of the nearby mountain ranges (Wagner 2002). The Project is mapped as Holocene alluvium, active wash sediments of the Mojave River, and wind-blown sand deposits³ (Figure 4). These deposits may be underlain by older, Pleistocene sediments at depth.

HOLOCENE ALLUVIUM

The majority of the Project is mapped as Holocene and possible latest Pleistocene (less than approximately 12,000 years old) alluvium⁴. Sediments consist of unconsolidated, clay to boulder sized stream, fan, and basin deposits (Q, Figure 3).

HOLOCENE ACTIVE WASH DEPOSITS

The southernmost portion of the Project is mapped as Holocene (less than 11,000 years old) active deposits of modern streams and washes⁵ (Qw, Figure 3). Sediments are unconsolidated, silt to boulder sized stream deposits derived from the Mojave River and are likely 7,000 years old to modern.

HOLOCENE WIND-BLOWN SAND

The southwest corner of the Project is mapped as Holocene (less than 11,000 years old) fine grained, well sorted sand⁶ (Qs, Figure 3). These sand dunes were deposited by prevailing westerly winds⁷.

PLEISTOCENE ALLUVIAL SEDIMENTS

Potentially underlying the sediments mapped at the surface of the Project are alluvial deposits of the ancestral Mojave River and well dissected, distal alluvial fan⁸ (Qo; Qod). These weakly to moderately consolidated silt to boulder sized stream and fan deposits are Pleistocene in age (2.59 million to 11,700 years old).

3 Bortugno, E. J. and T. F. Spittler, 1986, Geologic map of the San Bernardino quadrangle. *California Division of Mines and Geology Regional Geologic Map Series Map 3a*. Scale 1:250,000.

4 ibid

5 ibid

6 ibid

7 Dibblee, T.W., 2008, Geologic Map of the Barstow and Daggett Quadrangles, San Bernardino County, California. *Dibblee Geological Foundation Map DF-393*

8 Bortugno, E. J. and T. F. Spittler, 1986, Geologic map of the San Bernardino quadrangle. *California Division of Mines and Geology Regional Geologic Map Series Map 3a*. Scale 1:250,000.

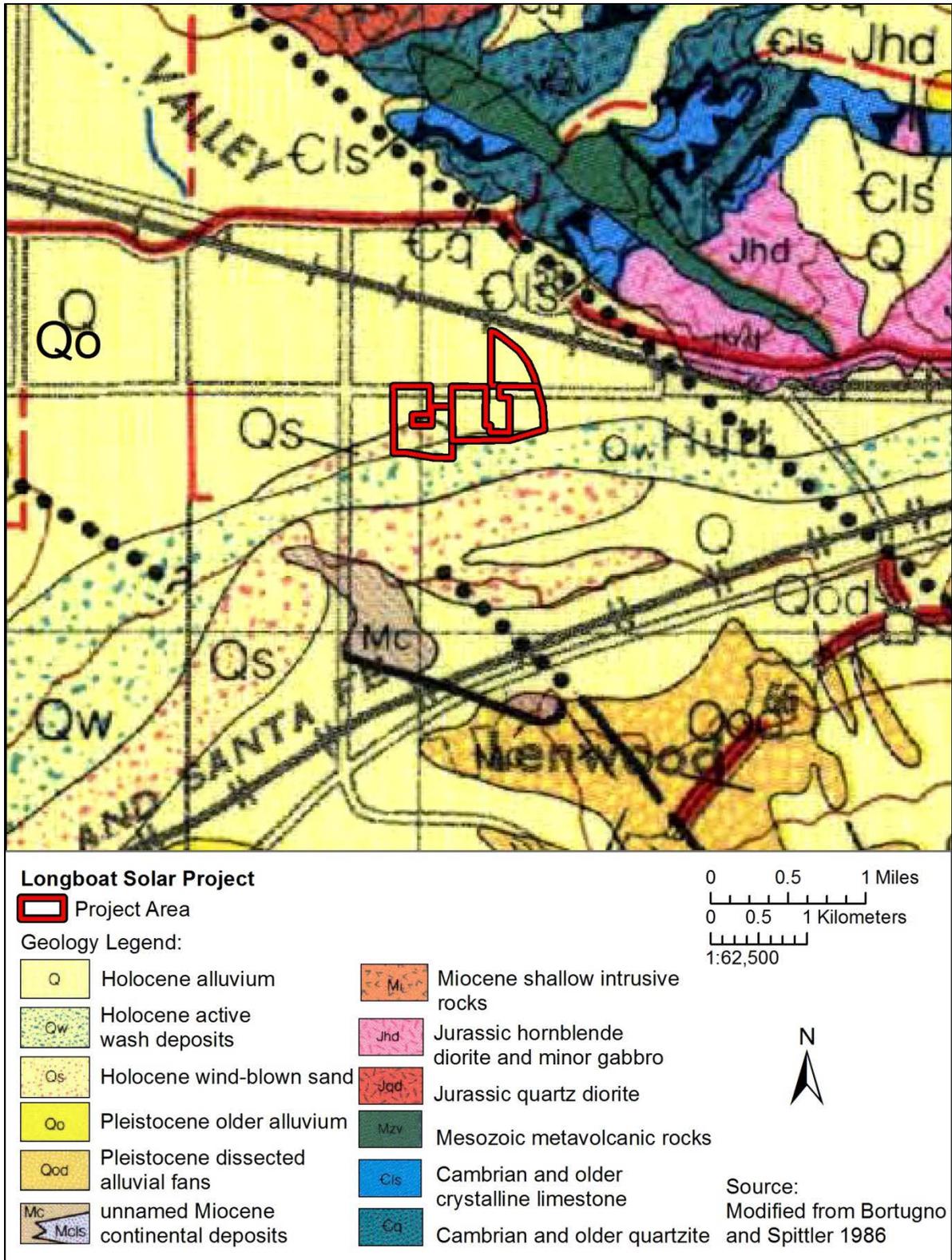


Figure 4. Longboat Solar Project Geology

PREHISTORIC SETTING

The Mojave Desert cultural chronology divides the cultural sequence into seven cultural complexes: Paleo-Indian, Lake Mojave, Pinto, Deadman Lake, Gypsum, Rose Spring and Late Prehistoric. The cultural complexes denote specific archaeological manifestations that existed during and across temporal periods⁹ (Table 1). The timeframes in the table and text are adjusted for modern calibration curves for radiocarbon dates.

Table 1. Cultural Chronology for the Mojave Desert

Temporal Period	Cultural Complex	Years (calibrated years before Christ [cal BC] to calibrated years Anno Domini [cal AD])	Marker Artifacts
Pleistocene	Paleo-Indian	about 10,000–8,000 cal BC	Fluted points (Clovis)
Early Holocene	Lake Mojave Complex	about 8,000–6,000 cal BC	Stemmed points (Lake Mojave and Silver Lake)
Middle Holocene	Pinto Complex	7,000–3,000 cal BC	Pinto Series points
	Deadman Lake Complex	7,000–3,000 cal BC	Contracting stemmed and leaf-shaped points
Late Holocene	Gypsum Complex	2,000 cal BC –cal AD 200	Gypsum and Elko Series points
	Rose Spring Complex	cal AD 200–1,100	Rose Spring and Eastgate Series points
	Late Prehistoric Complex	cal AD 1,100–Historic Contact	Desert and Cottonwood Series points

NATURAL ENVIRONMENT DURING PREHISTORIC TIMES

The Mojave Desert is characterized by broad swaths of relatively unproductive habitat punctuated by resource patches of uncertain value unlike the rest of the Great Basin which shows strong vertical zoning in plant communities, more regular water sources and greater uniformity in spatial and temporal distribution of subsistence resources. As such, particular subregions can vary significantly across not only seasons but between years and longer intervals. Modern climatic data suggest that period of reduced rainfall in one sector of the desert may have been balanced by enhanced conditions in another area.

During the Late Pleistocene (about 18,000 to 8,000 cal BC), conditions in the Mojave Desert were generally cool and wet. During the Early Holocene (about 8,000 to 6,000 years cal BC),

⁹ Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen, 2007, Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 229-245. Altamira Press, Lanham, MD.

conditions were somewhat cooler and moister than today. The Middle Holocene (about 6,000 to 3,000 years cal BC) witnessed a much warmer and drier climate than modern times. The climate became moderately cooler and wetter again during the Late Holocene (about 3,000 years cal BC to present), punctuated with periods of drought.

Short and long term trends in environmental productivity must have had strong influences on the mode and tempo of occupation strategies affecting local and regional land use patterns. To the extent that prehistoric populations could monitor the location and magnitude of storm tracks or precipitation levels, they must have been able to predict which habitats and resources would produce the highest net foraging returns. It is possible that large tracts of the desert were effectively abandoned or rarely visited during particular periods of time. In some cases, these climatic changes are thought to have been coincident with major technological or subsistence adjustments

PALEO-INDIAN

The Clovis Complex (about 10,000 and 8,000 cal BC; Table 1) is marked by characteristic fluted projectile points of the same name. Heavier concentrations of fluted points exist in the north and west than in other sectors of the Mojave. Due to the sparse evidence, the nature of Paleo-Indian cultural systems remains poorly defined. Most likely, groups were highly mobile, living in small, temporary camps near former permanent water sources.

LAKE MOJAVE COMPLEX

The Lake Mojave Complex (about 8,000 and 6,000 cal BC; Table 1) is the only coherent pattern identified during the Early Holocene. This complex is characterized by Great Basin Stemmed series projectile points (Lake Mojave and Silver Lake) and abundant bifaces, as well as steep-edged unifaces, crescents, occasional cobble-core tools and ground stone implements. The presence of marine shell beads likewise implies wide spheres of interaction. Less frequent occurrences of ground stone tools with inconsistent and ephemeral wear patterns, suggest plant resources were a relatively minor part of the diet.

Fine-grained basalt and metavolcanics are the preferred material for bifaces/points, simple flaked tools and debitage. However, cryptocrystalline silicates (chert, jasper, chalcedony) are often the preferred material for formal flaked tools and cores/core tools. The Lake Mojave pattern appears to reflect a forager-like subsistence strategy, organized around relatively small social units utilizing rich resource patches in a host of environmental situations.

PINTO COMPLEX

The Pinto Complex, dating from about 7,000 to 3,000 cal BC, is widely represented throughout the Mojave Desert. Like Lake Mojave, Pinto complexes are characterized by extensive use of fine-grained basalt and metavolcanics rocks to produce bifacial and unifacial tools. The signature stemmed, indented-base Pinto series projectile points show high levels of blade reworking and appear to have been used as tips for thrusting spears rather than as darts.

Milling tools for processing plant foods are moderately abundant in nearly all known Pinto deposits and sometimes occur in high frequency. Faunal remains suggest there was an increase in the reliance on small animals during the Pinto Complex.

The presence of substantial cultural deposits suggests establishment of residential bases occupied for lengthy periods by multiple families. Access to plant resources may have determined the placement of these centralized sites, from which the occupants made logistical forays to collect other resources.

DEADMAN LAKE COMPLEX

The Deadman Lake Complex, dating from about 7,300 to 3,000 cal BC, consists of artifacts characterized by small-to-medium-size contracting stemmed or lozenge-shaped points, battered cobbles and core tools, milling implements, simple flake tools, and bifaces. Shell beads are from both the Sea of Cortez and the Pacific Coast.

Plant processing involved extensive crushing or pulping activities, as evidenced by the frequent presence of milling implements and battered cobbles. Faunal assemblages are dominated by small animals, similar to Pinto Complex sites. Subtle differences may indicate different populations utilized lower versus higher elevations in various seasons.

GYPSUM COMPLEX

The Gypsum Complex, dating between about 2,000 cal BC and about AD 200, is the earliest of the Late Holocene cultural complexes recognized in the Mojave Desert. A wide range of diagnostic medium-to-large dart points, such as corner-notched (Elko), concave base (Humboldt) and well-shouldered contracting-stemmed (Gypsum) forms, characterize the archaeology of this period. Manos and metates continued to be used, but mortars and pestles first appear in the archaeological record in Gypsum Complex sites.

Cultural materials include rock art (Coso petroglyphs), paint, and quartz crystals, which are indicative of ritual activities^{10 11} and an increase in trade and social complexity. Faunal remains indicate small and medium-size animals were exploited (artiodactyls, lagomorphs, and rodents). Site locations indicate subsistence and settlement patterns may have been dependent on streamside settings, particularly during the earlier, wetter part of this period.

ROSE SPRING COMPLEX

The Rose Spring Complex, dating from cal AD 200 to AD 1,100, represents the introduction of smaller projectile points utilized for bow and arrow technology in the Mojave Desert. The Rose Spring Complex includes Eastgate and Rose Spring series of projectile points. Typically these points are made of obsidian from the Coso Volcanic Field in Inyo County. Known sites in the western Mojave contain well-developed midden deposits, and in addition to the dramatic change in projectile point types, artifact assemblages typically include stone knives, drills, pipes, milling implements, bone awls, marine shell ornaments, and large quantities of obsidian. Faunal remains indicate a dependence on hunting of small-to-medium-size game, (lagomorphs and rodents). Early Rose Spring Complex sites typically lie adjacent to permanent water sources, including lakeshores and springs. During these climatic conditions, lake levels rose and juniper woodlands

10 Davis, C. A., and G. A. Smith, 1981, *Newberry Cave*. San Bernardino County Museum Association, Redlands, California.

11 Warren, Claude N. and Robert H. Crabtree, 1986, Prehistory of the Southwestern Area. In *Great Basin*, edited by Warren L. d'Azevedo, pp. 183-193. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

became more prominent. The large number of Rose Spring Complex village sites suggests there was a related population increase in this more productive ecological setting.

An unusually warmer and drier climatic period, known as the Medieval Climatic Anomaly (MCA), occurred during the Rose Spring Complex and lasted between about AD 800 to 1,350. The MCA coincides with a number of changes in culture in association with desiccation of lakes and other permanent water sources in the desert region. The large villages declined in number and size and settlement patterns shifted to more dispersed populations that could adapt to the decrease in resource availability. Also, instead of locating near-permanent water sources, sites became associated with ephemeral water sources.

LATE PREHISTORIC COMPLEX

After approximately cal AD 1,100, the environment continued to deteriorate, populations declined, new technologies were introduced, and a number of separate cultural complexes emerged that represented the prehistoric aspects of known ethnographic groups. Late Prehistoric occupation sites represent a variety of types including a few major villages with associated cemeteries, special purpose sites, and seasonal sites. Artifacts characteristic of this period in the Mojave Desert include buffware and brownware ceramics, Desert and Cottonwood series projectile points, shell and steatite beads, slate pendants, incised stones, and a variety of milling tools. Late Prehistoric milling implements included unshaped manos, milling stones, mortars, and pestles. Faunal remains indicate a dependence on hunting of small-to-medium-size game, (lagomorphs, deer, rodents, and reptiles).

During the later Rose Spring Complex, obsidian tool manufacture declined and use of cryptocrystalline silicates such as chert increased. Some artifacts, such as steatite containers, shell fishhooks, shell beads, other ornamental items, asphalt adhesive, perforated stones and bone tools, were traded from the coast to the interior. The assemblages from numerous sites found along the Mojave River suggest this was an increasingly important trade route, which was later noted during the historic era¹².

ETHNOGRAPHY

By the Late Prehistoric period, the Project was home to affiliated peoples known as the Vanyume (or Desert Serrano) and the Mountain Serrano¹³. Boundaries between these affiliate clans, if they existed, are poorly understood¹⁴.

12 Warren, Claude N., 1984, The Desert Region. In *California Archaeology*, edited by Michael J. Moratto, with contributions by David A. Fredrickson, Christopher Raven, and Claude N. Warren, pp. 339–430. Academic Press, New York.

13 Bean, Lowell and Charles Smith, 1978, Serrano. In *Handbook of North American Indians*, Volume 8, California, Smithsonian Institute, Washington D.C.

14 Earle, David, 1990, New Evidence on the Political Geography of the Antelope Valley and Western Mojave Desert at Spanish Contact. In *Archaeology and Ethnohistory of Antelope Valley and Vicinity*, B. Love and W. DeWitt (eds), Antelope Valley Archaeological Society, Lancaster, pages 91-119.

As with most desert tribes, settlements were near sources of water. The prehistoric residents were gatherers and hunters. Plant and animal resources in the desert were utilized for food and materials. Seasonal travel to exploit particular resources such as nuts in the foothills was common. Willow frames with tule hatching were used for houses and ramadas. Houses were used mostly for sleeping with most activities taking place outdoors under the ramada. Village sweathouses were typical. Religion and technology paralleled that of the closely-related tribes like the Cahuilla. Modern Vanyume and Serrano live on the Morongo or San Manuel Indian Reservations and in other southern California communities¹⁵.

HISTORIC SETTING

The first known Spanish explorer to enter the area that would become San Bernardino County was Friar Francisco Garcés, traveling from the Colorado River in 1776¹⁶. Garcés traveled as far as the Pacific Coast along an ancient trade route, known as the Mojave Trail, and he named the Mojave River *Arroyo de los Mártires* (River of the Martyrs). The river was later named *Rio de las Animas* (River of Souls) by Friar Joaquín Pasqual Nuez who accompanied the 1819 expedition of Lt. Gabriel Moraga. The San Bernardino Valley was named in 1810 by the Franciscan missionary Francisco Dumetz, who led a party from the San Gabriel Mission into the valley in observance of the Feast of Saint Bernardine of Siena.

During the Mexican Period, trappers and explorers from the eastern United States journeyed westward. Jedediah Strong Smith was among these early American adventurers. He traveled through the Project vicinity in 1826 and 1827 on what became known as the “Old Spanish Trail” and nicknamed the Mojave River the “Inconstant River” because it frequently disappeared beneath the surface. The Old Spanish Trail was named by Captain John C. Frémont in 1844. The trail followed routes established by Native Americans that connected perennial water sources and crossed the northern portion of the Project study area. Later, the Old Spanish Trail became known as the Mormon Road, from its use by missionary groups of the Mormon Church migrating south to establish a settlement in San Bernardino from their home in Salt Lake City (Bancroft 1863). In the 1850s and 1860s, the Eastern and Western Mojave Desert was home to ranchers raising beef and sheep; gold, silver, lead, and borax miners; and small settlements of homesteaders and merchants.

Not long after California joined the Union in 1850, the U.S. Congress directed the United States Army to send teams of skilled land surveyors to investigate potential railroad routes not only to connect the east to the west, but other routes as well. For two years, from 1853 to 1854, Lieutenant Robert Stockton Williamson of the United States Army Corps of Topographical Engineers and his team surveyed all the potential wagon road and railroad routes on the Pacific Coast between the Columbia River and San Diego (United States War Department).

15 Bean, Lowell and Charles Smith, 1978, Serrano. In *Handbook of North American Indians*, Volume 8, California, Smithsonian Institute, Washington D.C.

16 Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe, 2002, *Historic Spots in California*. 5th edition. Revised by Douglas E. Kyle. Stanford University Press, Palo Alto, California.

After the Central Pacific Railroad and Union Pacific Railroad collaborated to construct a transcontinental line to connect the east to the west in 1869, the newly formed Southern Pacific Railroad ran a line from its terminal in Lathrop (south of Sacramento), through the Tehachapi Mountains east to Barstow, and then south through the Cajon Pass to their switching station in Colton, San Bernardino County. The Southern Pacific Railroad connected northern and southern California in 1876.

In 1883, the Atchison Topeka, & Santa Fe Railway was building a line from Atchison, Kansas westward to Albuquerque, New Mexico, crossing Arizona at Needles, California, where it would merge its tracks with the California Southern Railroad at Barstow. The Atchison Topeka, & Santa Fe Railway built its line from Needles to Cadiz, through Amboy, Bagdad, Newberry to Barstow, on land that had been granted to the railroads by the U.S. Government. The San Bernardino Atchison Topeka, & Santa Fe Railway depot began operations in 1886, and was the largest ATSF rail yard west of Topeka.

PROJECT HISTORY

The project vicinity was very lightly settled until late in the 19th century. In 1905 the Southern Pacific (later the Atchison, Topeka and Santa Fe) Railroad purchased a portion of the Project property. The railroad extends along the eastern border of the Project. By 1957 a pipeline and several reservoirs were built within the Project property. A majority of the Project appears to have historically been used for farming with several residences in the vicinity.

RECORD SEARCHES

PALEONTOLOGICAL RESOURCES

A paleontological records search for the Project was requested from the San Bernardino County Museum (SBCM). No paleontological localities are recorded within the Project nor within a one-mile radius¹⁷. SBCM reports that their nearest localities are 1.5 miles south of the Project and that they do not contain diagnostic species¹⁸. Fossil localities are known regionally from Pleistocene (2.59 million - 11,700 years ago) deposits similar to those that underlie the Project at depth. These Pleistocene sediments have produced extinct taxa including large mammals such as mammoth, ancient camel, and western horse, as well as a large array of small, extant vertebrates including rodents, reptiles, fish, and birds¹⁹.

17 Scott, E. 2014, Paleontology Literature and Records Review, Longboat Solar Project, Mojave Desert, San Bernardino County, California. Appendix B.

18 *ibid*

19 Scott, K and S. Gust, 2010, Paleontological Identification Report and Paleontological Evaluation Report State Highway 58 Realignment near Hinkley, San Bernardino County, California. On file Caltrans District 8 and Cogstone.

CULTURAL RESOURCES

NATIVE AMERICAN CONSULTATION

A sacred lands record search was requested by Cogstone staff from the Native American Heritage Commission (NAHC) on August 1, 2014. The NAHC responded on September 4, 2014 that there were no known cultural resources within a half mile of the Project. The NAHC did recommend contacting seven Native American individuals or tribes indigenous to the surrounding area²⁰. Cogstone mailed a letter to each contact on September 9, 2014 requesting any information on heritage resources. No responses have been received as of the date of this report.

CALIFORNIA HISTORICAL RESOURCES INVENTORY SYSTEM

A search for archeological and historical records was completed by Cogstone on August 7, 2014 at the San Bernardino Archaeological Information Center (SBAIC). The record search covered a one-mile radius around the Project boundary. The record search indicated a total of 22 cultural resources investigations have been completed previously within a one-mile radius of the Project and no survey reports are on file for the Project (Table 2).

Table 2. Previous archaeological studies within a one-mile radius

Author	Reference Number SB-	Report Title	Date
San Bernardino County Museum Association (SBCMA)	166	Archaeological Survey of the Mojave River Aqueduct and Recharge Areas	1973
Lerch, Michael K. /SBCMA	1161	Cultural Resources Assessment of Tentative Tract No. 11874, Lenwood Area, San Bernardino County	1981
Lerch, Michael K. /SBCMA	1176	Cultural Resources Assessment of Tentative Tract No. 11961, Lenwood Area, San Bernardino County	1981
Lerch, Michael K. /SBCMA	1286	Cultural Resources Assessment of Tentative Tract No. 12171, Lenwood Area, San Bernardino County	1982
Lerch, Michael K. /SBCMA	1344	Cultural Resources Assessment of The Lenwood Village Large Scale Housing Project, Lenwood Area, San Bernardino County	1983
Weil, Edward B., Jill Weisbord, and E.R. Blakley /Applied Conservation Technology	1449	Cultural Resources Literature Search, Records Check, and Sample Field Survey for the California Portion of the Celeron/All American Pipeline Project	1984
Hammond, Stephen R.	1588	Archaeological Survey Report for the Realignment of State Route 58 Between Hinkley and Interstate Route 15 in the City of Barstow, San Bernardino County, CA	1986
Lerch, Michael K.	1649	Negative Resources Field Reconnaissance Minor Subdivision on 4 Acres (#122286004), Barstow rea	1987

²⁰ Appendix C

Author	Reference Number SB-	Report Title	Date
Shacklry, M. Steven, Rebecca McCorkle Apple, Jan Wooley, and Robert E. Reynolds /Dames & Moore	1734	Cultural and Paleontological Resources Survey US Sprint Fiber Optic Cable Project, Rialto, California to las Vegas, Nevada	1987
New Mexico State University /All American Pipeline Co.	1979	Cultural Resources Report for the All American Pipeline Project: Santa Barbara, California to McCamey, Texas and Additional Areasto the eats Along the Pipeline Route in Texas	1989
Macko, Michael E. /Macko Archaeological Consulting	2120	Results of An Intensive Archaeological Survey of Desert Rock Products Proposed Barstow Sand Pit in the Mojave River Channel, Section 3 and 4, T 9N, R 2W, SBBM, San Bernardino County, California	1990
Clay, Vickie and Larry L. Hause /Archeological Research Services	2233	An Archaeological Inventory of Two Proposed PG&E Pipeline Corridor Segments: Newberry Springs to Hinkley, 29.6 Mi by 200 feet (717.6 AC), San Bernardino County, CA and Arvin to Kern River 25.2 Mi by 200 Ft (600.9 AC), Kern County, CA	1990
Laska, Robin E. and Mark T. Swanson /Research Associates	2422	Cultural Resources Survey of the Mojave River Phase III Project	1991
Underwood, Jackson and Michael E. Macko /Macko Archaeologist Consulting	3007	Archaeological Survey of the Mojave River Aggregate Project, Barstow, San Bernardino County, CA	1994
Hammond, Stephen R. and David Bricker /Caltrans	3187	Second Supplemental Historic Property Survey Report for the Realignment of SR58 Between Hinkley and Barstow, San Bernardino County, CA 44PP	1994
Love, Bruce /CRM Tech	3728	Identification and Evaluation of Historic Properties: Lenwood Sewer Line Installation in the Community of Lenwood, San Bernardino County, CA25PP	2000
Bonner, Wayne H. and Marnie Aisle-Kay	4890	Cultural Resources Record Search and Site Vitus Results for Cingular Telecommunications Facility Candidate ES-005-01 (Agate Road), 26238 Agate Road, Barstow, San Bernardino County, California	2005
Lerch, Michael K.	5055	Reach 1B.2.3A Addendum: Cultural Resources Inventory and Evaluation of the Mojave River Pipeline Project Phelan to Minneola, San Bernardino County, California	1998
Dibble, Stephen D.	5279	An Evaluation of the Cultural Resources Potential of Three Parcels for the Proposed Annexation by the City of Barstow, San Bernardino County, California	2006
Lerch, Michael K.	6504	Class III Cultural Resources Inventory of the Mojave River Pipeline Project, Phelan to Minneola, San Bernardino County, California	1994
Eddy, John /Applied Earthworks	7548	State Route 58 Hinkley Expressway Project near Hinkley from 2.8 miles west of Hidden River Road and 0.7 miles east of Lenwood Road, San Bernardino County, California	2011
Underwood, Jackson and James H. Cleland	7570	Cultural Resources Survey of Line 1903, All American Pipeline Conversion Project from Mettler, Kern County to Daggett, San Bernardino County, California	2002

The results of these studies indicate that 17 cultural resources were previously identified and documented within a one-mile radius of the Project. These resources include five prehistoric sites, seven prehistoric isolates, a multicomponent site, and four historical built environment resources (Table 3, 4). One built environment resource, the historic Atchison Topeka and Santa Fe Railroad, has been previously determined eligible for listing in the National Register of Historic Places (Table 4). None of the other cultural resources have been evaluated for the California Register of Historical Resources or the National Register of Historic Places.

Table 3. Types of cultural resources within a one-mile radius

Cultural Resource Type	Quantity
Prehistoric Archaeological Sites	5
Prehistoric Isolates	7
Multicomponent Sites	1
Historical Built Environment Resources	4
Total	17

Table 4. Previously-Recorded Cultural Resources within a one-mile radius

Primary (P-36-)	Site Description	Date Recorded
2293	Prehistoric cairns	1967
2294	Prehistoric site consisting of lithic debitage, mano fragments, pottery sherds, and fire-affected rock	1949; 2003; 2007
5076	Prehistoric lithic scatter	1982
6693	Historic Atchison, Topeka and Santa Fe Railroad (1883)	1990; 1992; 1999; 2000; 2001; 2007; 2008; 2011; 2012; 2013
5563	Prehistoric habitation site	2007; 2008
7125	Prehistoric lithic scatter	1992
13960	Historic railroad tie fence line, mid-20 th Century	2007
14908	Prehistoric groundstone and chipped stone Isolate	2009
14909	Prehistoric groundstone Isolate	2009
23915	Multicomponent prehistoric habitation site and mid-20 th C. historic refuse scatter	2007; 2011
26449	Historic Route 58 segments (1919) and two 29 th Century roadside refuse deposits	2013
26535	Historic Agate Road segment (1956)	2013
61592	Prehistoric chipped stone Isolate	1990
61593	Prehistoric groundstone Isolate	Unknown
64462	Prehistoric groundstone Isolate	2000
64612	Prehistoric fire affected Rock Isolate	2003
64613	Prehistoric fire affected Rock Isolate	2003

One of these resources, P-36-002294, was previously recorded within the Project boundary. This prehistoric site was originally recorded in 1949 and subsequently updated in 2003 and 2007²¹. The 1949 and 2003 site boundaries are mapped as covering approximately 119 acres of the Project. However, a 2007 survey determined that the 1949/2003 site boundaries were no longer correct due to extensive disturbance from agricultural activities and that only a remnant of the site located along flood control property south of the Project still remains.

OTHER SOURCES CONSULTED

Eight additional sources were consulted to obtain additional cultural resource data regarding the Project; these are listed below in Table 5, none of which displayed any areas of concern or cultural significance to the project area.

Table 5. Additional sources consulted

Source	Results
National Register of Historic Places (1979-2002 & supplements)	Negative
Historic United States Geological Survey topographic maps	1957 topographic map depicts the pipeline and a reservoir within the Project
Historic United States Department of Agriculture aerial photos	None available
California Register of Historical Resources (1992-2010)	Negative
California Inventory of Historic Resources (1976-2010)	Negative
California Historical Landmarks (1995 & supplements to 2010)	Negative
California Points of Historical Interest (1992 to 2010)	Negative
Bureau of Land Management General Land Office Records	Southern Pacific Railroad obtained a land patent for a portion of the Project

PALEONTOLOGY RESULTS

Paleontological resources are considered to be significant if they provide new data on fossil animals, distribution, evolution or other scientifically important information. Best current professional practice to characterize paleontological sensitivity utilizes the federal Potential Fossil Yield Classification system²² which has a multi-level scale based on demonstrated yield of fossils (Table 6). Knowledge of the geological formations gleaned from geological maps and records of previous fossils recovered from the area were the basis for determining the paleontological sensitivity of the sediments found within the Project.

²¹ Appendix D

²² Bureau of Land Management, 2007, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands.

http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/20080/im_2008-009.html

Table 6. Potential Fossil Yield Classification Rankings

PFYC Rank	PFYC Description
1	Very Low. The occurrence of significant fossils is non-existent or extremely rare. Includes igneous or metamorphic and Precambrian or older rocks. Assessment or mitigation of paleontological resources is usually unnecessary.
2	Low. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. Includes rock units too young to produce fossils, sediments with significant physical and chemical changes (e.g., diagenetic alteration) and having few to no fossils known. Assessment or mitigation of paleontological resources is not likely to be necessary.
3b	Potentially Moderate but Undemonstrated Potential. Units exhibit geologic features and preservational conditions that suggest fossils could be present, but no vertebrate fossils or only common types of plant and invertebrate fossils are known. Surface-disturbing activities may require field assessment to determine appropriate course of action.
3a	Moderate Potential. Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered and of low abundance. Common invertebrate or plant fossils may be found. Surface-disturbing activities may require field assessment to determine appropriate course of action.
4	High. Geologic units containing a high occurrence of significant fossils. Fossils must be abundant per locality. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.
5	Very High. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.

The Holocene alluvium, active wash, and wind-blown sand deposits of the Project are assigned a low potential (2) as they are too young to contain fossils although they likely cover Pleistocene sediments that may contain fossils. These Pleistocene sediments are a moderate and patchy potential (3a) based on fossils known from the area (Table 7).

Table 7. Paleontological Sensitivity

Potential Fossil Yield System Levels	5 very high	4 high	3a moderate; patchy	3b moderate; undemonstrated	2 low	1 very low
Rock Units						
Holocene alluvium (Q)					X	
Holocene wash deposits (Qw)					X	
Holocene wind-blown sand (Qs)					X	
Pleistocene alluvial sediments (not mapped at surface of Project)			X			

CULTURAL FIELDWORK RESULTS

A surface assemblage (150 by 120 meters in extent) was present in the northwest quadrant of the Project (Figure 5) and consists of a sparse scatter of approximately 20 artifacts, including cryptocrystalline²³ (ccs), quartzite, and other primary and secondary flakes, one small core fragment, fire-cracked cobbles, one complete brown ccs projectile point (Figure 6), and a possible brownware ceramic body sherd. The core fragment lay near several other fragments of the same material, which is a dark pink and white banded non-ccs material. A few other flakes of the same material were situated many meters away, but still within the northwest quadrant.

The projectile point is similar to a Humboldt concave base point but the characteristics are not definitive and therefore it not appropriate to assign it to a cultural period. This is a technologically interesting point as the tip has been re-sharpened by additional flaking. The brownware ceramic sherd is also not appropriate to assign to a cultural period as the fragment was too small for definitive identification.

Subsurface excavations within the northwest quadrant were Trenches 18, 18 and 20 (refer to Figure 5). The sediments were dry, unconsolidated, grayish-orange sand, in the upper 20 to 30 cm, with a more consolidated, well-sorted silt-sand mix of light grayish-orange color beneath it. Cultural material was recovered from both strata only in Trench 17 and consisted of a tertiary ccs flake, a fire-cracked cobble chunk, two small mammal bone fragments, one of which may be polished, a .22-caliber lead cartridge slug, and several waterworn cobbles and cobble fragments (Table 6). The lead cartridge slug has a known time range of 1850s-present.

The majority of the Project had no prehistoric artifacts on the surface. The exception was one flake observed on the ground surface near Trench 9 (refer to Figure 5). Modern refuse such as occasional modern glass fragments, all-aluminum beverage cans, or wire and railroad tie fences were observed within the Project. Trenches 1- 11, 13-16, and 19 (refer to Figure 5) of the Project were negative for subsurface cultural resources (refer to Table 6). Trench 12 (refer to Figure 5) had one subsurface find consisting of a ferrous metal plate fragment.

Within the Project, two rectangular earthen reservoirs stand. The smaller one is within the east-central part of the area surveyed (refer to Figure 5). The larger is at the center of the Project's west boundary. The entire Project has been disked for farming for many years and has also been used for pasturage by dairy cattle.

23 A type of rock including chert, chalcedony and others

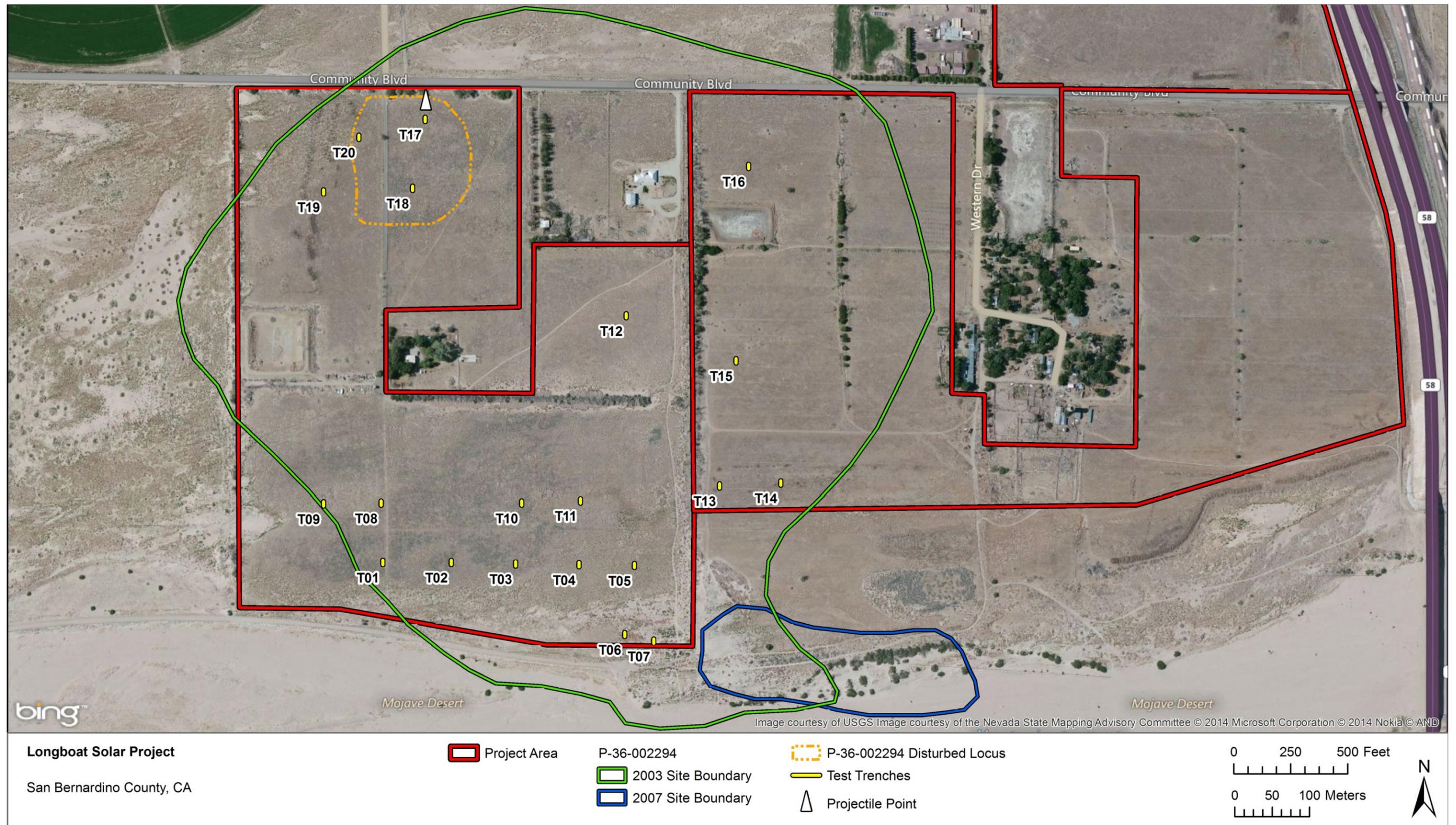


Figure 5. Survey and extended identification field work map

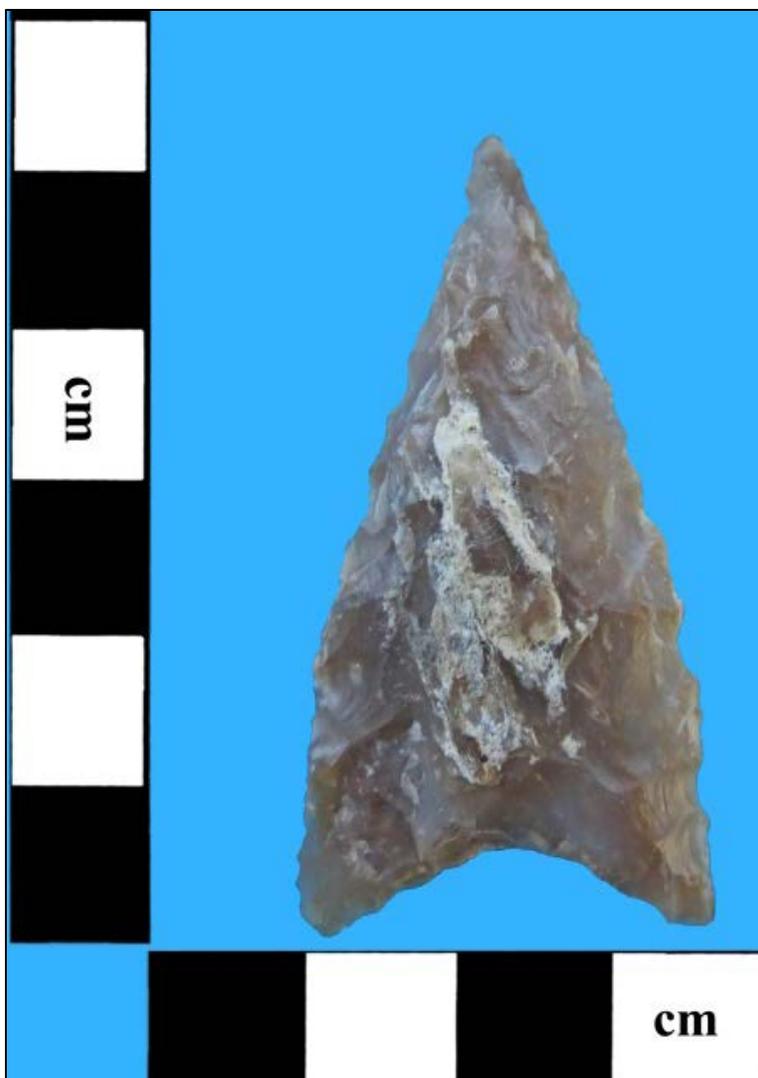


Figure 6. Complete brown ccs concave base projectile point

Table 8. Artifacts Recovered from 20 Test Trenches

Trench Number/ 6-foot segment letter	Artifacts at 0-6 inch below surface	Artifacts at 6-12 inches below surface	Artifacts at 12-18 inches below surface	Total # of Artifacts
1 A, B, C	-	-	-	0
2 A, B, C	-	-	-	0
3 A, B, C	-	-	-	0
4 A, B, C	-	-	-	0
5 A, B, C	-	-	-	0
6 A, B, C	-	-	-	0
7 A, B, C	-	-	-	0
8 A, B, C	-	-	-	0
9 A, B, C	-	-	-	0
10 A, B, C	-	-	-	0
11 A, B, C	-	-	-	0
12 A	-	-	-	0
12 B	-	-	-	0
12 C	-	-	Ferrous metal plate fragment	1
13 A, B, C	-	-	-	0
14 A, B, C	-	-	-	0
15 A, B, C	-	-	-	0
16 A, B, C	-	-	-	0
17 A	-	ccs tertiary flake	fire-cracked rock; waterworn granite cobble fragment	3
17 B	possible fire-cracked rock	-	waterworn cobble	2
17 C	.22 caliber spent lead slug from cartridge	small mammal bone fragments, one possibly polished	waterworn cobble	4
18 A, B, C	-	-	-	0
19 A, B, C	-	-	-	0
20 A, B, C	-	-	-	0
Total Artifacts				10

CONCLUSIONS AND RECOMMENDATIONS

No fossils are known within the Project nor a one-mile radius and therefore the County Paleontologic Resources Overlay does not apply to the Project. The Holocene alluvium, active wash, and wind-blown sand deposits that cover the surface of the Project are too young in age to contain fossils. However, these young sediments may be underlain by paleontologically sensitive Pleistocene alluvial sediments. No paleontological monitoring is recommended unless excavation below five feet encounters Pleistocene sediments.

An archaeological site recorded in the archaeological resources inventory of SBAIC was mapped on the Project. Consistent with the County Cultural Resources Overlay appropriate activities which included survey, mapping, subsurface excavation and site recordation were performed and this report was prepared. Results concurred with the 2007 site record update which stated that most of the site had been destroyed by agriculture and only a small intact remnant of the site still exists south of the Project on property owned by a flood control agency.

One highly disturbed surface and subsurface locus was identified in the northwest quadrant of the property. The work verified that no intact cultural deposits are present and there is no potential to contribute new information to prehistory (CRHR criterion 4). The sole artifact collected was a chert projectile point found on the surface in the northwest quadrant. This artifact will be curated at the San Bernardino County Museum. No Native American monitoring is required as the Project is not within a high sensitivity Cultural Resources Preservation Overlay District. As the Project will not create adverse impacts to a significant cultural resource, no mitigation is required.

APPENDIX A. QUALIFICATIONS

SHERRI GUST
Project Manager & Principal Investigator

EDUCATION

1994 M. S., Anatomy (Evolutionary Morphology), University of Southern California, Los Angeles
1979 B. S., Anthropology (Physical), University of California, Davis

SUMMARY QUALIFICATIONS

Gust is a Registered Professional Archaeologist and Qualified Professional Paleontologist with 35 years of experience in California. She holds California statewide BLM cultural and paleontology permits. She meets national standards in archaeology set by the Secretary of Interior. She is accepted as a principal investigator for both prehistoric and historical archaeology by the State Office of Historic Preservation's Information Centers. Her expertise includes historical archaeology of California (statewide) and prehistoric archaeology in central and southern California. Tasks personally performed include research, record searches, survey, assessment of impacts/effects, application of NRHP/CRHR significance criteria and archaeological site evaluation, management plans, mitigation implementation, research designs, treatment plans, human osteological identification and analysis, faunal identification and analysis and archaeological site damage assessments. She has special expertise in the identification and analysis of fossil and bone.

SELECTED PROJECTS

High Desert Corridor, Caltrans Districts 8 & 7, San Bernardino and Los Angeles Counties, CA. Prepared final cultural and paleontological documents for a proposed new 63 miles freeway and rail alignment from Apple Valley to Palmdale. These included the Archaeological Survey Report and Historic Resources Evaluation Report, both with site records, and the overarching Historic Properties Survey Report. A combined Paleontological Identification and Evaluation Report was also prepared. Project Manager and Principal Investigator. 2014

Cultural Resources Survey of 14, 316 acres and National Register Evaluation of Archaeology Site, GSA, Ft. Irwin, San Bernardino County, CA. Section 110 survey and site evaluations for cultural resources inventory of Ft. Irwin. Performed record searches, research design, survey, site records, site evaluations and prepared final report. Authored final report. Project Manager and Principal Investigator. 2012-13

Sweeney Granite Cove, University of California at Riverside, Barstow vicinity, San Bernardino County, CA. Archaeology and historic resources assessment of core field biology research station for an expansion project. Performed record searches, research, survey, evaluation and prepared final technical report. Co-authored final report. Project Manager and Principal Investigator. 2012-2013

Yucca Valley Cultural Resources, Yucca Valley, San Bernardino County, CA. Assessment of cultural and paleontological resources for general plan update EIR. Performed record searches, research, impact assessment and prepared final technical report including recommendations and mitigation measures. Co-authored report. Project Manager and Principal Investigator. 2011-2012

Falcon Ridge Substation, Southern California Edison, Fontana, San Bernardino County, CA. Assessed potential impacts for three alternative substation locations. Performed record searches, research, survey, site records, impact assessment and prepared final technical report including recommendations. Project Manager and Principal Investigator. 2012

Regional Recharge & Replenishment and Oro Grande Recharge & Replenishment, Mojave Water Agency/Bureau of Reclamation, Victorville to Apple Valley, San Bernardino County, CA. Cultural and paleontological resources assessment for two water facilities projects with partial federal funding. Performed record searches, Native American consultation, survey, site records, and final reports with management plans. Subsequently providing monitoring during construction and prepared final mitigation compliance report. Project Manager and Principal Investigator. 2010-2012

MOLLY VALASIK, RPA
Archaeologist/ Cross-Trained Paleontologist & GIS Specialist

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio
2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

SUMMARY QUALIFICATIONS

Ms. Valasik is a Registered Professional Archaeologist with six years of professional and academic archaeological field and research experience. In addition to serving as a Principal Archaeologist, she is GIS proficient and supervises mapping at Cogstone. She routinely digitizes data, manages databases, and creates high resolution maps for technical reports. The in-house capabilities of Cogstone's GIS department include ESRI's ArcGIS software and Trimble GPS units that efficiently integrate archaeological and paleontological studies. Ms. Valasik uses ArcGIS to manipulate, analyze, and interpret data from many sources, including aerial photography, satellite imagery, digital elevation models, and topographic maps. Ms. Valasik has completed more than 24 hours of paleontological field training and has logged four years as a dual monitor for Cogstone.

SELECTED PROJECTS

Trabuco Road at Monroe Avenue Project, City of Irvine/Caltrans District 12, Irvine. Prepared archaeological literature study including record search, Native American consultation, analysis and recommendations for a traffic signal improvement project. Principal Investigator. 2013

Montclair Place Subdivision Project San Luis Obispo County. Prepared portions of an archaeological Phase I assessment and GIS report maps for a project involving subdividing a 5-acre parcel into four lots. GIS Specialist & Report Contributor. 2013

Santiago Canyon Bridges Project, Orange County Parks, south Orange County. Prepared archaeological Phase I assessment including record search, Native American consultation, survey, impact analysis and recommendations for nine bridge rehabilitation projects. Principal Investigator. 2013

13th Street Bridge Replacement Project, San Diego County Department of Public Works/Caltrans District 11, Ramona. Prepared Archaeological Survey Report and Historic Properties Survey Report including record search, survey, impact analysis and recommendations for bridge replacement. Principal Investigator. 2013

Rose Creek Bike Trail, SANDAG, San Diego. Prepared archaeological Phase I assessment including record search, Native American consultation, survey, impact analysis and recommendations for new bike trail along creek. Principal Investigator. 2013

Gopher Canyon Restoration Project, Santa Monica Mountains Conservancy, Chatsworth. Prepared archaeological Phase I assessment including record search, survey, impact analysis and recommendations for stream restoration project. Principal Investigator. 2013

Sun Ranch, City of San Juan Capistrano. Directed archaeological and Native American monitoring of a City water system improvement project over several months and prepared final monitoring compliance report. Principal Investigator. 2012

Placentia Metrolink Station Project, OCTA, Orange County. Performed an archaeological records search and field survey, prepared GIS maps and sections of the Archaeological Survey Report for expanded station. Archaeologist, GIS Specialist & Report Contributor. 2012

DUSTIN KEELER, RPA
Archaeologist and Cross-Trained Paleontologist/GIS Analyst

EDUCATION

2010 Ph.D., Anthropology (Archaeology), State University of New York at Buffalo
2003 M.A., Anthropology (Archaeology), State University of New York at Buffalo
2001 B.A., *magna cum laude*, Anthropology, Arizona State University

SUMMARY QUALIFICATIONS

Dr. Keeler a Registered Professional Archaeologist with 13 years of experience in cultural resources, including two years in California. He exceeds the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*. Dr. Keeler has managed GIS geodatabase development and for several large projects and performed the full range of archaeological tasks. He regularly conducts field surveys, GIS mapping and mitigation monitoring. Dr. Keeler has more than 8 hours of paleontology training and experience as a dual archaeological/ paleontological monitor. Dr. Keeler has expertise in prehistoric archaeology of California and the greater southwest. Tasks personally performed include: background research, record searches, field survey, site monitoring, site testing excavation, data recovery excavation, assessment of effect, management plans, research designs, GIS analysis, ceramic analysis, archaeological site damage assessments, site formation processes, and technical report writing. Further, he has experience excavating Pleistocene fossils on Paleolithic sites in France and Belgium.

SELECTED PROJECTS

Extended Phase I Testing for the Caltrans High Desert Corridor XPI Project, Los Angeles and San Bernardino Counties, CA. Directed field pedestrian survey and testing of sites along the High Desert Corridor and prepared the technical report. Field Director. April-June 2014.

Professional Cultural Resources Services in Support of Various On-Call Projects, Sanitation Districts of Los Angeles, Mesquite Regional Landfill Drainage Repair Project, El Centro, Imperial County, CA. Performed record search, NAHC consultation, GIS mapping. Perform BLM Class III Pedestrian survey for drainage repair project of project area for potential impact on portions of land managed by the BLM. Locate any identifiable historic or prehistoric archaeological and cultural resources, and if possible, examining ground surface and subsurface exposures for evidence of buried cultural remains or other cultural features. A trimble GPS will be used to map any cultural resources and a digital camera will be used to photograph the project area. Any previously recorded sites located within the project area will be relocated and mapped. Field Archaeologist. July-Aug 2014.

Eldorado-Ivanpah Transmission Project, Southern California Edison, Eldorado, NV to Ivanpah, CA. Performed archaeological and paleontological monitoring for a project that involves construction of 195 miles of new transmission lines and associated fiber optic lines across BLM and private lands. Archaeological/ Paleontological Monitor. 2012-2013

Cascade Renewable Interconnection Project, Southern California Edison, Sunfair, San Bernardino County, CA. Conducted archaeological and paleontological awareness training for SCE crew. Performed monitoring during ground disturbing activities for installation of new poles, removing and replacing poles, and transferring conductor and facilities to new poles. Archaeological/ Paleontological Monitor. 2013

Metropole Vault Replacements, Southern California Edison, Avalon, Catalina Island, Los Angeles County, CA. Archaeological monitoring and coordinating with Native American monitors during ground disturbing activities of a 30,000 s.f. APE for replacement of two underground electrical vaults. The site is located in proximity to the original Tongva tribal village on the island. Archaeological/ Paleontological Monitor. 2014

Paseo Point Affordable Housing Project, Vista, San Diego County, CA. Conducted mitigation monitoring during excavation for a 69 unit mixed-use residential and commercial development. Archaeological and Paleontological Monitor. 2013-2014

COURTNEY RICHARDS

Paleontologist and Assistant Field Director

EDUCATION

- 2011 M.S., Biological Sciences, Marshall University
2006 B.S., Earth and Space Science, University of Washington

SUMMARY QUALIFICATIONS

Richards is a qualified paleontologist with research, field, and laboratory experience. She earned her Bachelor's degree in Earth and Space Science at the University of Washington and her Master's degree in Biological Sciences with a paleontology focus at Marshall University. Richards has published papers on dinosaur and marine reptile paleontology research. Richards has personal expertise in fossil salvage, stratigraphy, fossil preparation, database analysis and identification. She has over three years of professional experience in California.

SELECTED PROJECTS

- Purple Line Extension (Westside Subway), Exploratory Shaft, Los Angeles County Metropolitan Transportation Authority, Los Angeles.** Assistant Field Director. Supervised and conducted paleontological monitoring and recorded stratigraphy during pre-construction drilling and excavation to a depth of 75' for a 36' by 18' exploratory shaft located in the La Brea Zone. 2012-present
- SR 91 HOV Project, Caltrans District 8, Riverside County.** Paleontology Technician. Performed paleontological monitoring of sensitive sediments during HOV lane construction along a 6-mile segment of SR-91 in Riverside County. 2012-present
- SANDAG San Diego River Bridge Double Track Project, San Diego County.** Paleontology Technician. Conducted a pedestrian survey and co-authored the subsequent paleontological technical report for the proposed construction of a new double track bridge across the San Diego River and the alignment of the track to each side of the bridge along a 1.1-mile long segment of the LOSSAN railroad corridor. 2013
- Pioneer High School Project, Los Angeles County.** Report Contributor. Prepared paleontology and geology sections of a combined archaeological and paleontological resources assessment report for a stadium improvement project at Pioneer High School in Whittier, CA. 2013
- East San Fernando Valley Transit Corridor, Los Angeles County Metropolitan Transportation Authority, Los Angeles County.** Paleontology Technician. Conducted a paleontological survey; co-authored paleontological assessment and existing condition reports for Metro's proposed project to construct a light railway and new bus lines from Sylmar to Sherman Oaks in the eastern portion of the San Fernando Valley. 2012-present
- Jackson Valley Rehabilitation Project, Caltrans District 10, Amador County.** Paleontology Technician. Performed paleontological monitoring of sensitive sediments during road widening along SR-88 near Ione, CA and co-authored the Paleontological Mitigation Plan and final monitoring report. 2012-2013
- Merced Freeway Project, Caltrans District 10.** Assistant Field and Lab Director. Alternated 2 week rotations performing direction of fossil recovery and field preparation of fossils for 5-mile segment of State Route 99 south of Merced. Some 128 localities and 1667 fossils recovered in five months of excavation for detention basins. Prepared fossils in lab and supervised matrix washing and microfossil sorting. Contributed to final report including preparation of stratigraphic columns. 2012.

LYNN FURNIS, RPA
Principal Archaeologist
Principal Architectural Historian

EDUCATION

1999 M.A., Anthropology, University of Nevada, Reno
1972 B.A., Anthropology, University of California at Davis

SUMMARY QUALIFICATIONS

Ms. Furnis is a Registered Professional Archaeologist (RPA) and Principal Architectural Historian with over 44 years of experience. She specializes in historic architecture, historical archaeology, and western United States historical archaeology. She has experience working in California and from New Mexico to Alaska. Ms. Furnis has served as crew chief and field technician on numerous projects in Nevada (24 years) and California (15 years); and has served as a field-director for ten years. She has supervised crews and recorded historic-age buildings in Reno, Sparks, Black Springs, Panther Valley, and Minden, Nevada. She has conducted surveys and excavations as part of research and CRM projects. Ms. Furnis has supervised large and small artifact processing labs for historic and prehistoric collections; conducted extensive historic research; written reports for inventory, test excavation, and data recovery projects for government and private entities; and analyzed historic artifacts. Ms. Furnis has personally recorded more than 160 historic buildings and co-authored two major architectural survey reports. Ms. Furnis has coursework in World Architecture, The Anthropology of Architecture, and Vernacular Architecture.

SELECTED PROJECTS

Accelerated Charter Elementary School, Los Angeles Unified School District, Los Angeles, Los Angeles County, CA. The project involves documentation of five historic-age buildings prior to demolition, preparation of DPR forms, background research, mitigation monitoring plans, archaeological and paleontological monitoring and preparation of a monitoring compliance report. LAUSD is constructing a new facility on a 2.3-acre site in South Central Los Angeles consisting of classrooms, open areas and parking. Sub to Gafcon. Principal Archaeologist/Quality Control. 2014

Blossom Plaza Mixed-Use Development, Forest City Development, Los Angeles, Los Angeles County, CA. The project involves development of 360,071 sf of residential and commercial space, intermodal parking, and a cultural plaza adjacent to the Chinatown Gold Line Metro station. Records search, archaeological resources monitoring and artifact recovery of construction excavation on block containing portions of the Zanja Madre, historic Italian businesses and residences, a 19th Century hotel, and Baker Iron Works. Cogstone conducted a review of the 19th and 20th century Sanborn Fire Insurance maps, historic lithographs and historic aerial photos for the project block to evaluate the potential for historical archaeological resources, including those of Chinese immigrants and Chinese-Americans, to be present. The City of Los Angeles served as the lead agency under CEQA. Principal Archaeologist/Project Manager. 2014

Mt. Baldy Resort Cell Tower Archaeological and Architectural Inventory Project, Mt. Baldy, San Bernardino County, CA. Inventoried a 30 x 30 feet cell tower pad, a 60-foot long trench line, and evaluated four historic-age buildings, three trout ponds, a historic road, and associated archaeological features associated with a 1950's trout fishing tourist business and older recreational camps within a 6.3-acre parcel in Mt. Baldy Village, San Bernardino County, California. Researched the histories and associations of each building, completed site forms, and authored the final inventory report. Field Director. 2012

Crystal Geyser Water Source Archaeological Survey Project near Olancho, Inyo County, CA
Conducted an intensive cultural resources inventory of 90 acres near Olancho, California. Recorded two new large historic sites, re-evaluated two old ones, and recorded two prehistoric sites. Author of the resultant inventory report, that was included as part of an Environmental Impact Report for Quad Knopf. Field Director. 2003

APPENDIX B. PALEONTOLOGY RECORD SEARCH



Museum

Leonard X. Hernandez
Interim Museum Director

4 December 2014

Cogstone Resource Management
attn: Courtney Richards
1518 West Taft Avenue
Orange, CA 92865

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, LONGBOAT SOLAR PROJECT, MOJAVE DESERT, SAN BERNARDINO COUNTY, CALIFORNIA**

Dear Ms. Richards,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named project west of the City of Barstow, San Bernardino County, California. The study area is located in portions of sections 4 and 5, Township 9 North, Range 2 West, as well as section 33, Township 10 North, Range 2 West, San Bernardino Base and Meridian, as seen on the Barstow, California 7.5' United States Geological Survey topographic quadrangle map (1971 edition).

Previous geologic mapping of this part of the Mojave Desert (Bortugno and Spittler, 1986; Cox and others, 2003) indicates that the proposed study area is situated almost entirely upon Holocene alluvium (= unit **Q**), as well as upon Holocene dune sands (= **Qs**). These alluvial deposits likely overlie subsurface Pleistocene sediments, considered by Cox and others (2003) to derive from the ancestral Mojave River, which is also present at the surface elsewhere in the near vicinity of the proposed project property. Pleistocene sediments in and around the Barstow region have high potential to contain fossil resources, and so are assigned high paleontologic sensitivity. Published reports on the paleontologic resources of this area (Lander and Reynolds, 1985; Jefferson, 1991; Scott and Cox, 2008) demonstrate that excavation into Pleistocene sediments in this region may have high potential to adversely impact significant fossil resources. Lithologically-similar sediments throughout the Barstow and Lenwood regions to the east, and Victorville to the south, have also been repeatedly demonstrated to have high paleontologic sensitivity (Lander and Reynolds, 1985; Jefferson, 1991; Reynolds, 1991; Scott and Cox, 2008).

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously-recorded paleontologic resource localities are known from within the boundaries of the proposed project area, or from within one mile in any direction. The nearest recorded fossil localities, SBCM 1.110.18 and

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1.110.19, are approximately 1½ miles to the southeast; these localities yielded root casts (Plantae) and remains of freshwater snails (Gastropoda), indeterminate lizards (Lacertilia), kangaroo rat (*Dipodomys*), and murid rodent (Muridae). Because no time-diagnostic taxa are identified from these localities, the presumed Pleistocene age of these fossils cannot be verified.

Recommendations

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation in conjunction with development has high potential to adversely impact significant nonrenewable paleontologic resources present in the subsurface within the boundaries of the proposed development property. A qualified professional vertebrate paleontologist must develop a plan to mitigate adverse impacts to paleontologic resources present in these geologic units, including curation of recovered resources (Scott and others, 2004). This mitigation program would need to be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations implemented by the County of San Bernardino.

The County of San Bernardino (Development Code §82.20.040) defines a qualified vertebrate paleontologist as meeting the following criteria:

Education: An advanced degree (Masters or higher) in geology, paleontology, biology or related disciplines (exclusive of archaeology).

Professional experience: At least five years professional experience with paleontologic (not including cultural) resources, including the collection, identification and curation of the resources.

The County of San Bernardino (Development Code §82.20.030) requires that paleontologic mitigation programs include, but not be limited to:

(a) Field survey before grading. In areas of potential but unknown sensitivity, field surveys before grading shall be required to establish the need for paleontologic monitoring.

(b) Monitoring during grading. A project that requires grading plans and is located in an area of known fossil occurrence, or that has been demonstrated to have fossils present in a field survey, shall have all grading monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Paleontologic monitors shall be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring is not necessary if the potentially-fossiliferous units described for the property in question are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.

(c) Recovered specimens. Qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils is essential in order to fully mitigate adverse impacts to the resources.

(d) Identification and curation of specimens. Qualified paleontologic personnel shall identify and curate specimens into the collections of the Division of Geological Sciences, San Bernardino County Museum, an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation and CEQA compliance. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until curation into an established museum repository has been fully completed and documented.

(e) Report of findings. Qualified paleontologic personnel shall prepare a report of findings with an appended itemized of specimens. A preliminary report shall be submitted and approved before granting of building permits, and a final report shall be submitted and approved before granting of occupancy permits. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into the collections of the San Bernardino County Museum, will signify completion of the program to mitigate impacts to paleontologic resources.

References

- Bortugno, E.J. and T. E. Spittler, 1986. Geologic map of California, San Bernardino sheet, scale 1:250,000. California Division of Mines and Geology Regional Geologic Map Series, Map 3A.
- Cox, B.F., J.W. Hillhouse and L.A. Owen, 2003. Pliocene and Pleistocene evolution of the Mojave River, and associated tectonic development of the Traverse Ranges and Mojave Desert, based on borehole stratigraphy studies and mapping of landforms and sediments near Victorville, California. *In* Y. Enzel, S.G. Wells and N. Lancaster (eds.), *Paleoenvironments and paleohydrology of the Mojave and southern Great Basin Deserts*. Boulder, Colorado: Geological Society of America Special Paper #368, p. 1-42.
- Jefferson, G.T., 1991. A catalogue of late Quaternary vertebrates from California: Part Two, mammals. Natural History Museum of Los Angeles County Technical Reports, Number 7.
- Jennings, C.W., J.L. Burnett and B.W. Troxel, 1962. Geologic map of California, Trona sheet. California Division of Mines and Geology, scale 1:250,000.
- Lander, E. B. and S.F.B. Reynolds, 1985. Fossil vertebrates from the Calico Mountains area, central Mojave Desert, San Bernardino County, California. *In* S.F.B. Reynolds (ed.), *Geologic Investigations along Interstate 15, Cajon Pass to Manix Lake, California*, SBCM Association Special Publication, p. 153-156.

- Reynolds, S.F.B., 1989. Mid-Pleistocene faunas of the west-central Mojave Desert. *In* J. Reynolds (ed.), *The west-central Mojave Desert: Quaternary studies between Kramer and Afton Canyon*. Redlands, SBCM Association Special Publication, p. 44-50.
- Scott, E. and S.M. Cox, 2008. Late Pleistocene distribution of *Bison* (Mammalia; Artiodactyla) in the Mojave Desert of southern California and Nevada. *In* X. Wang and L.G. Barnes (eds.), *Geology and Vertebrate Paleontology of Western and Southern North America, Contributions in Honor of David P. Whistler*. Natural History Museum of Los Angeles County Science Series No. 41, p. 359 - 382.
- Scott, E. and K. Springer, 2003. CEQA and fossil preservation in southern California. *The Environmental Monitor*, Fall 2003, p. 4-10, 17.
- Scott, E., K. Springer and J.C. Sagebiel, 2004. Vertebrate paleontology in the Mojave Desert: the continuing importance of "follow-through" in preserving paleontologic resources. *In* M.W. Allen and J. Reed (eds.) *The human journey and ancient life in California's deserts: Proceedings from the 2001 Millennium Conference*. Ridgecrest: Maturango Museum Publication No. 15, p. 65-70.

Please do not hesitate to contact us with any further questions you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Scott", written in a cursive style.

Eric Scott, Curator of Paleontology
Division of Geological Sciences
San Bernardino County Museum

APPENDIX C. NATIVE AMERICAN CONSULTATION

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

1650 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95601
(916) 373-3710
Fax (916) 373-5471



September 4, 2014

Sherri Gust
Cogstone
1518 W. Taft Ave.
Orange, CA 92865

Sent by Fax: (714) 974-8303
Number of Pages: 2

Re: Cogstone Project Number: 3097, Longboat Solar, San Bernardino County.

Dear Ms. Gust,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

A handwritten signature in cursive script that reads "Katy Sanchez".

Katy Sanchez
Associate Government Program Analyst

Native American Contact List
San Bernardino County
September 4, 2014

San Manuel Band of Mission Indians
Ann Valbuena, Chairwoman
3569 Community Center Serrano
Highland, CA 92346
(909) 864-8933
(909) 864-3724 Fax
(909) 864-3370 Fax

Serrano Nation of Mission Indians
Goldie Walker, Chairwoman
P.O. Box 343 Serrano
Patton, CA 92369
(909) 528-9027
(909) 528-9032

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 Fernandefio
LeWhall, CA 91322 Tatalviam
jen2u@hotmail.com Serrano
(61) 753-9833 Office Vanyume
(760) 885-0955 Cell Kitanemuk
(760) 949-1604 Fax

Ernest H. Siva
Morongo Band of Mission Indians Tribal Elder
9570 Mias Canyon Road Serrano
Banning, CA 92220 Cahuilla
siva@dishmail.net
(951) 849-4676

Morongo Band of Mission Indians
William Madrigal, Jr., Cultural Resources Manager
2700 Pumarra Road Cahuilla
Banning, CA 92220 Serrano
wmadrigal@morongo-nsn.gov
(951) 201-1866 Cell
(951) 572-6004 Fax

San Manuel Band of Mission Indians
Daniel McCarthy, M.S., Director-CRM Dept.
3569 Community Center Drive Serrano
Highland, CA 92346
mccarthy@sanmanuel-nsn.gov
(909) 864-8933 Ext 3248
(909) 862-5152 Fax

Morongo Band of Mission Indians
Robert Martin, Chairperson
2700 Pumarra Road Cahuilla
Banning, CA 92220 Serrano
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Cogstone Project #3097

APPENDIX D: CONFIDENTIAL SITE RECORD

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-36-002294 **UPDATE**

HRI #

Trinomial CA-SBR-2294

NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page 1 of 7

*Resource Name or #: P-36-002294

P1. Other Identifier:

*P2. Location: Not for Publication Unrestricted

*a. County: San Bernardino

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Barstow, Calif. Date: 1971 T 9 N; R 2W; ¼ of NW ¼ of Sec 5; SBB.M. and
T 9 N; R 2W; ¼ of NE ¼ of Sec. 5; SB B.M.

c. Address: City: Lenwood, CA

Zip:

d. UTM: Zone: 11 S; 0490058 mE/ 3862646 mN (G.P.S.)

e. Other Locational Data: Elevation: 2174 amsl.

*P3a. Description: This prehistoric site was originally recorded in 1949 and subsequently updated in 2003 and 2007. However, a 2007 survey determined that the 1949/2003 site boundaries were no longer correct due to extensive disturbance from agricultural activities and that only a remnant of the site located along flood control property south of the Project still remains. The site now consists of a partially intact locus A and a highly disturbed locus B. Locus A is just north of the Mojave River and Locus B is 550 meters NW.

Only locus B was subjected to extended phase I testing as part of a project. This locus is 150 by 120 m in area and characterized by dry, grayish-orange sand. It consists of a sparse scatter of approximately 20 artifacts, including cryptocrystalline, quartzite, and other primary and secondary flakes, one small core fragment, fire-cracked cobbles, one complete brown ccs projectile point and a possible brownware ceramic body sherd. The core fragment lay near several other fragments of the same material, which is a dark pink and white banded non-ccs material. A few other flakes of the same material were situated many meters away, but still within the northwest quadrant. (See Continuation Sheet for additional information).

*P3b. Resource Attributes: AP2. Lithic scatter; AP3: Ceramic scatter

*P4. Resources Present: Building Structure Object Site

District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: Overview of north half of site, view to north

*P6. Date Constructed/Age and Sources: Historic
 Prehistoric Both

*P7. Owner and Address:

Hill's Ranch, Inc.

Community Blvd

Lenwood, CA

*P8. Recorded by:

L. Furnis

Cogstone Resources Management

1518 W. Taft Ave., Orange, CA

*P9. Date Recorded: 10-23-2014

*P10. Survey Type:

Intensive survey and test excavation



*P11. Report Citation: *Cultural and Paleontological Resources Assessment for the Longboat Solar Project, San Bernardino County, California*. Sherri Gust, Lynn Furnis, Molly Valasik, Dustin Keeler, and Courtney Richards. December 2014.

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List):

ARCHAEOLOGICAL SITE RECORD

Page 2 of 7

*Resource Name or #: P-36-002294

*A1. Dimensions: Locus B only - a. Length: 150m. (E-W) × b. Width: 120m. (N-S)

Method of Measurement: Paced Taped Visual estimate Other: GPS

Method of Determination: Artifacts Features Soil Vegetation Topography

Cut bank Animal burrow Excavation Property boundary Other (Explain): The horizontal site boundary has determined by a combination of intensive investigation of the ground surface for artifacts and features, as well as Extended Phase I trenching by backhoe.

Reliability of Determination: High Medium Low Explain:

Limitations (Check any that apply): Restricted access Paved/built over Site limits incompletely defined

Disturbances Vegetation Other (Explain):

A2. Depth: at least 45 cm None Unknown Method of Determination: Backhoe trenching

*A3. Human Remains: Present Absent Possible Unknown (Explain): No human remains have been observed at the site during any of the first three, nor the current pedestrian surveys. None has been found during the current trenching effort.

*A4. Features: No features were observed on the site surface or subsurface in any of the 20 backhoe trenches.

*A5. Cultural Constituents:

Locus B artifacts include: One complete concave base projectile point (brown ccs) similar to, but lacking some characters, of a Humboldt point. In addition one core fragment and 8+ primary and secondary flakes and shatter of dark pink and white banded non-ccs stone; three ccs flakes (secondary and tertiary); one quartzite primary flake; a possible Brownware ceramic body sherd, small mammal bone fragments, one polished; manuports in the form of hand-sized granitic and other waterworn cobbles. See artifact record.

*A6. Were Specimens Collected? No Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

*A7. Site Condition: Good Fair Poor: The site has been greatly disturbed since its first recording by farming and by grazing of cattle on the site, as well as by the construction of two earthen reservoirs on the property, for which the earth (site sediments) around them has been used to create them. An earthen levy along the river has been constructed in the same way, disturbing that area of the original site. A few dirt roads transect the site and planted tree windbreaks have created dunes along their lengths. Additionally, some collecting of artifacts by local residents has occurred (anecdotal information from local backhoe operator).

*A8. Nearest Water: The Mojave River, which comprises the southern boundary of the site, is the closest water source

*A9. Elevation:

A10. Environmental Setting: The site lies within the Mojave River floodplain and is covered by loose, dry silty sand. It is flat, mostly level terrain, except adjacent to the river, where dunes are present. Vegetation includes sparse, low brush, primarily Russian thistle, rabbitbrush, and grasses. Domestic trees have been planted here and there, and as windbreaks and fencelines. These include pine trees, cottonwoods, and possibly locust trees.

A11. Historical Information: The property is known to have had cattle grazing on it, with possible use as a dairy or plowed field for hay or food crops.

*A12. Age: Prehistoric Protohistoric 1542-1769 1769-1848 1848-1880 1880-1914 1914-1945
 Post 1945 Undetermined:

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations):

Most of the original site as mapped has been intensively disturbed by agriculture and has been destroyed. Lack of subsurface features indicates this was a temporary use area, not a habitation area.

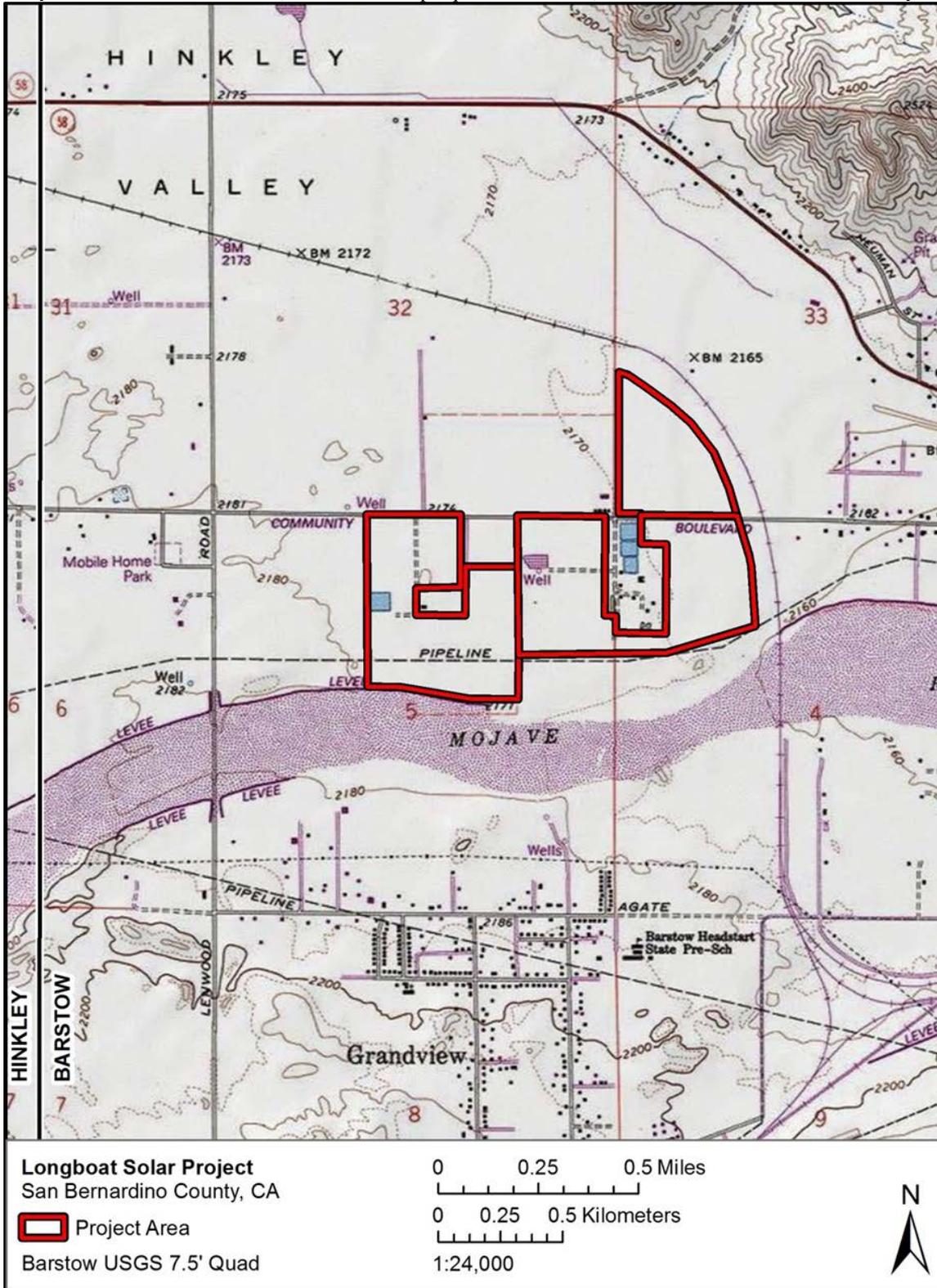
A14. Remarks:

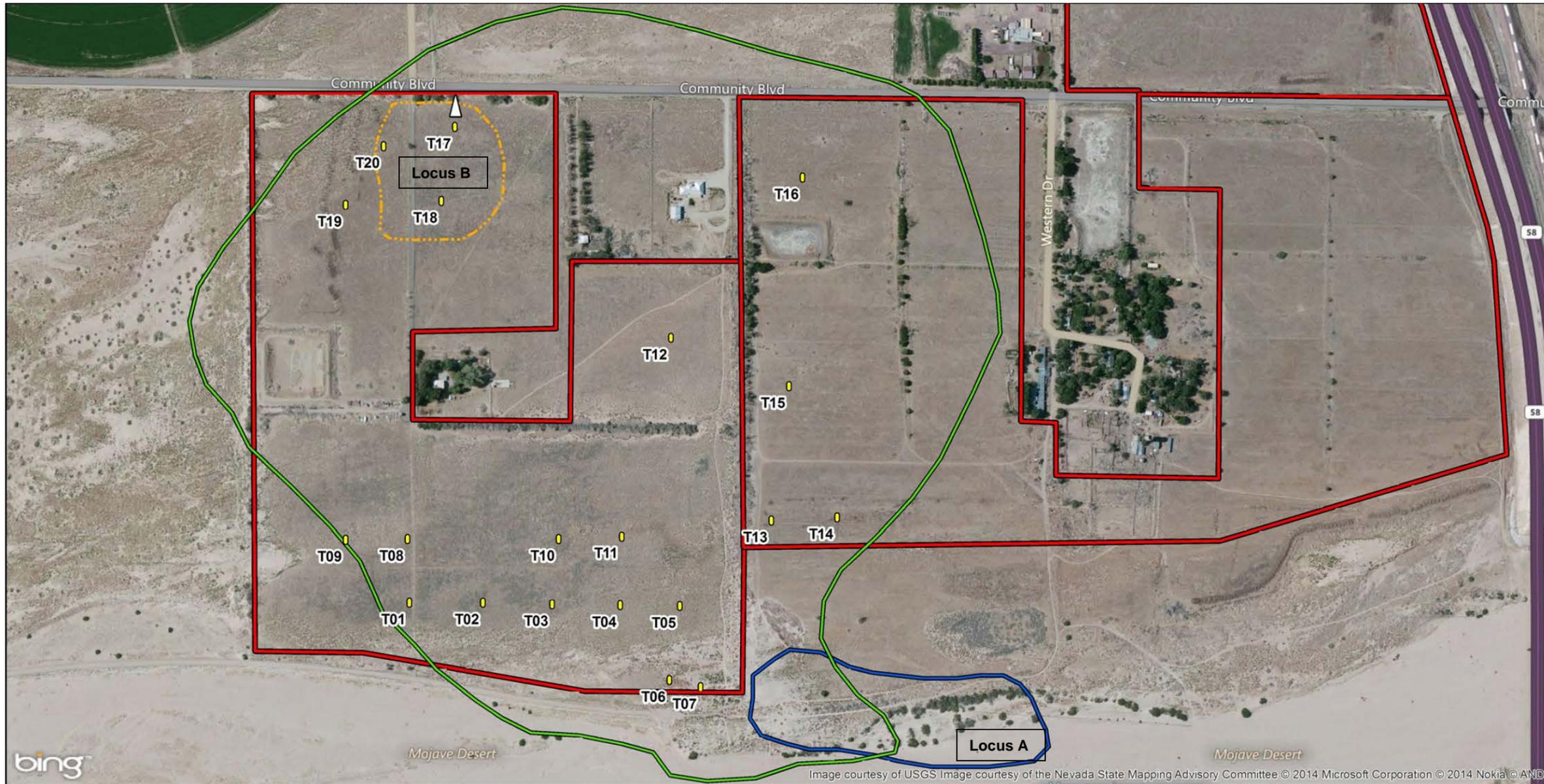
A15. References (Documents, informants, maps, and other references):

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.):
Original Media/Negatives Kept at: Cogstone

*A17. Form Prepared by: Lynn Furnis Date: November 6, 2014

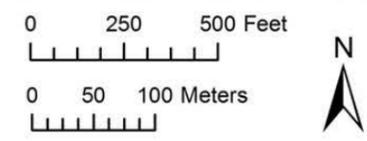
Affiliation and Address: Cogstone Resources Management, 1518 W. Taft Avenue, Orange, CA 92865





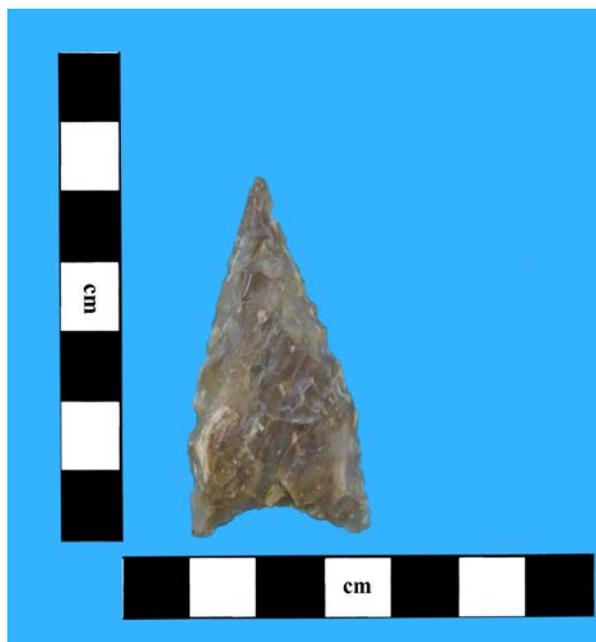
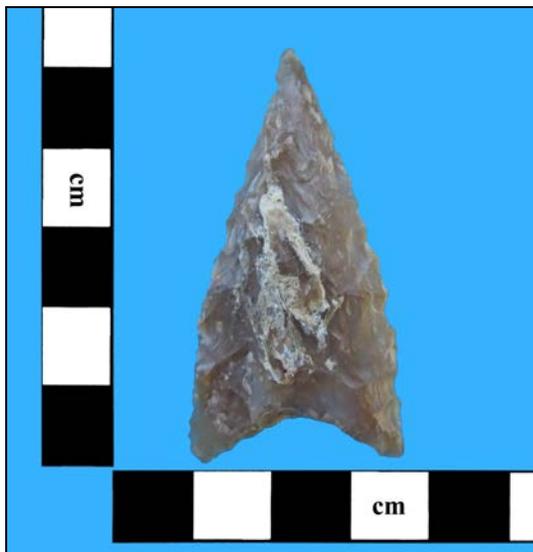
Longboat Solar Project
 San Bernardino County, CA

Project Area	P-36-002294 2003 Site Boundary	P-36-002294 Disturbed Locus
2007 Site Boundary	Test Trenches	Projectile Point



*Recorded by: Lynn Furnis *Date: October 23, 2014 Continuation Update

***P3a. Description:** The projectile point is similar to a Humboldt concave base point but the characteristics are not definitive and therefore it not appropriate to assign it to a cultural period. This is a technologically interesting point as the tip has been re-sharpened by additional flaking. The brownware ceramic sherd is also not appropriate to assign to a cultural period as the fragment was too small for definitive identification.



obverse and reverse

Subsurface excavations within the northwest quadrant were Trenches 18, 18 and 20. The sediments were dry, unconsolidated, grayish-orange sand, in the upper 20 to 30 cm, with a more consolidated, well-sorted silt-sand mix of light grayish-orange color beneath it. Cultural material was recovered from both strata only in Trench 17 and consisted of a tertiary ccs flake, a fire-cracked cobble chunk, two small mammal bone fragments, one of which may be polished, a .22-caliber lead cartridge slug, and several waterworn cobbles and cobble fragments (table below). The lead cartridge slug has a known time range of 1850s-present.

The majority of the Project had no prehistoric artifacts on the surface. The exception was one flake observed on the ground surface near Trench 9. Modern refuse such as occasional modern glass fragments, all-aluminum beverage cans, or wire and railroad tie fences were observed within the Project. Trenches 1-11, 13-16, and 19 of the Project were negative for subsurface cultural resources (refer to Table 6). Trench 12 had one subsurface find consisting of a ferrous metal plate fragment.

Within the Project, two rectangular earthen reservoirs stand. The smaller one is within the east-central part of the area surveyed. The larger is at the center of the Project's west boundary. The entire Project has been disked for farming for many years and has also been used for pasturage by dairy cattle. This study verified that no intact surface or subsurface deposits are present within the 1949/2003 boundary of the site.

Trench Number/ 6-foot segment letter	Artifacts at 0-6 inch surface	Artifacts at 6-12 inches below surface	Artifacts at 12-18 inches below surface	Total # of Artifacts
1 A, B, C	-	-	-	0
2 A, B, C	-	-	-	0
3 A, B, C	-	-	-	0
4 A, B, C	-	-	-	0
5 A, B, C	-	-	-	0
6 A, B, C	-	-	-	0
7 A, B, C	-	-	-	0
8 A, B, C	-	-	-	0
9 A, B, C	-	-	-	0
10 A, B, C	-	-	-	0
11 A, B, C	-	-	-	0
12 A	-	-	-	0
12 B	-	-	-	0
12 C	-	-	Ferrous metal plate fragment	1
13 A, B, C	-	-	-	0
14 A, B, C	-	-	-	0
15 A, B, C	-	-	-	0
16 A, B, C	-	-	-	0
17 A	-	ccs tertiary flake	fire-cracked rock; waterworn granite cobble fragment	3
17 B	possible fire-cracked rock	-	waterworn cobble	2
17 C	.22 caliber spent lead slug from cartridge	small mammal bone fragments, one possibly polished	waterworn cobble	4
18 A, B, C	-	-	-	0
19 A, B, C	-	-	-	0
20 A, B, C	-	-	-	0
Total Artifacts				10

✓

Update 4/07

PRIMARY RECORD

Morongo Band of Mission Indians
49750 Seminole Drive
Cabazon, CA 92230 (951) 755-5200
Page 1 of 6

Primary #: 36-002294
HRI #:
Trinomial: CA-SBR-2294-UPDATE
NRHP Status Code:

Other Listings:
Review Code ___ Reviewer _____ Date _____

*Resource Name or #): Mojave River South Site

P1. Other Identifier:

P2.* Location: Not for Publication ___ Unrestricted

a.* County: San Bernardino

and (P2b and P2c or P2d; attach location map)

b.* USGS Quad: Barstow 7.5' dated 1971 revised 1993 photorevised
Twp: T9N Rng: R2W Section: Section 5, SBBM (S 1/2 NE 1/4)

Elevation:

c. Address: Vacant – south of Community Blvd. City: Unincorporated San Bernardino
County Zip:

d.* UTM: (Give more than one for large and/or linear resources) Zone 11

UTM Derivation: _____ USGS Quad GPS:

USGS Quad Horizontal Datum:

GPS Model/System:

GPS Horizontal Datum: 1984 WGS

GPS Differential Correction: ___ Yes No Method:

e. Other Locational Data (e.g. parcel number, directions to resource, etc. as appropriate):

Located approximately 1/3 mile south of Community Blvd. and west of Hwy 58 along north bank of Mojave River

P3a.* Description (Describe resource and its major elements; include design, materials, condition, alterations, size, setting, and boundaries): Habitation site; this recorder also observed early 1900's ranch evidence (see photos) including SCA glass, lots of old dairy bottle evidence – may have been dairy farm?

P3b.* Resource Attributes (List attributes and codes): Farming seems to have destroyed much of the site over the years; remnants of site can be found along Flood Control property at south end of original site.

P3c. Environmental Context for Isolates:

Nearest water: Dry bed of Mojave River to south about 30 yards

Vegetation:

Landform: sand/sand dunes

Geology:

Exposure/Slope:

P4.* Resources Present: ___ Building ___ Structure ___ Object Site
___ District ___ Element of District ___ Isolate ___ Other

P5a. Photograph or Drawing (Required for HRI buildings, structures, and objects [see box next page]):

3/10/07

Wilson

*Required information

PRIMARY RECORD

Morongo Band of Mission Indians
49750 Seminole Drive
Cabazon, CA 92230 (951) 755-5200

Page 2 of 6

Primary #: *36-002294*
HRI #:
Trinomial: CA-SBR-2294-UPDATE
NRHP Status Code:

P5b. Description of Photo (View, date, accession #): (See photos)

P6.* Date Constructed/Age and Source: Prehistoric Historic Both

P7.* Owner and Address: Unknown

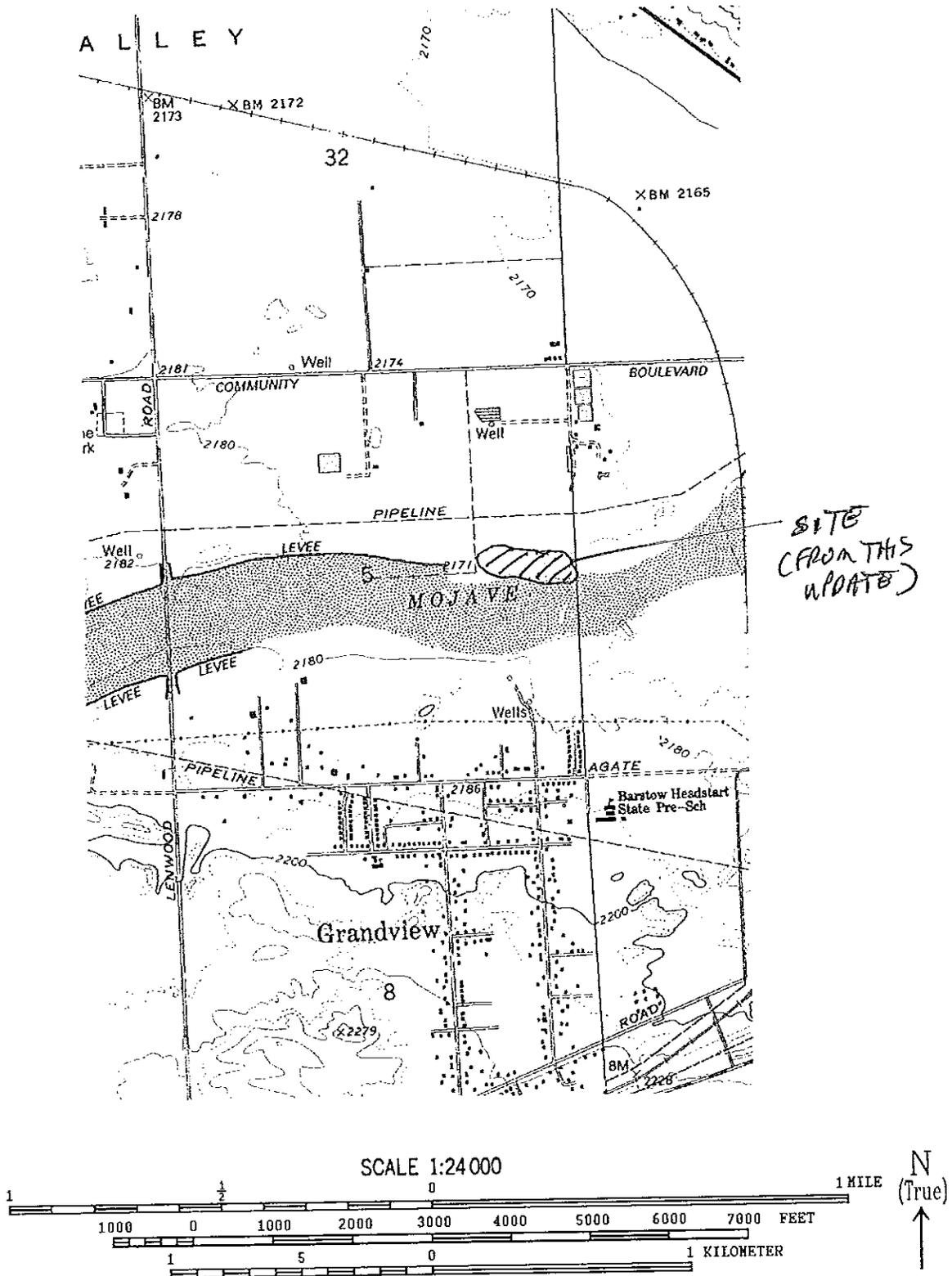
P8.* Recorded by: Britt W. Wilson, Morongo Band of Mission Indians
Project #:

P9.* Date recorded: March 10, 2007

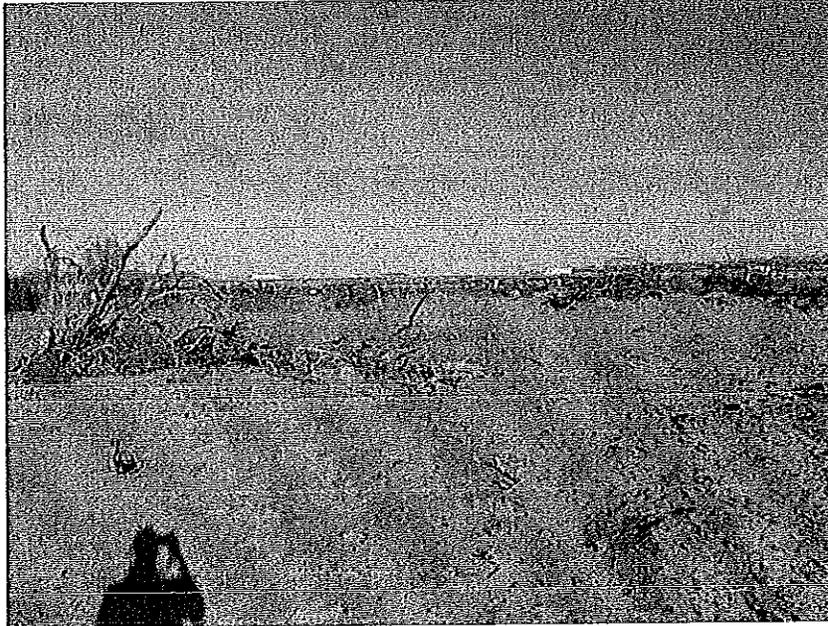
P10.* Type of Survey (Describe): Casual (i.e. not formal)

P11.* Report citation (Cite survey report and other sources or enter "none"):

- Attachments:**
- Location Map (7.5' USGS quadrangle)
 - Archaeological Site Record
 - Sketch Map
 - Feature Record
 - Milling Station Record
 - Rock Art Record
 - Artifact Record
 - Illustration Sheet
 - Photograph Record
 - Building, Structure, and Object Record
 - Linear Feature Record
 - District Record
 - Other (list):



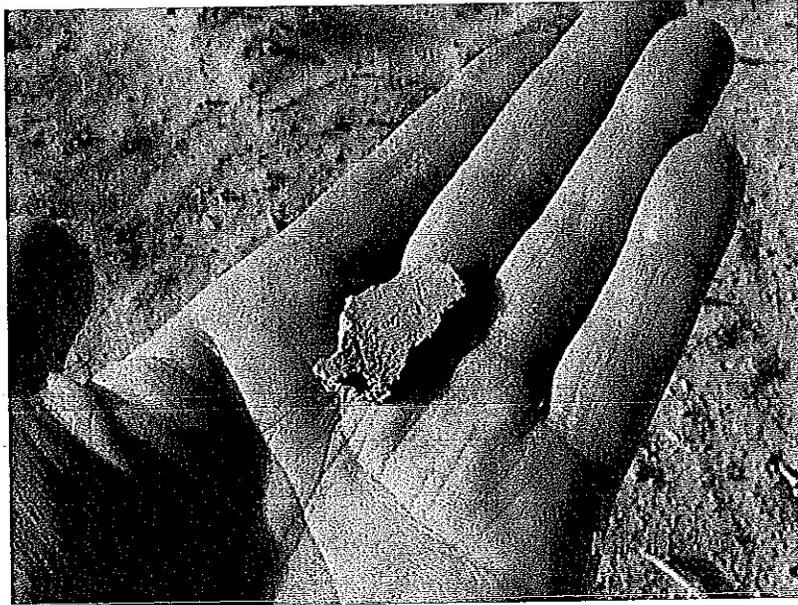
Eastern end of site looking east; note trucks on Hwy 58 in background



Mano fragment



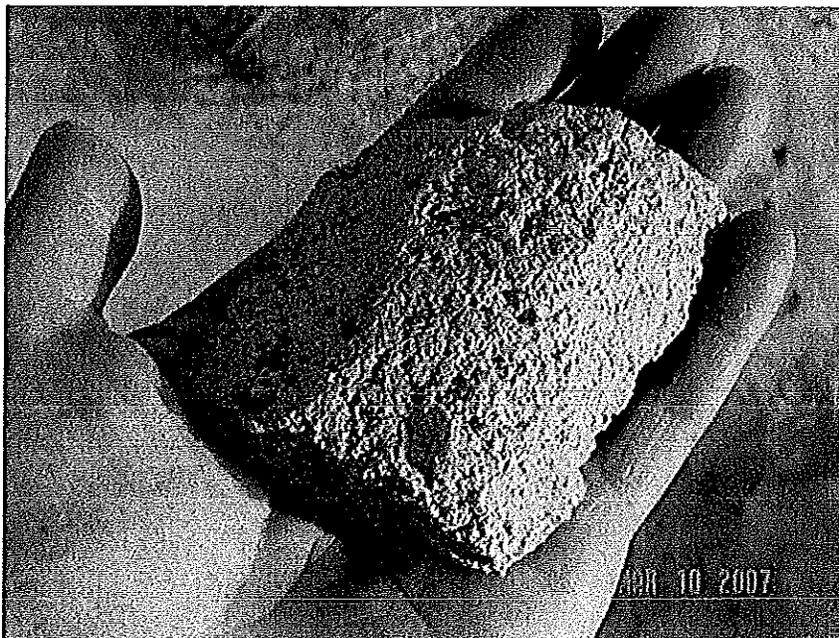
Pothserd



Cultural materials from eastern end of site;
May be be pothunting collected materials



Groundstone fragment



Old wagon-box style farm equipment (harvester?)



Update 9/03

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION PRIMARY RECORD	Primary #: <u>PSa 002294</u> HRI #: Trinomial: <u>CA-SBR-2294 UPDATE</u> NRHP Status Code:
Other Listings: Review Code:	Reviewer: _____ Date: _____

Page 1 of 2 Resource Name or #: WPT004

P1. Other Identifier: Bently-Barstow.478

P2. Location: Not for Publication Unrestricted and (P2b and P2c or P2d. Attach a Location Map as necessary.)

a. County: San Bernardino

b. USGS 7.5' Quad: Barstow, Ca. Date: 1991 T 9 S; R 2 W; NE ¼ of NW ¼ of Sec 5; S.B.B.M.

c. Address: * City: Barstow Zip:

d. UTM: Zone 11; NAD 1983; 489710 mE/ 3862556 mN

e. Other Locational Data (e.g., parcel #, directions to resource, elevation, etc., as appropriate): This record reflects the presence of prehistoric archaeological site CA-SBR-2294 within the acreage contained in parcel APN 0497-101-12, an approximate 105-acre privately-owned parcel located northwest of the City of Barstow in an unincorporated portion of San Bernardino County, and situated in the southeast corner of the intersection of Lenwood Road and Community Boulevard. Elevation at this location is approximately 2,172 ft MSL.

P3a. Description: Observed here is a moderate scatter of flaked lithic debitage, milling handstone (mano) fragments, Brown Ware pottery sherds, and fire-affected rock exposed on an underlying sandy alluvial plain blanketed by blow sands, with scattered coppice dunes topped with Mormon tea (Ephedra sp). The currently observed exposure measures (pacing) approximately 40 x 30 meters.

Observed lithic debitage (7+) includes jasper, clear quartz, and other, undefined crypto-crystalline siliceous rock. Two milling handstone fragments formed from quartzite cobbles were observed; both appear fire-affected. At least six additional pieces of fire-affected rock were also observed.

P3b. Resource Attributes : AP2 Lithic Scatter (flaked stone and milling); AP3 Ceramic Scatter; AP11 Hearths

P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photograph or Drawing: NONE
P5b. Description of Photo: NONE

P6. Age and Sources: Historic Prehistoric Both

P7. Owner and Address: Unknown
Constraints Study Performed For:
Mr. Al Bell
Bently Foundation
28736 East Worcester Road
Sun City, CA. 92586

P8. Recorded by:
William T. Eckhardt
Mooney & Associates
9903-B Businesspark Avenue
San Diego, CA 92131

P9. Date Recorded: 28 August 2003

P10. Survey Type: Constraint-level reconnaissance

P11. Report Citation:
Eckhardt, William T.
2003 Results of Cultural Resources Constraints Study for APN 0497-101-12, a 105-Acre Property in Barstow, California.
Letter report dated 2 September 2003, prepared for Mr. Al Bell, Bently Foundation

Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List):

LOCATION MAP

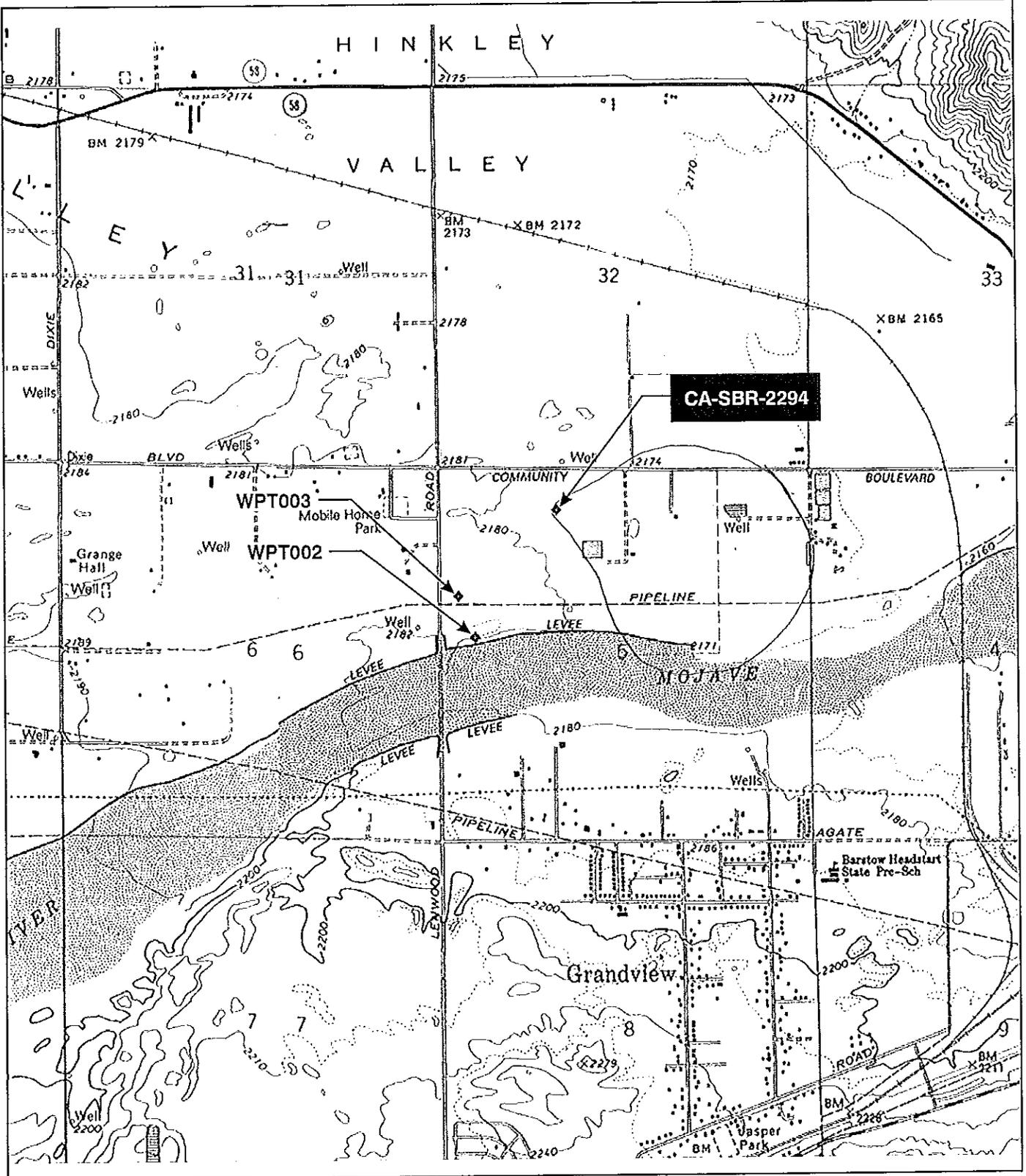
Page 2 of 2

Resource Name or #: WPT004

Map Name: Barstow, CA

Scale: 1:24,000

Date of Map: 1991

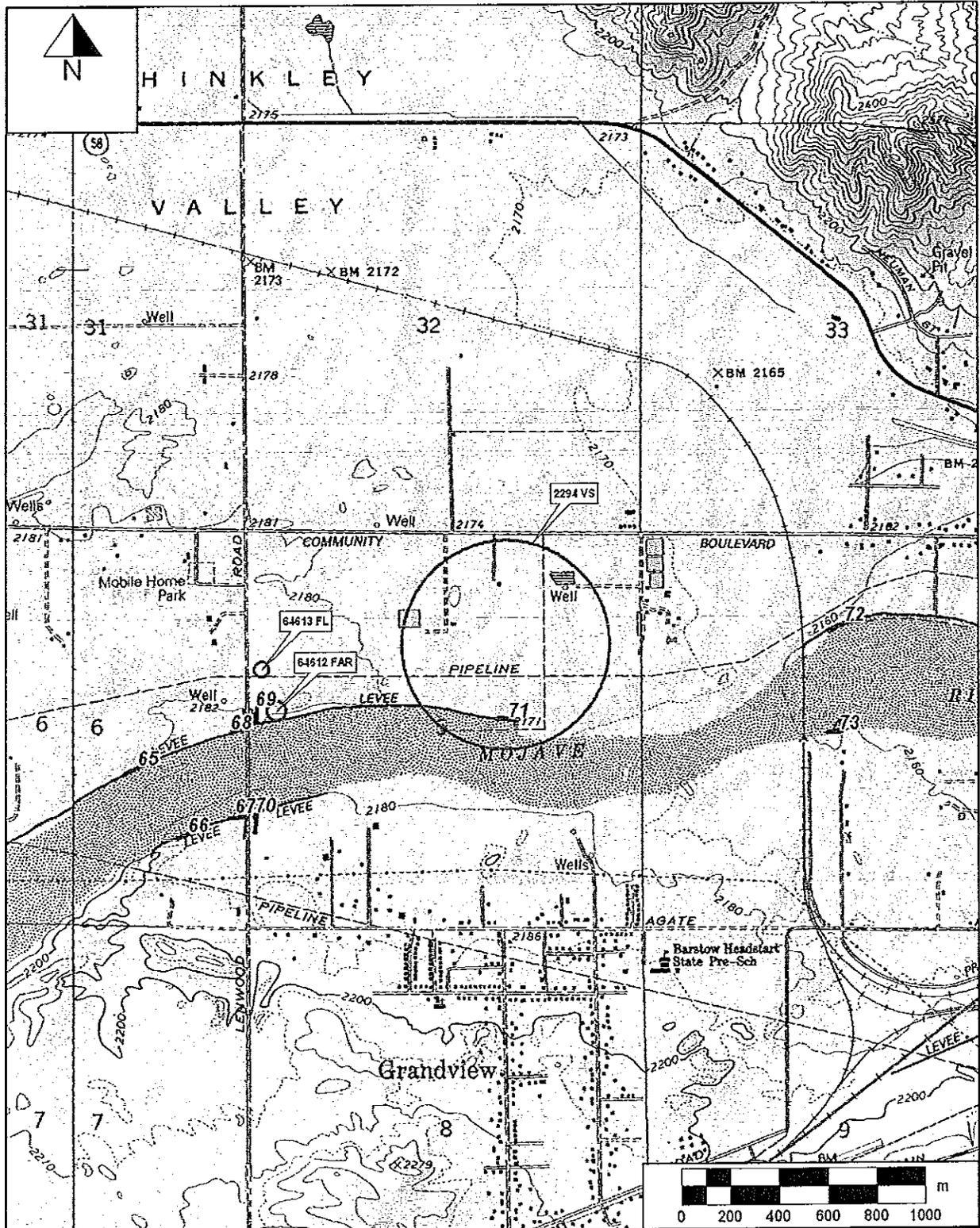


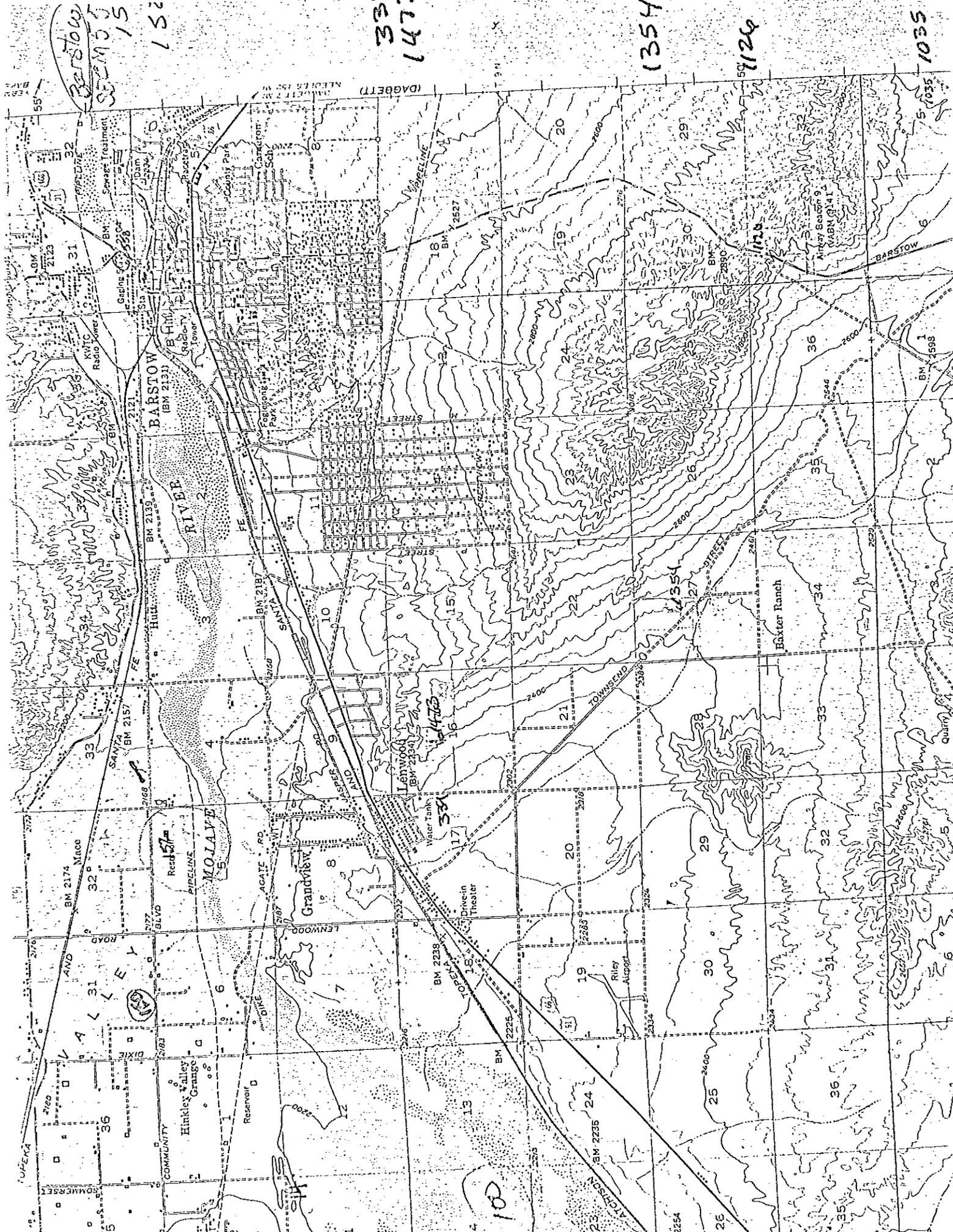
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #:
HRI#
Trinomial: CA-SBR-2294 (UPDATE)
FS #

Page 2 of 2
*Map Names: Barstow

*Resource Name or Number (Assigned by recorder): CA-SBR-2294
*Scale: 1:24,000
*Date of Map: 1971 (photorevised 1993)





Barstow
SE 152

33
147

1354

59126

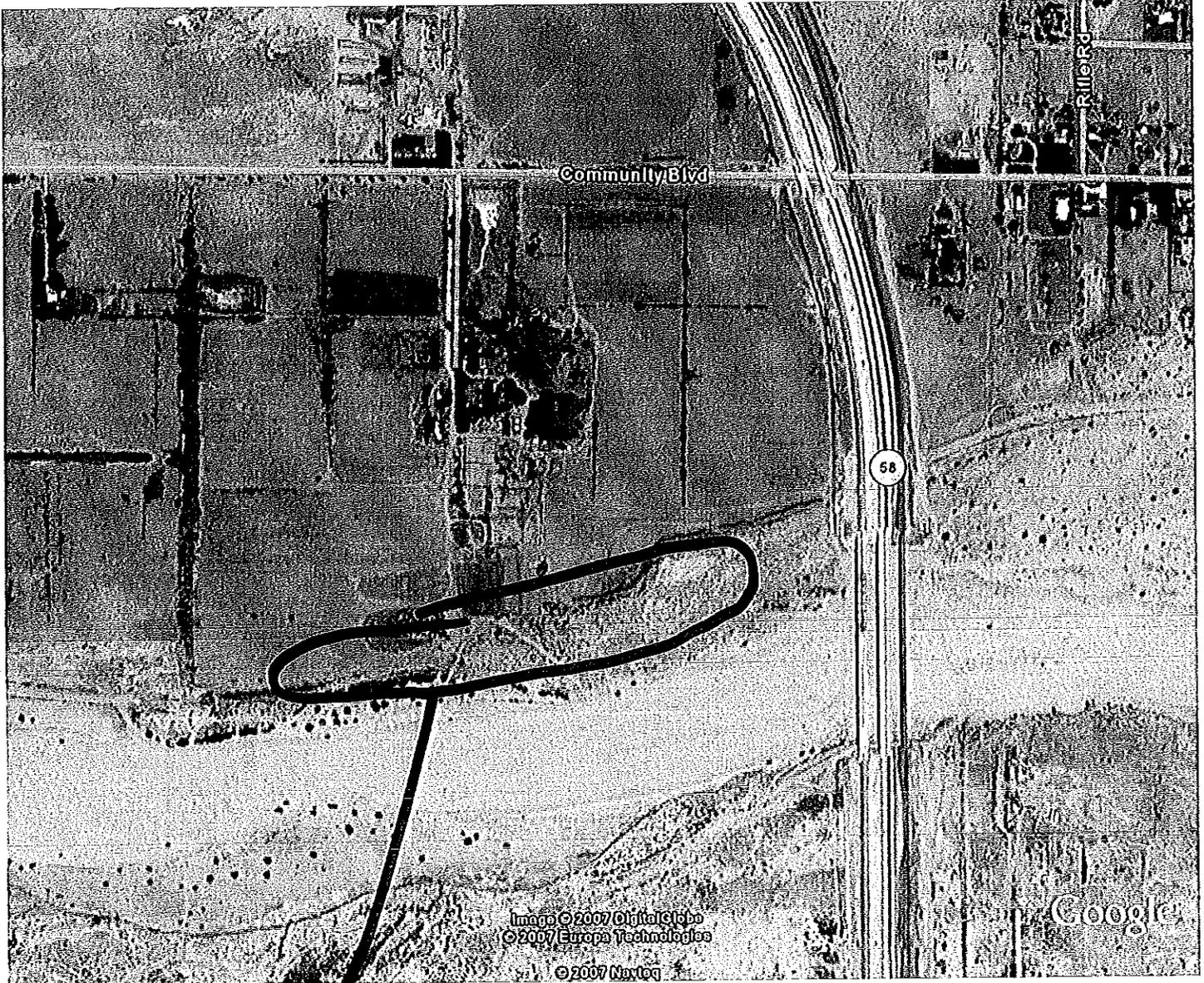
1035

100

1035

36-002294

4/07



CA-SBR-2294/UPDATE
MARCH 2007

SB 2294
P36-002294

SAN BERNARDINO COUNTY MUSEUM

Archaeological Site Survey Record

MACE - MOJAVE RIVER

- 1. Site 152 2. Map BARSTOW 15'3 3. Country S. Berdn
- 4. Twp. 9N Range 2W NW 1/4 of 11E 1/4 of Sec. 5
- 5. Location S. of Community Blvd. + E. of Lenwood Rd.
- 6. On Contour Elevation _____
- 7. Previous designations for site _____
- 8. Owner _____ 9. Address _____
- 10. Previous owners, dates _____
- 11. Present tenant _____
- 12. Attitude toward excavation _____
- 13. Description of site _____
- 14. Area _____
- 15. Depth _____
- 16. Height _____
- 17. Vegetation _____ 18. Nearest water _____
- 19. Soil of site _____ 20. Surrounding soil type _____
- 21. Previous excavation _____
- 22. Cultivation _____ 23. Erosion _____
- 24. Buildings, roads, etc. _____
- 25. Possibility of destruction _____
- 26. House pits _____
- 27. Other features _____
- 28. Burials _____
- 29. Artifacts PROJECTILES, POINTS, LITHICS
- 30. Remarks _____
- 31. Published references _____
- 32. Other Museum Reference _____ 33. Sketch map _____
- 34. Date 1949 35. Recorded by S.L. Peck 36. Photos _____

