

DRAFT ENVIRONMENTAL IMPACT REPORT

***TECHNICAL APPENDICES
VOLUME I***

The Keystone Project



Prepared for:
City of Santa Clarita

Prepared By:



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Environmental Planning and Research

July, 2005

APPENDIX 4

Cultural Resources

APPENDIX 4-A

A Phase 1 Cultural Resources Investigation, McKenna et al (2004)

**A PHASE I CULTURAL RESOURCES
INVESTIGATION OF THE KEYSTONE
PROJECT AREA IN THE SANTA
CLARITA AREA OF LOS
ANGELES COUNTY,
CALIFORNIA**

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A PHASE I CULTURAL RESOURCES INVESTIGATION OF THE KEYSTONE PROJECT AREA IN THE SANTA CLARITA AREA OF LOS ANGELES COUNTY, CALIFORNIA

by,

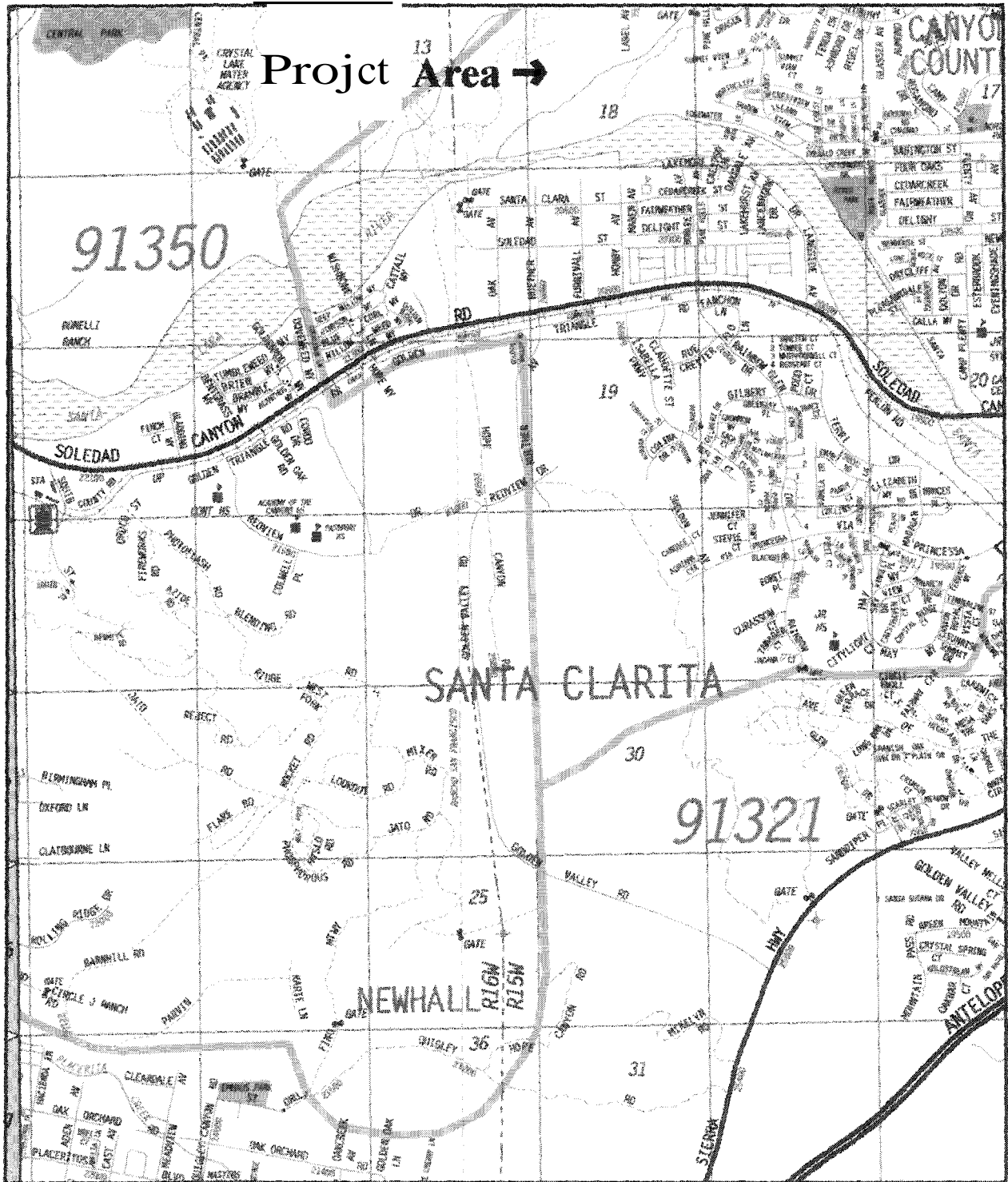
Jeanette A. McKenna, Principal, M.A./RPA
McKenna et al., Whittier CA

INTRODUCTION

McKenna et al. initiated the Phase I cultural resources investigations of the Keystone project area in the Santa Clarita area of Los Angeles County at the request of Curtis Zacuto of Christopher A. Joseph and Associates, Westlake Village, California. The property consists of approximately 240 acres of relatively unimproved land on the north side of the Santa Clara River and within Soledad Canyon. The proposed action involves the subdivision and subsequent development of the property as a residential community with some commercial frontage. The proposed development requires compliance with the California Environmental Quality Act (CEQA), as amended, and the California Subdivision Map Act.

LOCATION AND SETTING

The current project area lies in the northwestern portion of Los Angeles County - in an area known as Soledad Canyon and/or Santa Clarita (Figure 1). Specifically, the project location is within Township 4 North, Range 15 West, Section 18 (Figure 2). The parcel consists of approximately 240 acres of undeveloped land in two distinct parcels (Figure 3). The property is located north of the Santa Clara River and north of Soledad Canyon Road. The property is accessed from Ermine Street (from the northeast) and Santa Clara Street (from the south). The extension of Santa Clara Street (Honby Ave.) crosses the Santa Clara River and enters the property from the south. One structure and three ponds are identified within the project area on the current USGS quadrangles (see Figure 2).
Insert figure 1



1. General Location of the Project
Figure

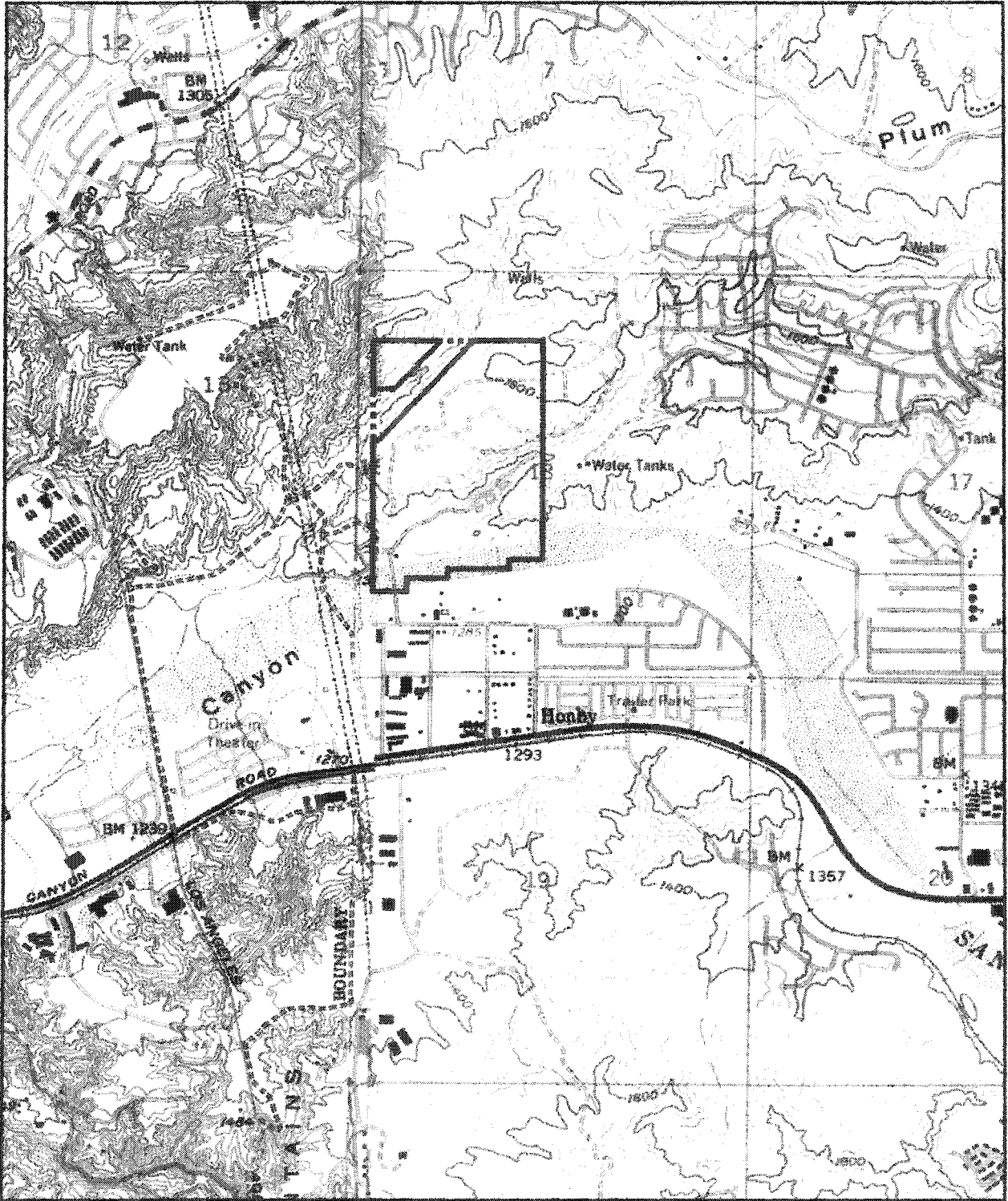


Figure Specific Location of the Project Area (USGS Newhall (west) and Mint Canyon (east) Quadrangles)

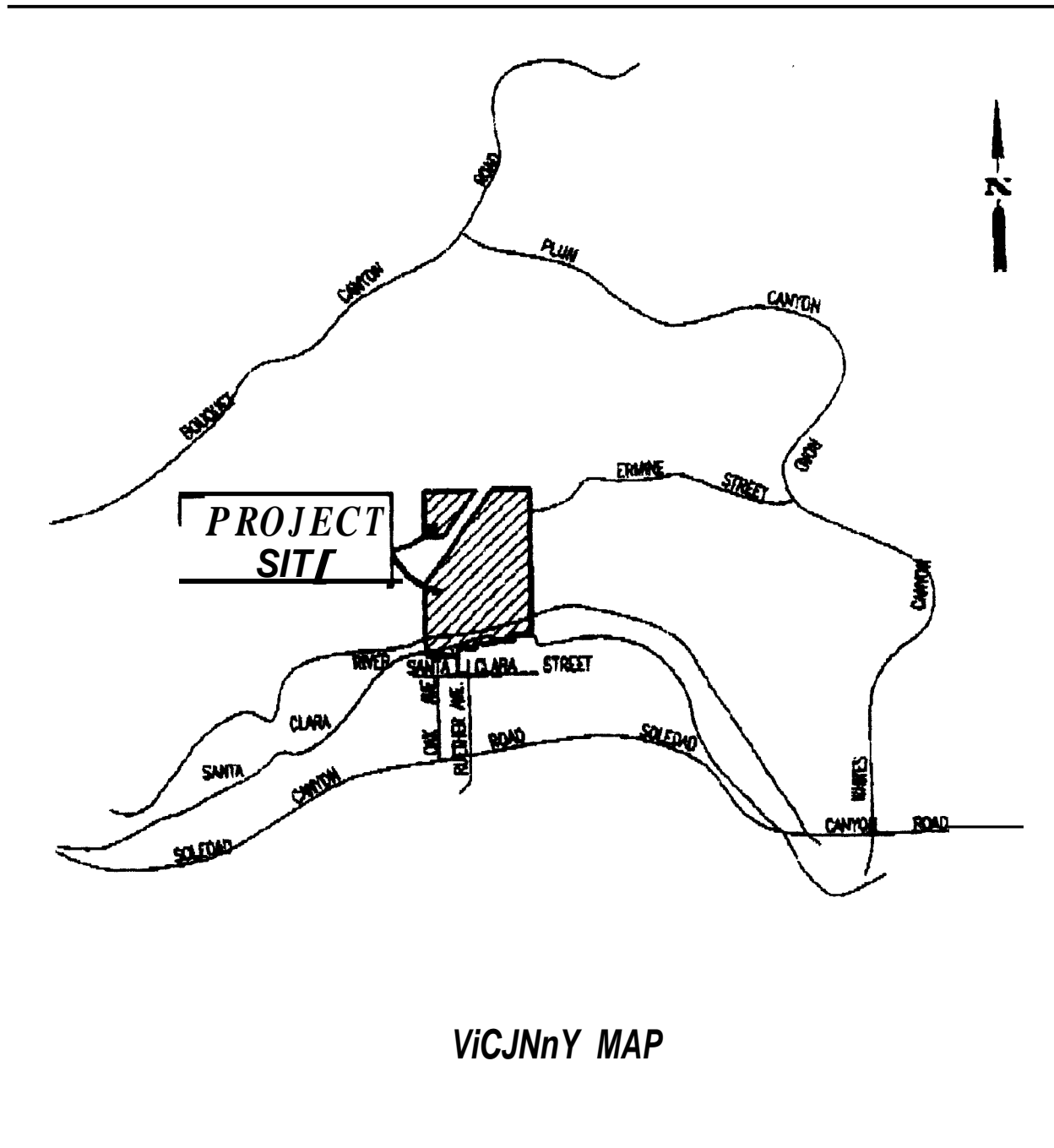


Figure 3. Vicinity Map as Defined by the Proponent.

These areas are within Soledad Canyon and near the San Gabriel Mountains - Soledad Canyon representing the link between the San Gabriel Mountain area and the southwestern extent of the Mojave Desert. McCorkle-Apple and Lilburn (1992:1) characterizes this particular area as:

... Formed by late Tertiary and Quaternary extensional faulting, these mountains are comprised of crystalline rocks of pre-Tertiary age; sedimentary and volcanic rocks of Tertiary age; and sediments and local basalt flows of Quaternary age (Dibblee 1967). Most of these mountain ranges are separated by basins or valleys that lack external drainages resulting in the formation of dry lakes or playas. Seasonal precipitation drains toward the alluvial basins, but is usually absorbed into the ground prior to reaching them (Wright and Frey 1965:289) ...

The Mojave Desert region (to the northeast) is geologically a great wedge-shaped fault block. It is bounded by the San Andreas and Garlock fault zones on the southwest and north, respectively, but has no definite natural eastern limits. Mountain ranges separate the Mojave Desert from the coastal area to the southwest, and from the Basin and Range province to the north. The desert itself is characterized by north-south trending mountain ranges which enclose expanses of arid valleys and low-lying basins or sinks (Harry 1992). Lithic resources are restricted to the buttes and ridges which rise above the unconsolidated alluvium. Because few systematic archaeological surveys have been conducted in the area, it is unknown how widespread are lithic materials suitable for prehistoric tool production (Harry 1992).

The climate of the area is described as sub-arid, transitional between the relatively colder climate of the nearby Great Basin and the subtropical climate of the Sonoran Desert (McCorkle-Apple and Lilburn 1992:2; Axelrod 1979). Seasonal temperatures vary, as do levels of rain, general humidity, and wind. Temperatures can range from below 60° Fahrenheit to over 100° Fahrenheit. Sparse precipitation and high temperatures create a situation where evaporation exceeds precipitation, particularly in those areas lying below 5,000 feet above mean sea level (AMSL) in elevation (Warren and Crabtree 1986:183). Reliable water sources are currently available only along major rivers, inter-mittent streams and springs, and seasonal claypans.

During the early Holocene (10,500 to 8,000 B.P.) climatic fluctuations have been recorded. During this time, there was a trend towards warming and drying characterized by the disappearance of lakes and a reduction in the number of springs. The area became wetter in the middle Holocene (ca. 5,100 B.P.) and warmer and drier again post-2,000 B.P. Citing Weide (1982), the last 2,000 years have been characterized by considerable "climatic oscillations" ranging from extreme droughts and massive flooding.

The effects of changing paleoclimatic conditions on the hydrological, floral and faunal patterns of the western Mojave Desert and adjacent mountain areas are only partially understood. The flora and fauna of this area adjusted to the changing conditions and sparse fresh water sources. Flora is dominated by the presence of creosote bush scrub (*Larrea divaricata*) and salt bush (*Atriplex*

confertifolia). Citing Barbour and Major (1977), creosote is drought-tolerant and salt bush is often found near dry playas. Blackbrush (*Coleogyne ramosissima*) and various species of cacti are also common.

Local fauna includes a variety of reptiles, rodents, small carnivores, and birds. Species of reptiles include the desert tortoise (*Gopherus Agassizi*), chuckawalla (*Sauromalus obesus*), rattlesnakes (*Crotalus*), shovelnose snake (*Chionactis occupitalis*) and several species of lizards. Carnivores include coyotes (*Canis latrans*), badger (*Taxidea taxus*), desert kit fox (*Vulpes macrotis*), and bobcat (*Felis rufus*). The small mammals include blacktailed jackrabbits (*Lepus californicus*), woodrat (*Neotoms* sp.), ground squirrels (*Spermophilus* sp.), and cottontail jackrabbits (*Sylvilagus audobonii*). Large herbivores, though not common, include the desert bighorn sheep (*Ovis canadensis*) and mule deer (*Odocoileus hemionus*) - at higher elevations. Avifauna include the LeConte thrasher (*Toxostoma lecontei*), sage thrasher (*Oreoscoptes montanus*), cactus wren (*Heleodytes brunneicapillus*), raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), various ducks (*Anas*), and the American coot (*Fulica americana*).

CULTURE HISTORY BACKGROUND

Grenda, in Becker (1999:7-14), presents a summary of the culture history background for Southern California. Cited here:

Of the many cultural sequences of southern California, three main regional syntheses are commonly used in modern archaeological interpretation. The first, advanced by Wallace in 1955, defines four cultural horizons, each with local variations: Early Man, Millingstone, Intermediate, and Late Prehistoric. Wallace's (1978) revision divides the sequence into three broader periods: Period I, hunting; Period II, food collecting; and Period III, diversified subsistence. Between Wallace's (1955) original synthesis and his revision (1978), Warren (1968) proposed his regional synthesis. Employing a more ecological approach, Warren defined five traditions in southern California. Three of the five traditions are represented in the project region: San Dieguito, Encinitas, and Campbell. In addition to the Colorado River and interior desert regions, San Dieguito was later incorporated into the larger Western Pluvial Lakes tradition that extends from northeastern California to the Mojave Desert and the San Diego coastal area (Bedwell 1970).

An earlier report associated with the William J. Fox Airfield summarized the culture history background for the nearby Antelope Valley by citing the chronologies presented in Glennan (1971) and Sutton (1981), but relying on the coastal chronology of Wallace (1955). McKenna et al. suggests the coastal chronology is not applicable here and, in contrast, suggests the project area is more directly associated with the Western Mojave Desert and/or Great Basin populations than those of the coast. Citing McCorkle and Lilburn (1992:6):

While much is known about the prehistory of the Mojave Desert, relatively few formal archaeological investigations have been conducted in the southern portion of the central Mojave. As a result, little specific regional information on prehistory is known. General summaries can be found in Stickel and Weinman-Roberts (1980), Warren (1980, 1984), and Warren and Crabtree (1986).

Chronological Framework

The earliest generally accepted evidence for human occupation of the Mojave desert dates from around 12,000 B.P. Claims have been made for much earlier dates (e.g. Simpson 1958), but as Warren and Crabtree (1986: 184) note, these are controversial and bear little relationship to later cultural developments in the region.

Sites dating to the Lake Mojave period (12,000 to 7,000 B.P.) serve as the basis for our understanding of the earliest undisputed occupation of the Mojave Desert. Sometimes considered a Paleo-Indian assemblage, the Lake Mojave complex is thought by some researchers to be directly ancestral to the subsequent early Archaic cultures (Warren and Crabtree 1986). Lake Mojave period sites are usually open air sites and are limited to the surface, although sites with substantial subsurface deposits have been recently identified in the central Mojave (Jenkins 1985).

Since sites of the Lake Mojave period are often found in association with Late Pleistocene/Early Holocene lake stands and outwash drainages, some researchers have suggested that lacustrine resources were a subsistence focus. Others argue that grasslands suitable for the grazing of Late Pleistocene mega-fauna would have surrounded the terminal Pleistocene lakes, and that this was the main subsistence focus of the Lake Mojave cultural groups (Warren and Crabtree 1986). Regrettably, few sites dating to the early part of the Lake Mojave period have been excavated and little direct evidence of subsistence practices has been reported. Recent excavations of sites dated to the latter part of the period have revealed an unexpectedly high incidence of small mammal bone relative to large mammal bone. This suggests that we may need to refine our ideas about the subsistence focus of Lake Mojave cultures, or at least grant that substantial subsistence change occurred during the period.

Artifacts typical of the period include leaf-shaped points and long-stemmed, narrow-shouldered points of the Lake Mojave series and the short-bladed, shouldered points of the Silver Lake series. A variety of large scrapers and flaked stone crescents are also considered diagnostic of the period. Milling equipment is thought to be rare or absent (Amsden 1937). Fluted points are sometimes found in possible association with Lake Mojave sites, but their cultural and chronological relationship to the stemmed point series remains questionable.

Relatively little material from the Lake Mojave period has been documented in the southern Mojave. Some of the earliest widely accepted finds come from the Black

Butte site (CA-SBR-1554). This site is located on the south side of Black Butte, a volcanic plug approximately 6km west of the Troy Lake portion of Lake Manix. The site assemblage is dominated by later period Pinto points but also contains a Lake Mojave point, a Silver Lake point and two items tentatively identified as crescents (Lord 1987).

The next identifiable period in the Mojave Desert is that associated with Pinto series points (Warren and Crabtree 1986). Although period markers, some questions remain concerning their placement in time. Two scenarios exist, both of which are tied to the transition to arid conditions in the middle Holocene. Some archaeologists (Donnan 1964; Kowta 1969; Wallace 1962) have proposed by the desert was essentially abandoned between 7,000 and 5,000 B.P. Other researchers (Susia 1964; Tuohy 1974; Warren 1980) argue that no evidence of an occupational hiatus of any great magnitude exists within the archaeological record. Central to this debate are the de-finition and dating of Pinto points (Warren and Crabtree 1986). The problem is complicated by the fact that points morphologically similar to Pinto points occur generally later in time in the central and eastern Great Basin than do true Pinto points in the Mojave (Thomas 1981; Vaughan and Warren 1986).

Like sites of the preceding period, Pinto sites are typically found in open settings in relatively well-watered locales. Early Pinto sites have been found in close association with late Lake Mojave sites, lending support to Warren and Crabtree's suggestion that the Pinto cultures developed directly from the preceding Lake Mojave ones. The Pinto period signals the beginning of cultural adaptation to the desert, an adaptation to the more arid conditions. Grinding tools were incorporated into the artifact assemblage, suggesting that the processing of hard seeds became more important in the subsistence system. It is, however, generally thought that Pinto peoples main-tained a mobile subsistence strategy, focused primarily on hunting large mammals.

A time of greater effective moisture in the Mojave dates to approximately 4,000 B.P. This time period, sometimes referred to as the Little Pluvial (Warren 1980), also corresponds to a new era in Mojave Desert prehistory. It was during this time, the Gypsum Period (4,000 to 1,500 B.P.), that more favorable environmental conditions allowed an increase in the population (Elston 1982). Ritual items such as zoomorphic rock art and split-twig figures are thought to indicate a continued emphasis on hunting, while the increased importance of processing of plant foods is indicated by an increase in the frequency and diversity of groundstone implements (Warren and Crabtree 1986). Open sites are in evidence, along with rock shelters and caves. Such sites have yielded perishable goods including basketry and atlatls from the Gypsum period. Habitation sites with well developed middens are found in association with water and near resource areas. During this period shell beads from coastal California are found in the desert for the first time. Trade activity appears to have been greater in many parts of the Great Basin during the Gypsum period

(Bennyhoff and Hughes 1987).

West of the project area and just south of Troy Lake is Newberry Cave. This Gypsum period site contained a number of Elko and Gypsum points, along with perishable items. The collection from Newberry Cave is notable for the number of apparent ritual items, including split twig figures, painted stones, quartz crystals, a sheep dung pendant and pictographs.

Eastgate and Rose Spring points began to dominate artifact assemblages in the Mojave sometime after 2,000 B.P. (Lyneis 1982:176). In the chronology presented by Warren and Crabtree (1986) these are assigned to the Saratoga Springs period (1,500 B.P. to 750 B.P.). This time period was marked by an increase in regional differences, except in the northwestern Mojave where sociocultural continuity seems to have occurred (Whitley 1988).

Basketmaker III and Anasazi developments occurred along the tributaries of the Colorado River. Anasazi "influence" in the form of painted ceramics extended well into the eastern Mojave. Although the exact nature of this influence is not completely understood (Lyneis 1982), it seems probable that the increased distribution of these painted ceramics resulted from exchange rather than by Anasazi attempts to greatly expand their territory. Different influences were felt in the southern Mojave. Here Hakatayan (or Yuman) ceramics similar to those originating in the lower Colorado River occur, along with Cottonwood points. This interaction is most evident along the Mojave River, supporting the widely held conclusion that the Mojave River served as a major trade corridor connecting the coastal portion of California with regions to the east (Warren and Crabtree 1986).

The Oro Grande site in the western Mojave may be a key site in understanding varying cultural influences during the Saratoga Springs period. Situated on the Mojave River near Victorville, this site contains a midden deposit dated to the period between 1,100 and 650 B.P. (Rector 1979). Cottonwood series points dominate the point assemblage. Significantly, no ceramics were recovered. Other materials at the site, however, were similar to those found in other sites along the river. The more gradual development of Lower Colorado River influences may account for the lack of pottery at Oro Grande although Warren (1984) considers the absence of ceramics to be strong evidence for the presence of Rogers' (1945) "nonceramic Yuman" pattern. The Oro Grande complex would then be the "initial phase" of the Hakataya influence in the upper Mojave. Warren (1984:403) proposes that the complex may not have developed in the Mojave Sink, because the Anasazi influence may have persisted there until it was replaced by fully developed Hakatayan cultures.

The next period, the Protohistoric period (750 B.P. to contact), was marked by the presence of Desert Side-notched projectile points. The Numic influence during this period is identified with the presence of brownware, considered typical of the Paiute and Shoshone. Based on the distribution of this brownware, the contact between the

Numic and the Lower Colorado (Patayan or Hakatayan) traditions was located north of Soda Lake and Cronise Lake basins (Warren 1984:425). Recent work in the region appears to support this conclusion (Schneider 1988; Jenkins 1986; York 1989). Protohistoric period sites include habitation sites with developed middens, located near reliable water sources. Temporary camps and a variety of resource procurement and processing stations also occur.

Earlier, in the late 1770's, Francisco Garces first encountered the Chemehuevi and then the Kawaiisu peoples when he traversed the Fort Irwin area during his exploratory expeditions of the desert regions of southern California (Coombs 1982; Cultural Systems Research, Inc. 1987; Zigmond 1986). Approximately 50 years after Garces' trips, Jedediah Smith's expedition encountered the Chemehuevi approximately 8 miles up the Mojave River from Soda Lake (Cultural Systems Research, Inc. 1987). Other exploratory expeditions in the 1850's that crossed the Mojave Desert reported Indian settlements marked by the presence of brush huts, empty tortoise shells, melon and squash rinds, and some rock art (Coombs 1982). John C. Fremont's expedition in 1844 was one of the most important early surveys of the Mojave; it firmly established a knowledge of the major geographic, botanic and geologic features of the region (Greenwood and McIntyre 1980).

Soledad Canyon was discovered by Williamson in 1853 and originally known as New Pass. Later, the pass was renamed Williamson Pass, but by 1859, known as Le Soledad Pass (Gudde 1969:316), after an Indian Village in the area. "*Agua Dulce*" is the Spanish form of "*Sweet Water*", originally a reference to a fresh water source in Riverside County (Mendenhall 1983:80). The current project area is located in Soledad Canyon, describes by Gudde (1969:316) as:

The Spanish word for "solitude" ... The pass was discovered by Williamson in 1853 ... Blake renamed it Williamson's Pass, in honor of the discoverer ... the Land Office map of 1859 relabels it La Soledad Pass, after an Indian village so named, shown on the *diseno* of Rancho San Francisco, 1838.

METHODOLOGY

To adequately address the CEQA requirements for compliance, McKenna et al. completed the following tasks.

1. Archaeological Records Check: McKenna et al. completed a standard archaeological records check through the California State University, Fullerton, South Central Coastal Information Center (Appendix B). This research was designed to provide baseline information on studies completed within the area (one mile radius), site forms for recorded resources, and data pertaining to significant or listed properties in the area. This data was used to place the proposed project area within a context for the preliminary identification

and evaluation in accordance with CEQA criteria.

2. Native American Consultation: McKenna et al. conducted the Native American consultation by contacting the Native American Heritage Commission in Sacramento and inquiring into the presence/absence of significant sites in the general area. McKenna et al. also obtained a listing of Native Americans within Los Angeles County that may have information regarding the area. These communications have resulted in no written comments and no specific concerns with respect to archaeological resources (Appendix C).
3. Supplemental Research: In addition to the standard archaeological records check, McKenna et al. reviewed previous completed reports, obtained information on the historic development of the area, and assessed the relative level of sensitivity for the project area to yield historic or prehistoric resources.
4. Paleontological Overview: A paleontological overview was prepared by Dr. Samuel McLeod of the Los Angeles County Museum of Natural History (Appendix D).
5. Field Survey: McKenna et al. surveyors, Richard S. Denniston, B.A., and Elizabeth Stoffers, B.A., surveyed the project area on March 6, 2004. The intensive field survey was accomplished by walking paralleling transects across the property at intervals averaging 15 meters apart. All accessible areas of the property were examined. The field survey was supplemented by general field notes and a photographic record (Appendix E) and the surveyor carried a Magellan GPS hand-held system to record any locational data necessary to relocate a specific artifact or geographical location.
6. Analysis of the Data Compiled: Upon completion of the field studies and research, McKenna et al. had at least two major data sets available for analysis: 1) the previous research data; and 2) the recently compiled data. McKenna et al. used these two sets of data to address the sensitivity of this area to yield significant cultural resources.
7. Report Preparation: This technical report was prepared in a format and with data contents dictated by the state guidelines and slightly adapted this format to address the issues particular to this property and project. All pertinent data has been included for review and comment.

PREVIOUS RESEARCH

An archaeological records search was conducted on March 25, 2004, at the South Central Coastal Information Center, for the above referenced project (see Appendix B). This search included a review of all recorded historic and prehistoric archaeological sites within a one mile radius of the project area as well as a review of all known cultural resource reports. In addition, the file of historic maps, the California Points of Historical Interest (PHI), the listing of California Historical Landmarks (CHL), the California Register of Historic Resources Inventory (HRI) have been checked for the referenced project.

The project area is split across two quadrangles (Mint Canyon and Newhall). That portion of the project area illustrated on the Mint Canyon Quadrangle was surveyed in part (Romani and Greenwood 1991; Wlodarski 1996; and Valentine-Maki 1993), each survey being a linear survey. The project area was surrounded by nine other surveys (see Appendix B). One prehistoric archaeological site (CA-LAN-0295) and five historic archaeological sites (CA-LAN-2040 through -2044) have been recorded within one mile of the project area, but not within the project area. None will be impacted by the proposed project.

With respect to that portion of the project area being illustrated on the Newhall Quadrangle (a very small portion of the project area), a total of fourteen studies have been completed within one mile, four of which involve portions of the project area (the three studies listed above and Whitley and Simon 1994). Despite the extent of coverage in this area, only two prehistoric isolates and two historic archaeological sites (CA-LAN-2105 and CA-LAN-2132) have been recorded. None are within the project area and none will be impacted by the proposed project.

No listed properties have been recorded in the area. As a result of these investigations, McKenna et al. has determined that the project area may be moderately sensitive for historic resources and less sensitive for prehistoric resources.

RESULTS OF THE INVESTIGATIONS

The specific area identified as the Keystone project area is located north of the Santa Clara River and within Soledad Canyon. The project area dominates the western half of Section 18. Research through the Bureau of Land Management General Land Office records has shown that this area was subdivided and owned relatively early. Some owners in the western half of Section 18 include:

Walter W. Varner (1897) - 153.99 acres
 Frank G. Teachout (1895) - 153.57 acres
 Belle B. Long (1923) - 113.57 acres [p/o Teachout acres]
 Dayton M. Furnivall (1917) - 146.99 acres
 Joseph W. Furnivall (1917) - 158.54 acres [p/o Varner acres]

In each case, these were homestead records, suggesting there should be some evidence of improvements to the property(ies). The 1900 San Fernando Quadrangle illustrates a single structure in the western half of Section 18 - on the southern boundary of the Section (outside the project area). It also illustrates a road within the Section, a road that is also south of the current study area. The 1940 San Fernando Quadrangle illustrates a significant amount of development to the south of the project area (but also still within Section 18. A dirt road is illustrated in Section 18, crossing the project area from southwest to northeast. This road is also illustrated on the current USGS Mint Canyon Quadrangle, along with other dirt and improved roads. The current USGS Quadrangle (revised

1988) illustrates a single structure in the southwestern corner of the property (accessed by an improved road) and the presence of at least three ponds. Other improvements are illustrated within the Section, but outside the project area. Based on the color-coding of the USGS maps, the structure illustrated in Section 18 also pre-dates 1960.

The project area is located near the Santa Clara River and rises from south to north. Within the project area, the terrain undulated considerably and include a blue line stream in the northern half of the tract and some flat expanses of open land. Despite the changes in elevation, the property is easily accessed and readily available for visual inspection. The soils were generally sandy - more so near the river and drainage. Visibility was good. The hillsides showed exposed bedrock in some areas and modern/recent debris (e.g. broken concrete and other building materials) have been illegally dumped along the access roads. The property has been impacted by all terrain vehicles and these areas were void of vegetation, providing opportunities for additional visual inspection (see Appendix E).

The survey was completed by walking paralleling transects at intervals between 10 and 15 meters apart, when possible. Areas of denser vegetation (small clumps identified throughout the area) were considered to represent relatively stable surfaces that may yield evidence of prehistoric or historic remains and, therefore, checked more carefully. In the more steep areas, emphasis was placed on the ridges and ravines rather than the slopes (those greater than 45 degrees).

Areas exhibiting relatively small areas of undisturbed desert pavements (areas of concentrated pebbles or small cobbles) were also checked for evidence of prehistoric or historic remains. Despite the intensive surveying techniques, no evidence of prehistoric or historic cultural remains were identified within the project area. No standing structures were identified and the ponds were not evident. They were apparently removed after the completion of the 1988 USGS map. As a result of these negative findings, McKenna et al. has concluded that this particular property is clear of any potentially significant resources and not likely to yield buried deposits. Neither the Native American Heritage Commission or any of the local Native American representatives had information to suggest this area was sensitive for prehistoric cultural resources.

The paleontological overview prepared by Dr. McLeod (Appendix D) notes that there are areas within the project area that are likely to yield fossil specimens, especially if development will require extensive excavations. The more sensitive areas are in the northern half of the property - upslope and away from the river. Extensive excavations with the property should be monitored for paleontological specimens and, if uncovered, recovered, analyzed, and curated in accordance with County guidelines.

SUMMARY AND RECOMMENDATIONS

Based on the recent investigations, McKenna et al. has determined that the project area is clear of any significant archaeological resources and the proposed project will not adversely impact any such resources. There is no need to have an archaeological monitor on site for ground altering activities. However, should previously unidentified resources be uncovered as a result of a proposed

development, archaeological testing/evaluation of the identified resource(s) must be completed and the monitoring recommendations may be modified. McKenna et al. recommends that the proponent have an archaeological consultant on-call and prepared to respond to any materials unearthed during future ground altering activities.

Paleontological resources are likely to be identified within the project area and, therefore, McKenna et al. recommends that a paleontological monitor be on-site during the grading of this property. This will be especially necessary during any work in the northern half of the property, although such resources may be found anywhere within the property. The monitor must have the authority to halt activities seen to be adversely impacting potentially significant specimens and must be afforded the time and funding necessary to adequately recover, analyze, and curate any specimens uncovered. The extent and duration of the monitoring program can be determined once the actual grading plans are developed.

Any changes to this report will require the written authorization of the author, Jeanette A. McKenna, Principal Investigator for McKenna et al.

Jeanette A. McKenna, Principal, McKenna et al.

Date

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APPENDIX A:

Professional Qualifications

JEANETTE A. McKENNA

Owner and Principal Investigator

McKenna et al., Whittier CA

Ms. McKenna specializes in the field of Cultural Resource Management: prehistoric archaeology, historic archaeology, and history. She is a recent-past member of the Board of Directors for the Society of Professional Archaeologists (SOPA 1993-97) and is certified by the Registry of Professional Archaeologists (RPA) to conduct both prehistoric and historic archaeological studies. Ms. McKenna has 24 years of professional experience as an archaeologist and has served on over 500 projects. The majority of her work has been conducted as a Field Director, Project Manager, and/or Principal Investigator in California and Arizona.

TECHNICAL CAPABILITIES

- Vast experience in the greater Southwest, Great Basin, and Southern California regions. Familiar with the full range of cultural resource investigations and has completed projects within the public and private sectors, including environmental management firms, planning and engineering firms, and State and federal agencies.
- Active in the discipline of Cultural Resource Management since 1976 with over 18 years of experience in Southern California and another 5+ years in Arizona, Nevada and Central and Northern California.
- Particular interest in the desert regions of California and Arizona, with specializations in the Proto-historic and Historic Contact Periods.
- Considerable experience in dealing with prehistoric cultural remains (the majority of her career spent directly associated with Native American sites) and working directly with Native American groups in archaeological training programs (through Arizona State University and the Southern California Indian Center, Garden Grove).

EDUCATION AND AFFILIATIONS

B.A., Anthropology, 1977, CSU Fullerton

M.A., Anthropology, 1982, CSU Fullerton

Lambda Alpha Lambda Honors Society

Post Graduate Studies, Arizona State University, 1982-85

Post Graduate Studies, History Department

University of California, Riverside, 1991-92

Certification Program: CEQA, Land Use and Environmental Planning, University of California, Riverside, 1997-98

Society of Professional Archaeologists (SOPA) 1984-1997

Registry of Professional Archaeologists (RPA) (1997-2001)

Board of Directors, SOPA 1993-1997

BLM California Permit No. CA-99-01-031

BLM Arizona State Permit No. AZ-000107

SELECTED PROJECT EXPERIENCE

- Historic Architectural Studies for Renovation and Restoration of the Greek Theatre, Los Angeles CA
- Principal Investigator/Project Manager, Historic Building Survey, South Pasadena Unified School District, South Pasadena, Los Angeles County, CA
- Evaluation of Cultural Resources within the Burbank and West Hollywood Redevelopment Project Areas, Los Angeles County, CA
- HABS Recordation of the Currier Complex, City of Industry, Los Angeles County, CA
- Archaeological Mitigation Program, The Phoenix Indian School Track Site Project. Arizona State University Office of Cultural Resource Management and the Bureau of Indian Affairs, Phoenix, AZ
- Historic Property Survey Reports: Warner Bros. Main Lot Ranch Lot Properties, Burbank, CA
- Historic Archaeological Investigations for L.A. County Sheriff's Facility, Lancaster, CA
- Historic Property Surveys (2) for the City of Redondo Beach, Los Angeles County, CA
- Preparation of the Historic Resources Element and Policies for the City of Highland, San Bernardino County, CA
- Historic Resource Survey for Portions of the Historic Community of Prescott, AZ
- Historic Building Evaluations, The McGrath Ranch Complex, Oxnard, Ventura County, CA
- Evaluation of Historic Archaeological Sites at the Montecito Ranch, Riverside County, CA
- Historic Artifact Inventory, Del Mar Sites, San Diego County, CA

APPENDIX B:

Archaeological Records Check

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
Reg. Professional Archaeologist

March 25, 2004

RE: Record Search for the Archaeological Survey in Los Angeles County, CA. on the Mint Canyon and Newhall 7.5' USGS Quadrangles (McKenna et al. Job 04.896)

A record search was conducted on March 25, 2004, at the South Central Coastal Information Center, for the above referenced project. This search includes a review of all recorded historic and prehistoric archaeological sites within a one mile radius of the project area as well as a review of all known cultural resource reports. In addition, the file of historic maps, the California Points of Historical Interest (PHI), the listing of California Historical Landmarks (CHL), the California Register of Historic Resources Inventory (HRI) have been checked for the referenced project. The following is a discussion of the findings for the project area.

Archaeological Resources:

Mint Canyon 7.5' USGS Quadrangle

One recorded prehistoric archaeological site (19-000295) has been identified within a one mile radius of the project area. Of which, it is not located within the project area. No prehistoric isolates have been identified within a one mile radius of the project area.

Five historic archaeological sites (19-002040, 19-002041, 19-002042, 19-002043 and 19-002044) have been identified within a one mile radius of the project area. Of which, they are not located within the project area. No historic isolates have been identified within a one mile radius of the project area.

Newhall 7.5' USGS Quadrangle

No recorded prehistoric archaeological sites have been identified within a one mile radius of the project area. Two prehistoric isolates (19-100133 and 19-100134) have been identified within a one mile radius. Of which, they are not located within the project area.

Two historic archaeological sites (19-002105 and 19-002132) have been identified within a one mile radius of the project area. Of which, they are not located within the project area. No historic isolates

have been identified within a one mile radius of the project area.

Historic Resources:

No recorded historic built environments have been identified within a one mile radius of the project area (see enclosed map).

A copy of the historic map - San Fernando (1900 and 1940) - has been copied for review.

The California Point of Historical Interest (1992) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a one mile radius of the project area.

The California Historical Landmarks (1990) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a one mile radius of the project area.

The California Register of Historic Places lists no properties within a one mile radius of the project area.

The National Register of Historic Places lists no properties within a one mile radius of the project area.

The California Historic Resources Inventory lists no properties that have been evaluated for historical significance within a one mile radius of the project area.

Previous Cultural Resources Investigations:

Mint Canyon 7.5' USGS Quadrangle

Twelve studies (LA54, LA209, LA571, LA1032, LA1114, LA1117, LA2170, LA2503*, LA2590, LA2996*, LA3690* and LA3840) have been conducted within a one mile radius of the project area. Of these, three are located within the project area. (* = Located within the project area).

Newhall 7.5' USGS Quadrangle

Fourteen studies (LA1032, LA1114, LA1775, LA1896, LA2170, LA2503*, LA2996*, LA3387, LA3690*, LA3913, LA4104, LA4506, LA5850 and LA6093) have been conducted within a one mile radius of the project area. Of these, three are located within the project area. (* = Located within the project area).

Bibliography: 04.896 - Mint Canyon 7.5' USGS Quad

IC ID#: LA209

DATE: 1976

PAGES: 12

AUTHOR: Home, Wiley

FIRM:

TITLE: Letter Report of archaeological Survey for Los Angeles County Sanitation Project Engineer
Report for Soledad Canyon Relief Trunk Sewer Section 4

AREA:

SITES: None

QUADNAME: Mint Canyon

MEMO:

IC ID#: LA2170

DATE: 1990

PAGES: 13

AUTHOR: Norwood, Richard H.

FIRM: RTFACTFINDERS

TITLE: Cultural Resource Survey for Tentative Tract Map No. 49688, 38
Acres in Santa Clarita, California

AREA:

SITES: None

QUADNAME: NEWHALL

MINT CANYON

MEMO:

Bibliography: 04.896 - Mint Canyon 7.5' USGS Quad

IC ID#: LA2503

DATE: 1991

PAGES: 92

AUTHOR: ROMANI, JOHN F. AND ROBERTA S. GREENWOOD

FIRM: Greenwood and Associates

TITLE: Historic Property Survey Report & Archaeological Survey Report & Historic Architectural
Survey Report for the Route 126 Location Study (Easterly Extension) From Interstate 5 To State
14, Santa Claita Valley, Los Angeles County, California
07-LA-126 R5.8/R12.7 07820-065710

AREA: 6 li mi

SITES: CA-LAN-351, LAN-1824, LAN-1829

QUADNAME: Mint Canyon

NEWHALL

MEMO:

IC ID#: LA2590

DATE: 1992

PAGES: 18

AUTHOR: RASSON, JUDITH AND ROBERTA S. GREENWOOD

FIRM: Greenwood and Associates

TITLE: An Archaeological Reconnaissance of Tract 31803, a 220 Acre
Parcel in Plum Canyon, Los Angeles County

AREA:

SITES: CA-LAN-2040H, LAN-2041H, LAN-2042H, LAN-2043H,
LAN-2044H

QUADNAME: Mint Canyon

MEMO:

Bibliography: 04.896 - Mint Canyon 7.5' USGS Quad

IC ID#: LA2996

DATE: 1993

PAGES: 33

AUTHOR: Valentine-Maki, Mary

FIRM: Fugro McClelland (West), Inc.

TITLE: Cultural Resources Survey for the Proposed Santa Clara River Horse and Bike Trail Santa Clarita, Los Angeles County, California

AREA: 3 li mi

SITES: CA-LAN-1829, LAN-1824, LAN-351, LAN-1077

QUADNAME: Mint Canyon

Newhall

MEMO:

IC ID#: LA3690

DATE: 1997

PAGES: 56

AUTHOR: Wlodarski, Robert J.

FIRM: Historical, Environmental, Archaeological, Research, Team

TITLE: Cultural Resources Evaluation City of Santa Clarita Circulation Element EIR

AREA: 36 limi

SITES: 19-000951,19-000065

QUADNAME: Mint Canyon

Newhall

MEMO:

IC ID#: LA3840

DATE: 1996

PAGES: 39

AUTHOR: Wlodarski, Robert J.

FIRM: HEART

TITLE: A Phase I Archaeological Study: Santa Clarita Water Company Application 29898 for 13 Existing Well Site Locations, Los Angeles County, Ca.

AREA: 6.5 ac

SITES: None

QUADNAME: Newhall, Mint Canyon

MEMO:

Bibliography: 04.896 - Mint Canyon 7.5' USGS Quad

IC ID#: LA54 DATE: 1974 PAGES: 7

AUTHOR: Leonard, N. Nelson, III

FIRM: UCLA Archaeological Survey

TITLE: Archaeological Resources of the PROPOSED CASTAIC ConDUIT
SYSTEM

AREA: 2 ac, 9 limi

SITES: CA-LAN-351

QUADNAME: NEWHALL

MINT CANYON

MEMO:

IC ID#: LA571 DATE: 1979 PAGES: 16

AUTHOR: Davis, Lois and Bruce Love

FIRM: UCLA, ARCHAEOLOGY

TITLE: An Archaeological Assessment of A PROPOSED 400 UNIT MOBILE
HOME PARK in CANYON COUNTRY, Los Angeles County, CALifornia.

AREA: 92 ac

SITES: none

QUADNAME: Mint Canyon

MEMO:

Bibliography: 04.896 - Newhall 7.5' USGS Quad

IC ID#: LA1896 DATE: 1989 PAGES: 19

AUTHOR: Van Yoast, Judy

FIRM: SCIENTIFIC RESOURCE SURVEYS, INC.

TITLE: Cultural Resource Survey Report on the Proposed Bouquet Canyon
Treatment Plant Site Santa Clarita, Los Angeles County, California

AREA: 100 ac

SITES:

QUADNAME: NEWHALL

MEMO:

IC ID#: LA2170 DATE: 1990 PAGES: 13

AUTHOR: Norwood, Richard H.

FIRM: RT FACTFINDERS

TITLE: Cultural Resource Survey for Tentative Tract Map No. 49688, 38
Acres in Santa Clarita, California

AREA:

SITES: None

QUADNAME: NEWHALL

MINT CANYON

MEMO:

Bibliography: 04.896 - Newhall 7.5' USGS Quad

IC ID#: LA2503

DATE: 1991

PAGES: 92

AUTHOR: ROMANI, JOHN F. AND ROBERTA S. GREENWOOD

FIRM: Greenwood and Associates

TITLE: Historic Property Survey Report & Archaeological Survey Report & Historic Architectural Survey Report for the Route 126 Location Study (Easterly Extension) From Interstate 5 To State 14, Santa Claita Valley, Los Angeles County, California

07-LA-126 R5.8/R12.7 07820-065710

AREA: 6 li mi

SITES: CA-LAN-351, LAN-1824, LAN-1829

QUADNAME: Mint Canyon

NEWHALL

MEMO:

IC ID#: LA2996

DATE: 1993

PAGES: 33

AUTHOR: Valentine-Maki, Mary

FIRM: Fugro McClelland (West), Inc.

TITLE: Cultural Resources Survey for the Proposed Santa Clara River Horse and Bike Trail Santa Clarita, Los Angeles County, California

AREA: 3 li mi

SITES: CA-LAN-1829, LAN-1824, LAN-351, LAN-1077

QUADNAME: Mint Canyon

Newhall

MEMO:

Bibliography: 04.896 - Newhall 7.5' USGS Quad

IC ID#: LA3387 DATE: 1994 PAGES: 70

AUTHOR: Whitley, David, Joseph Simon

FIRM: W&S CONSULTANTS

TITLE: Phase I Archaeological Survey and Cultural Resource Assessment for the 750 Acre Soledad Canyon Study Area, Los Angeles County, California

AREA: 750 ac

SITES: CA-LAN-351,1824,1829,2105-H, 19-100133-4

QUADNAME: NEWHALL

MEMO:

IC ID#: LA3690 DATE: 1997 PAGES: 56

AUTHOR: Wlodarski, Robert J.

FIRM: Historical, Environmental, Archaeological, Research, Team

TITLE: Cultural Resources Evaluation City of Santa Clarita Circulation Element EIR

AREA: 36 limi

SITES: 19-000951, 19-000065

QUADNAME: MintCanyon

Newhall

MEMO:

IC ID#: LA3913 DATE: 1997 PAGES: 35

AUTHOR: Unknown

FIRM: W & S Consultants

TITLE: Phase I Archaeological Survey and Cultural Resources Assessment of the Castaic Lake Water Agency Study Area, Los Angeles County, California

AREA: 475 ac

SITES: 19-002105H, 19002131H

QUADNAME: Newhall

MEMO:

Bibliography: 04.896 - Newhall 7.5' USGS Quad

IC ID#: LA4104

DATE: 1993

PAGES: 36

AUTHOR: Mako, Michael E.

FIRM: Mako Archaeological Consulting

TITLE: Cultural Resource Evaluation of the LADWP Power Plant !-Olive Line !Transmission Line
Maintenance Project Los Angeles County, California

AREA: 5 ac

SITES: 19-100253,19-002132

QUADNAME: Green Valley, Newhall, Warm Springs Mtn.,Mint Canyon, San Fernando

MEMO:

IC ID#: LA4506

DATE: 1999

PAGES: 33

AUTHOR: Wlodarski, robert

FIRM: HEART

TITLE: A Phase I Archaeological Study: the Golden Valley Road-Soledad Canyon Road Interchange
Project, Los Angeles County, California

AREA: 28 ac

SITES: 19-002132

QUADNAME: Newhall

MEMO:

IC ID#: LA5850

DATE: 1999

PAGES: 13

AUTHOR: Duke, Curt

FIRM: LSA

TITLE: Cultural Resource Assessment for the AT&T Wireless Services Facility Number
CSI I.I, County of Los Angeles, California

AREA: 0.25

SITES: None

QUADNAME: Newhall

MEMO:

Bibliography: 04.896 - Newhall 7.5' USGS Quad

IC ID#: LA6093

DATE: 2002

PAGES: 11

AUTHOR: Duke, Curt

FIRM: LSA Associates, Inc.

TITLE: Cultural Resource Assessment AT & T Wireless Services Facility No. 03398 Los Angeles
County, California

AREA: .25 ac

SITES: none

QUADNAME: Newhall

MEMO:

APPENDIX C:

Native American Consultation

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
Reg. Professional Archaeologist

March 3, 2004

Rob Wood, Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

RE: Park Vista, Tentative Tract Map 60258

Mr. Wood:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

Please forward me any information you may have on Sacred Sites for these areas and a copy of your referral listing for Native American Contacts within Riverside County.

Sincerely,

Jeanette A. McKenna, Principal
McKenna et al.

NATIVE AMERICAN HERITAGE COMMISSION

111 CA. TOI. MALL, FLOOM 311
UCAAMI: NTO, CA 15814
(111) 09•4082
F11 (t11\$) 887•5190
W1b Site Wll\W,n+ce.gov



March 23, 2004

Jeanette A. McKenna
McKenna et al.
6008 Friends Avenue
Whittier, CA 90601

Sent by Fax: 562-271-0171
Number of Pages: 2

RE: Proposed 208 acre Park Vista Project, City of Santa Clarita, Los Angeles County

Dear Ms. McKenna:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific information in the sacred lands file does not indicate the absence of culture. Resource 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. 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 these individuals or groups, please notify me. With your assistance we are able to assure that our list contain current information. If you have any questions or need additional information, please contact me at (916) 653-040.

Sincerely,

Handwritten signature of Rob Wood in black ink.

Rob Wood
Environmental Specialist 111

NA II YI: AMI:fllCAN CUNACTS
Loe Anaee1e1coumy
Uerch 23, 2004

Charles Cooke
32835 Santiago Road
Acton • CA 93510
(881) 299..1244

**Chumash
Fernandeno
Tataviam
Kitanemuk**

Randy Guzman • Folkes
3044 East Street
Simi Valley , CA 18CJE16.3929
Y.ffffl rl,cx,m
(805 i97-5e05 (cell)

**Chumash
Fernandeeo
Tatavtam
==one Paiute**

Bewrty Salaz. Folkes
1931 Shadybrook Drive
Thousand oaks, CA 91362
805 492 7255

**Chimash
Tataviam
Femandefio**

LA City/County Native American Inclia.n Comm
Aon Andrlr:le, Dtrech:>r
3175 Weet 6th Street, Rm. 403
LOS Anaeeles , CA 90020
(21s) 351..ssoe
(213) 388-3996 FAX

San Femando Band cAMiesion Indians
John Valenzuela, Chairpenson
P.O. Sox 221838
Newhal , CA 91322

**Femandeño
Tataviam
Serrano
Vanyume
Kitanemuk**

Office
760)88H965
7e()) 949--2103

Thllil 11.t le aurMlionlr -ot the d911tat U.

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McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Ti'At Society
Cindi Alvitre
P.O. Box 1138
Avalon, California 90204

RE: Park Vista, Tentative Tract Map 60258

Ms. Alvitre:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

Please inform me of any concerns of issues you may have regarding Native American resources in these areas and please respond in writing for my records. I appreciate your concerns regarding these non-renewable resources.

Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

John Jeffredo
P.O. Box 669
San Marcus, California 92079

RE: Park Vista, Tentative Tract Map 60258

Mr. Jeffredo:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A. McKenna, MA
Owner and Principal Investigator
RPA Certified

March 3, 2004

Jim Valasquez
5657 Arlington Avenue
Riverside, California 92703

RE: Park Vista, Tentative Tract Map 60258

Mr. Valasquez:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Samuel H. Dunlap
P.O. Box 1391
Temecula, California 92593

RE: Park Vista, Tentative Tract Map 60258

Mr. Dunlap:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

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McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Art Alvitre
1302 Camden Lane
Ventura, California 93001

RE: Park Vista, Tentative Tract Map 60258

Mr. Alvitre:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Gabrielino/Tongva Tribal Council
Ernest P. Salas
514 E. Main Street
San Gabriel, California 91776

RE: Park Vista, Tentative Tract Map 60258

Mr. Salas:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Gabrielino/Tongva Tribal Council
Attn: Anthony Morales
P.O. Box 693
San Gabrielino, California 91778

RE: Park Vista, Tentative Tract Map 60258

Mr. Morales:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Louise Jeffredo-Warden
160 Los Banos
Moss Beach, California 94038

RE: Park Vista, Tentative Tract Map 60258

Ms. Jeffredo-Warden:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Dwayne Vigil
909 N. Walnut Drive
Santa Maria, California 93454

RE: Park Vista, Tentative Tract Map 60258

Mr. Vigil:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Mark Steven Vigil
315 South Elm Street
Arroyo Grande, California 93420

RE: Park Vista, Tentative Tract Map 60258

Mr. Vigil:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology /Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Owl Clan
Qun-tan Shup
48825 Sapaque Road
Bradley, California 93426

RE: Park Vista, Tentative Tract Map 60258

Mr. Shup:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology /Architecture/Paleontology

Jeanette A McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Diane Garcia Napoleone
1450 Camellia Circle
Carpenteria, California 93013

RE: Park Vista, Tentative Tract Map 60258

Ms. Napoleone:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

c/o Jeanette AMcKenna
6008 Friends Avenue
Whittier, California 90601-3724



Diane Garcia Napoleone
1450 Camellia Circle
Carpenteria, California 93013

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McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Owl Clan
Dr. Kote & Lin A'Lul'Koy Lotah
48825 Sapaque Road
Bradley, California 93426

RE: Park Vista, Tentative Tract Map 60258

Dr. Lotah:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Delia Dominguez
981 N. Virginia
Covina, California 91722

RE: Park Vista, Tentative Tract Map 60258

Ms. Dominguez:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Charles Cook
32835 Santiago Road
Acton, California 93510

RE: Park Vista, Tentative Tract Map 60258

Mr. Cook:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Beverly Salazar Oflikes
1931 Shadybrook Drive
Thousand Oaks, California 91362

RE: Park Vista, Tentative Tract Map 60258

Ms. Oflikes:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology /Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Melissa M. Para-Hernandez
119 North Balsam Street
Oxnard, California 93030

RE: Park Vista, Tentative Tract Map 60258

Ms. Para-Hernandez:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

San Fernando Mission Indians
Rudy Ortega
11640 Rincon Avenue
Sylmar, California 91342

RE: Park Vista, Tentative Tract Map 60258

Mr. Ortega:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

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Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

McKenna et al.

History/Archaeology/Architecture/Paleontology

Jeanette A McKenna, M.A.
Owner and Principal Investigator
RPA Certified

March 3, 2004

Anwa Wilanii
P.O. Box 3241
Idyllwild, California 92549

RE: Park Vista, Tentative Tract Map 60258

Ms. Wilanii:

McKenna et al. is initiating an investigation of the proposed 208 acre Park Vista project, located in the city of Santa Clarita, Los Angeles County (Township Four North, Range Fifteen West, Section 18). Please review the enclosed map for approximate project boundaries.

Please inform me of any concerns of issues you may have regarding Native American resources in these areas and please respond in writing for my records. I appreciate your concerns regarding these non-renewable resources.

Sincerely,

Jeanette A. McKenna

Jeanette A. McKenna, Principal
McKenna et al.

APPENDIX D:

Paleontological Overview

McKenna et al.

History/Archaeology/ Architecture/Paleontology

Jeanette A. McKenna, M.A.
Owner and Principal Investigator
Reg. Professional Archaeologist

March 3, 2004

Dr. Srunuel McLeod
Vertebrate Paleontology Section
Natural History Museum of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007

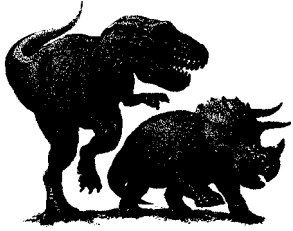
RE: Paleontological Overview.

Dear Dr. McLeod:

Please provide me with a standard paleontological overview for the area identified on the attached map. In this case, the project involves a 208 acre property in the City of Santa Clarita known as the Park Vista project. This project is also defined as Tentative Tract Map 60258. The property can be identified on both the Newhall and Mint Canyon, California, USGS quads. If you have any questions, please feel to call me at your convenience. Please send your billing to my address in Whittier (see above).

Sincerely,

Jeanette A. McKenna, Principal
McKenna et al.



NATURAL HISTORY MUSEUM
OF LOS ANGELES COUNTY

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

8 March 2004

McKenna et al.
6008 Friends Avenue
Whittier, California 90601-3724

Attn: Jeanette A. McKenna

re: Paleontological resources for the proposed Park Vista 208 acre property in the City of Santa Clarita, Los Angeles County, project area

Dear Jeanette:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed Park Vista 208 acre property in the City of Santa Clarita, Los Angeles County, project area as outlined on the section of the Newhall and Mint Canyon USGS topographic quadrangle maps that you sent to me on 3 March 2004. We do not have any vertebrate fossil localities directly within the proposed project area, but we do have localities within the same type and age sediments in the general vicinity.

In the low lying southern portion of the proposed project area in Soledad Canyon, and in the two drainages trending southwest-northeast through the proposed project area from Soledad Canyon, there are surface deposits of Quaternary gravel and alluvium that are unlikely to contain significant vertebrate fossils, at least in the uppermost layers. Older Quaternary sediments occur as surface deposits on top of the ridge between the two drainages. The underlying bedrock in the area, with exposures in the northern part of the proposed project area as well as between the drainages and the older Quaternary deposits on the ridge above them, is composed of the terrestrial Pliocene Saugus Formation. The older Quaternary sediments might contain extinct Late Pleistocene vertebrates similar to those found in the Rancho La Brea asphalt deposits. Our closest locality from these deposits is LACM 6803, discovered during excavation for a Metropolitan Water District tunnel in Saugus Formation rocks west-southwest of the proposed project area in Saugus, has produced fossil camel, Camelidae. Locality LACM 6871, between Castaic Creek and San Francisquito Canyon northwest of the proposed project area, produced fossil horse, *Equus*, and dog, Canidae, specimens also from the Saugus Formation.

Excavations into the older Quaternary deposits on the ridge in the center of the proposed project area might produce fossil vertebrate remains, but deeper excavations would likely expose significant fossil vertebrates in the older and poorly known Saugus Formation deposits. Any substantial subsurface excavation, therefore, should be monitored closely to quickly and

professionally recover any fossil remains while not impeding development. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

A handwritten signature in black ink, reading "Samuel A. McLeod". The signature is written in a cursive style with a large initial 'S' and 'M'.

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX E:

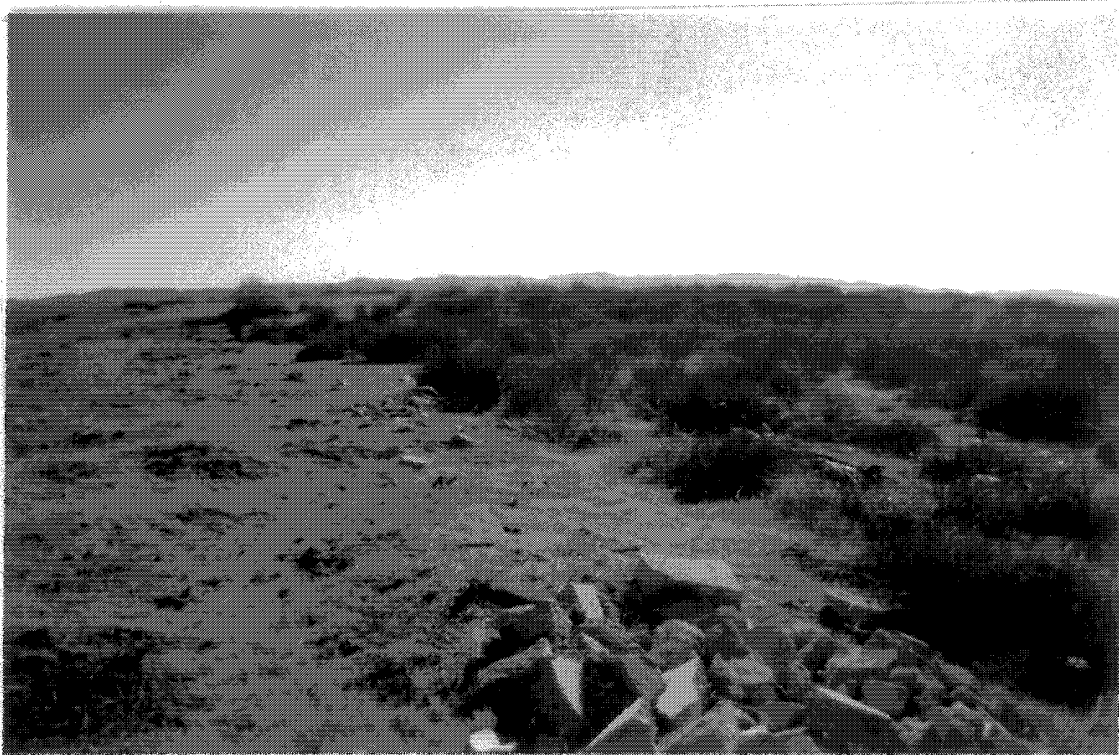
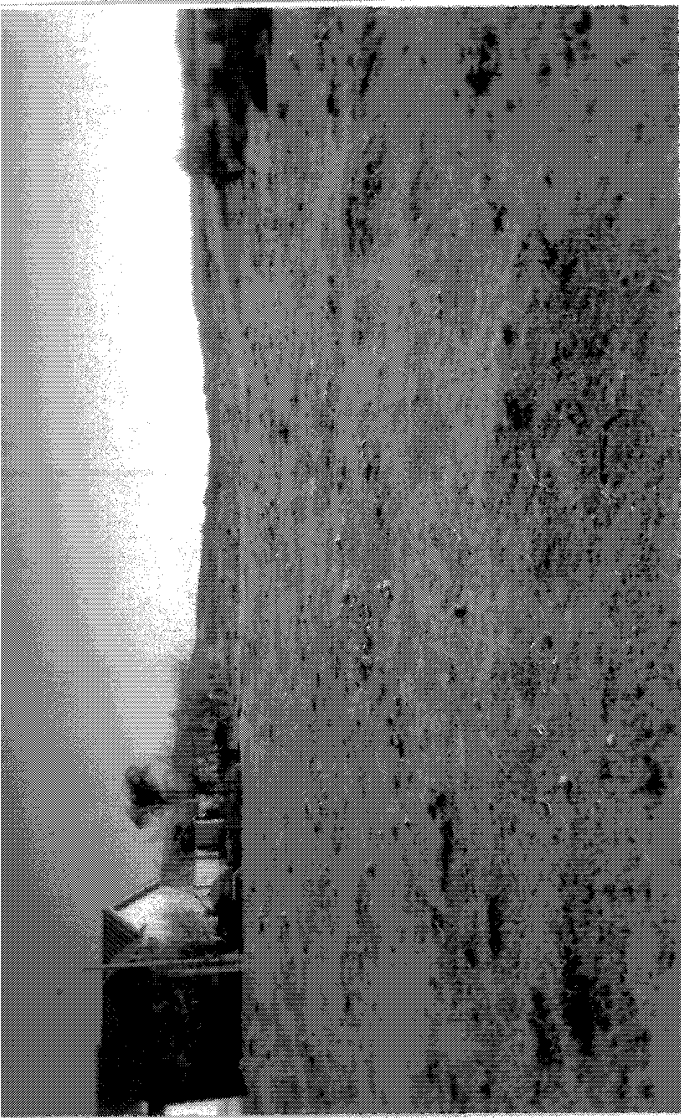
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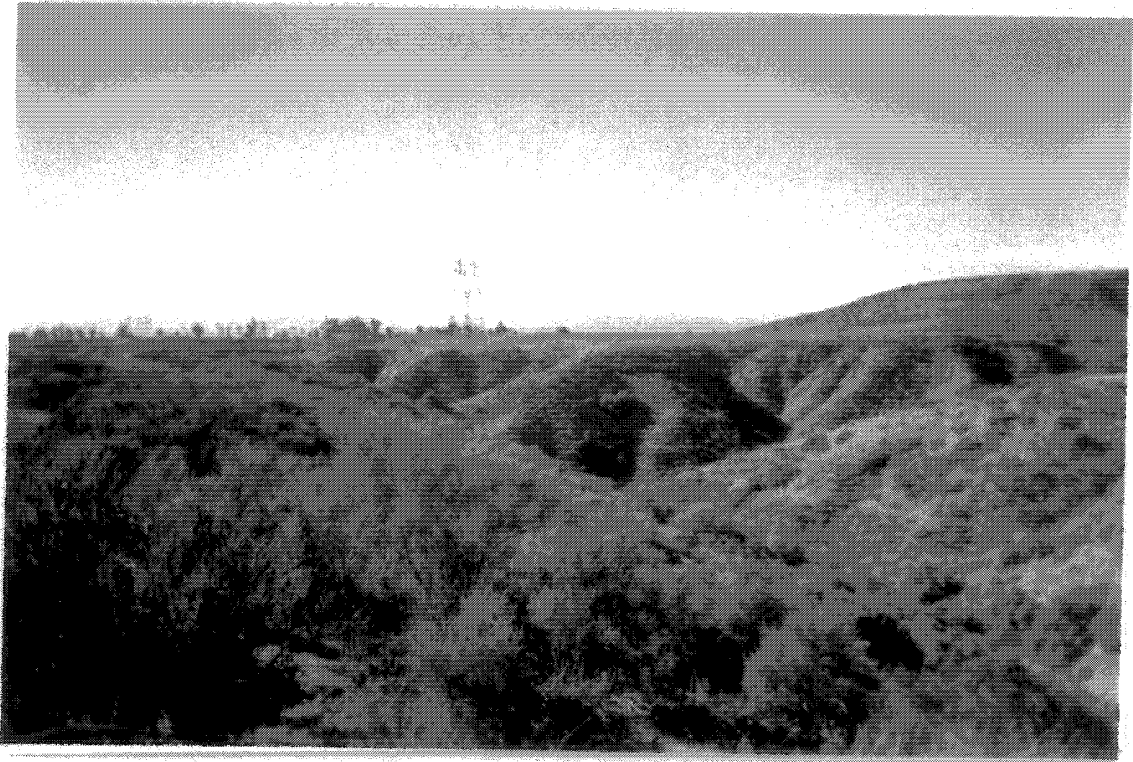
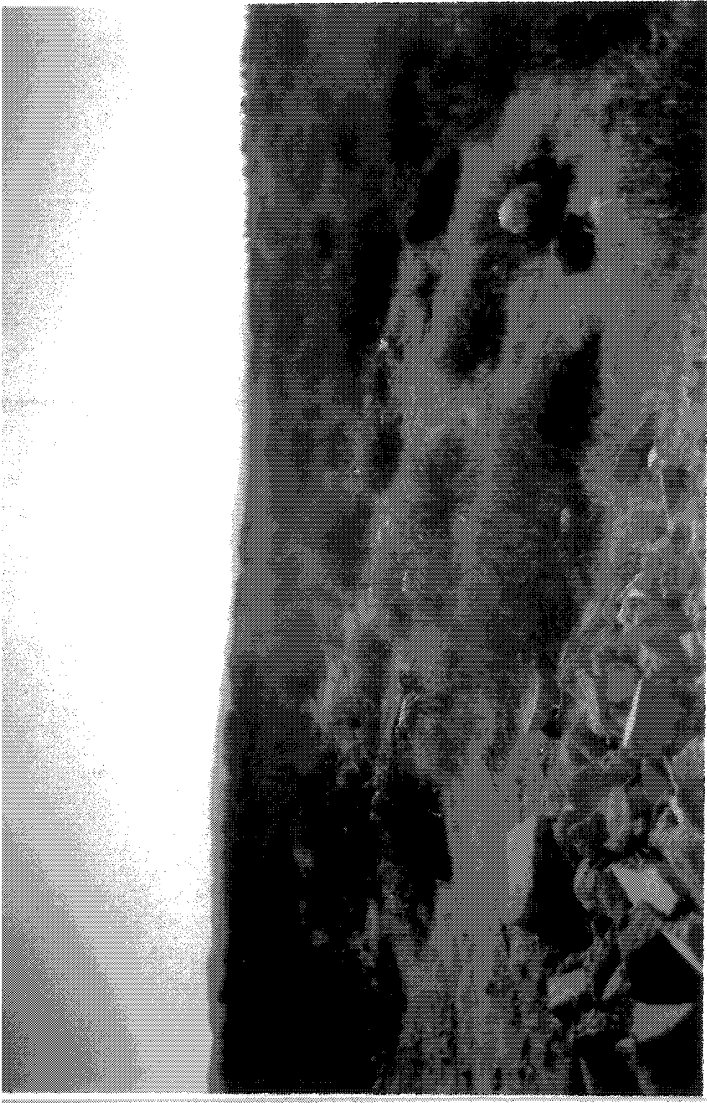
State of California – The Recorder's Office
 DEPARTMENT OF PARKS AND RECREATION
PHO **CORD**

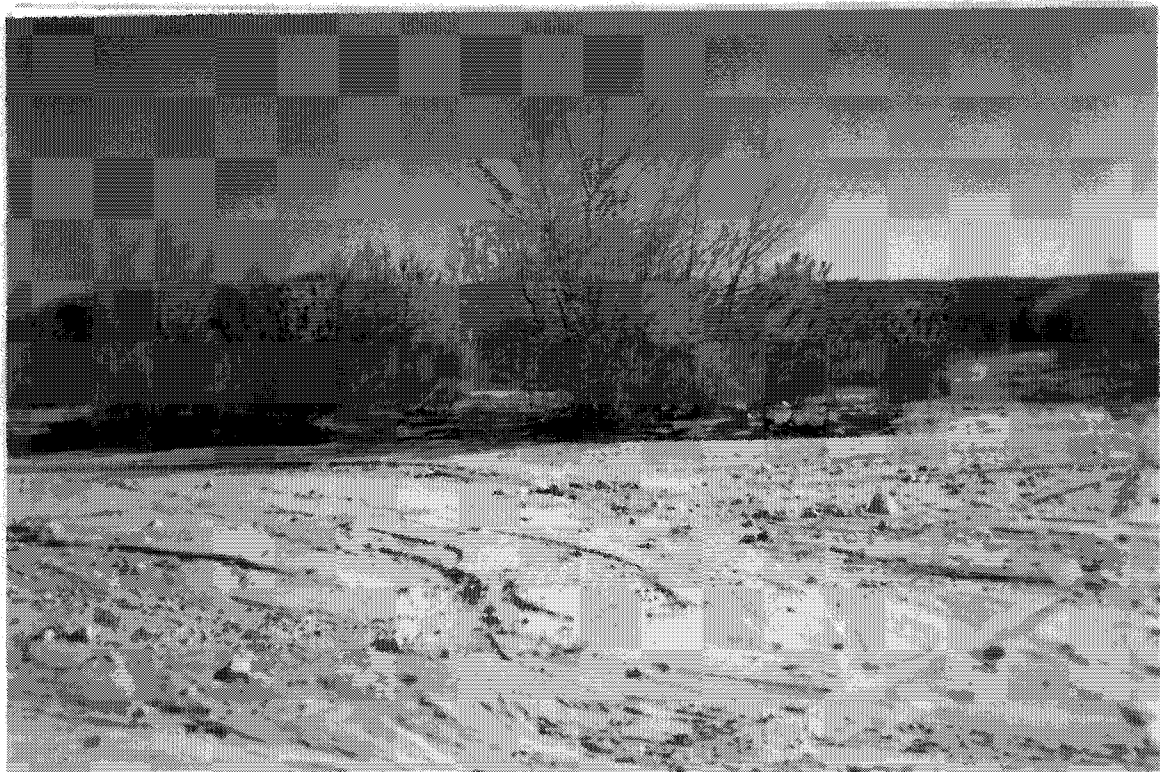
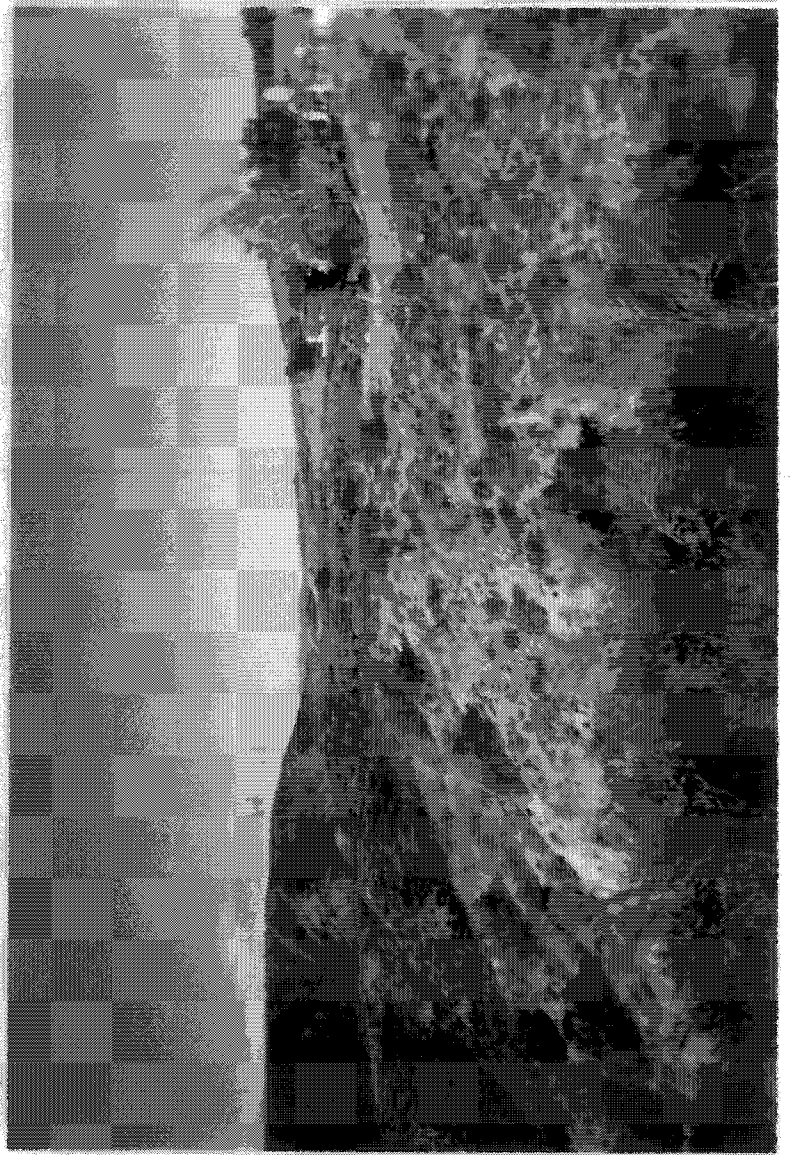
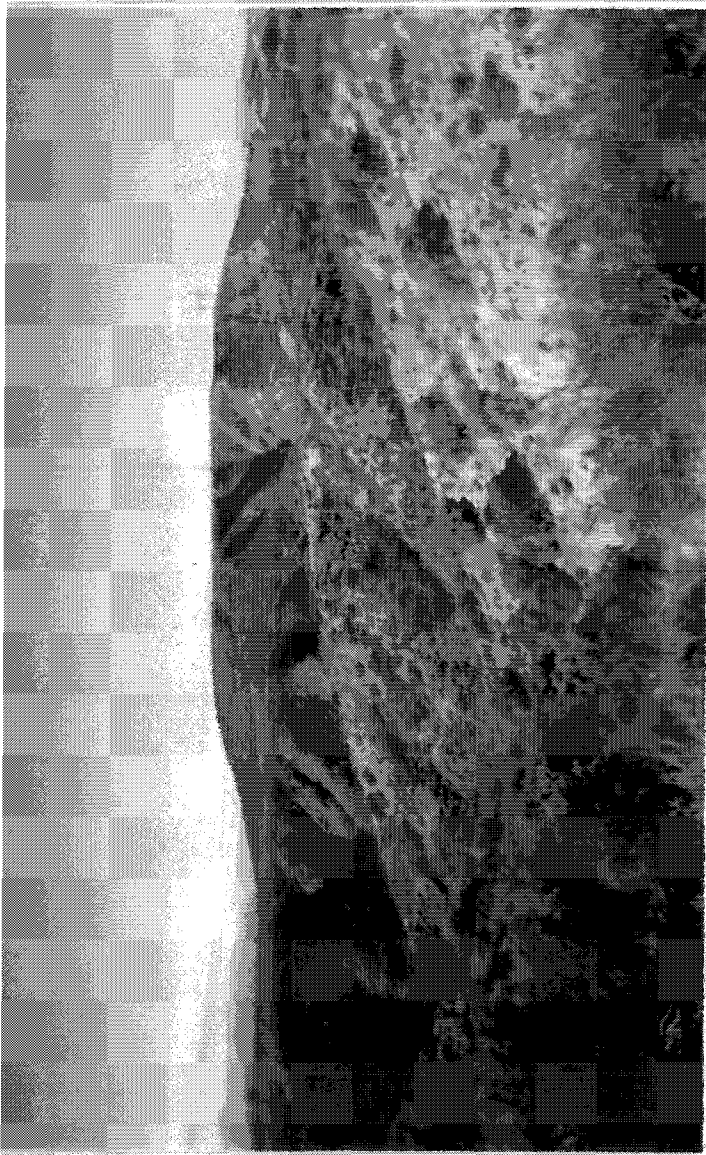
Primary # _____
 HRI # _____
 Trimmings _____

Page 1 of 1. Project Name or # (Assigned by the Recorder) 04.896 (Park Vista) Year 2004
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 Film Type and Speed: 200 ASA Color Print Negatives Kept At J/L/Kerm at Whittier CA f. 0001

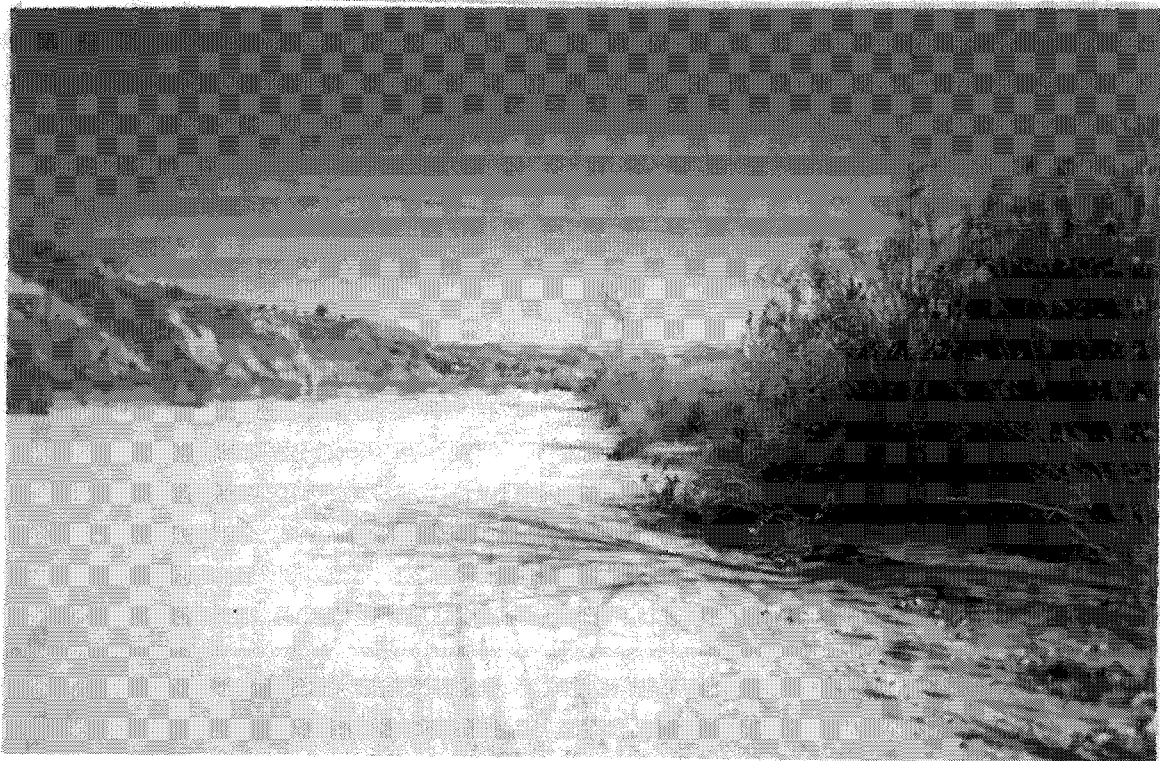
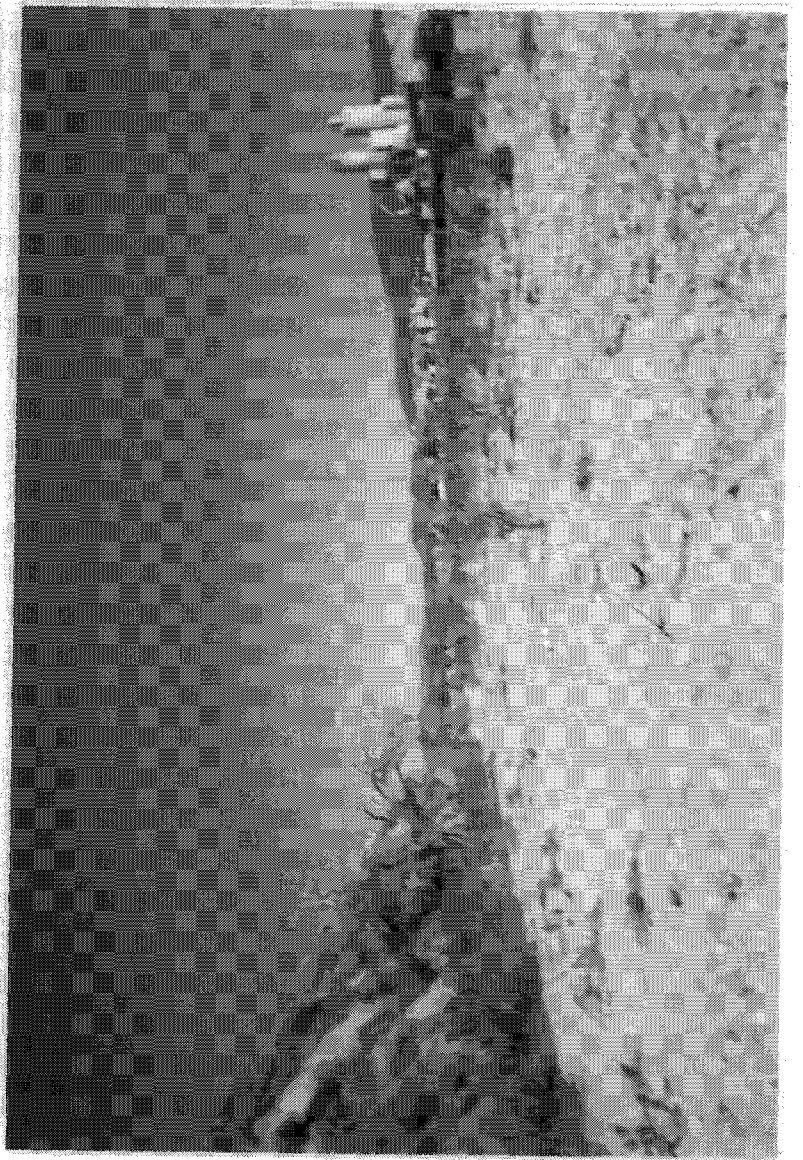
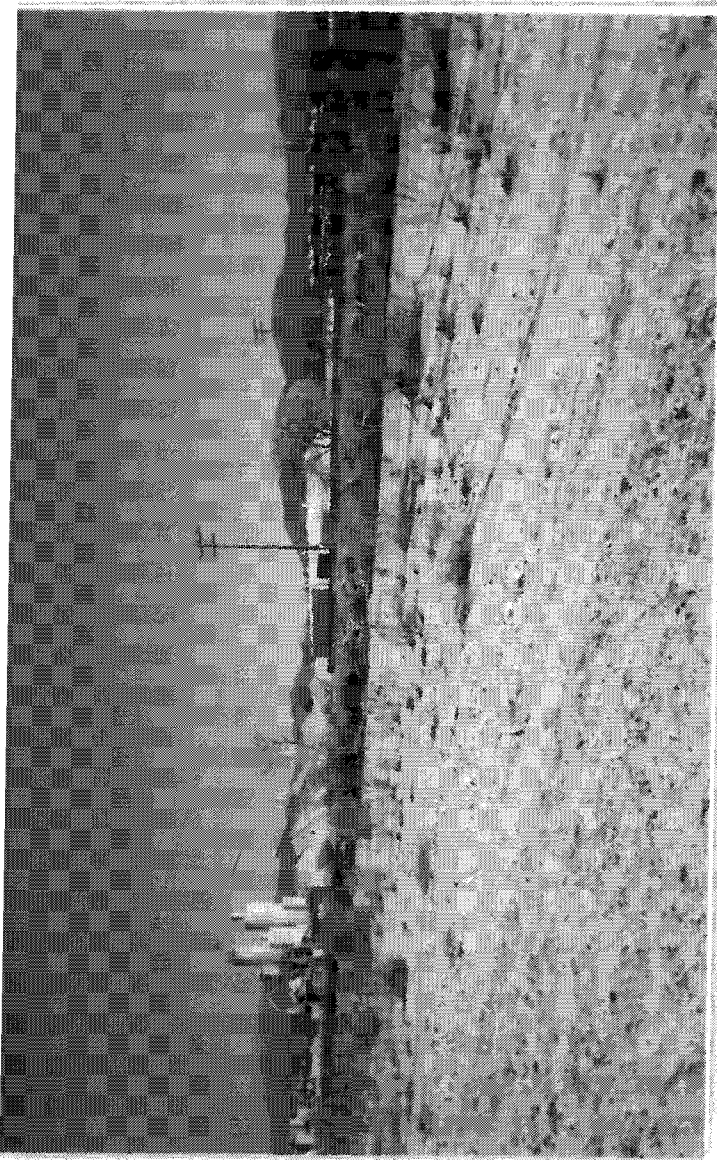
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3	6	PM	6	Overview of project area from NE corner	SSE	
3	6	PM	7	Overview of project area from NE corner	SE	
3	6	PM	8	Overview of project area from NE corner	ESE	
3	6	PM	9	Overview of project area from NE corner	E	
3	6	PM	10	Overview of project area from NE corner	NE	
3	6	PM	11	Overview of area from NE corner	NNE	
3	6	PM	12	Overview of project area from NE corner	N	
3	6	AM	13	Overview of Santa Clara River bed, south portion	SW	
3	6	AM	14	Overview of Santa Clara River bed, south portion	WSW	
3	6	AM	15	Overview of Santa Clara River bed, south portion	W	
3	6	AM	16	Overview of Santa Clara River bed, south portion	SE	
3	6	AM	17	Overview of Santa Clara River bed, south portion	ESE	
3	6	AM	18	Overview of Santa Clara River bed, south portion	E	
3	6	AM	19	Overview of project area from SW corner	E	
3	6	AM	20	Overview of project area from SW corner	NE	
3	6	AM	21	Overview of project area from SW corner	N	
3	6	AM	22	Overview of project area from SW corner	NW	
3	6	AM	23	Overview of project area from SE corner	W	
3	6	AM	24	Overview of project area from SE corner	NW	
3	6	AM	25	Overview of project area from SE corner	N	

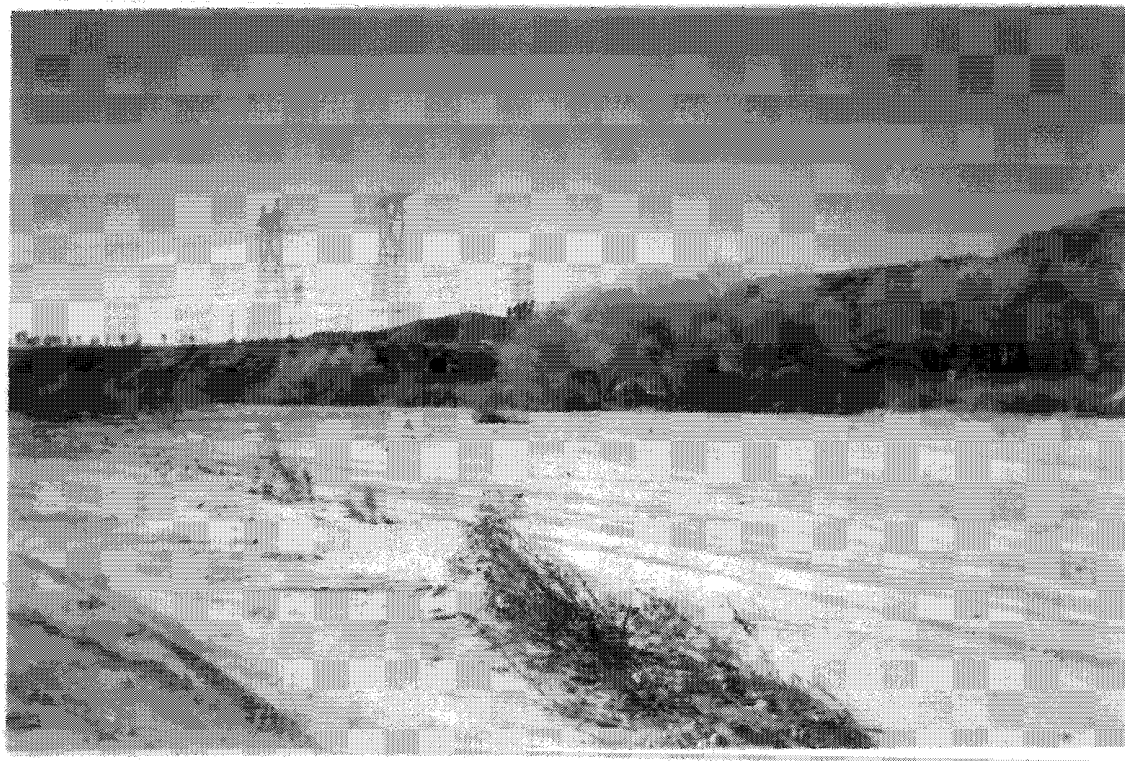
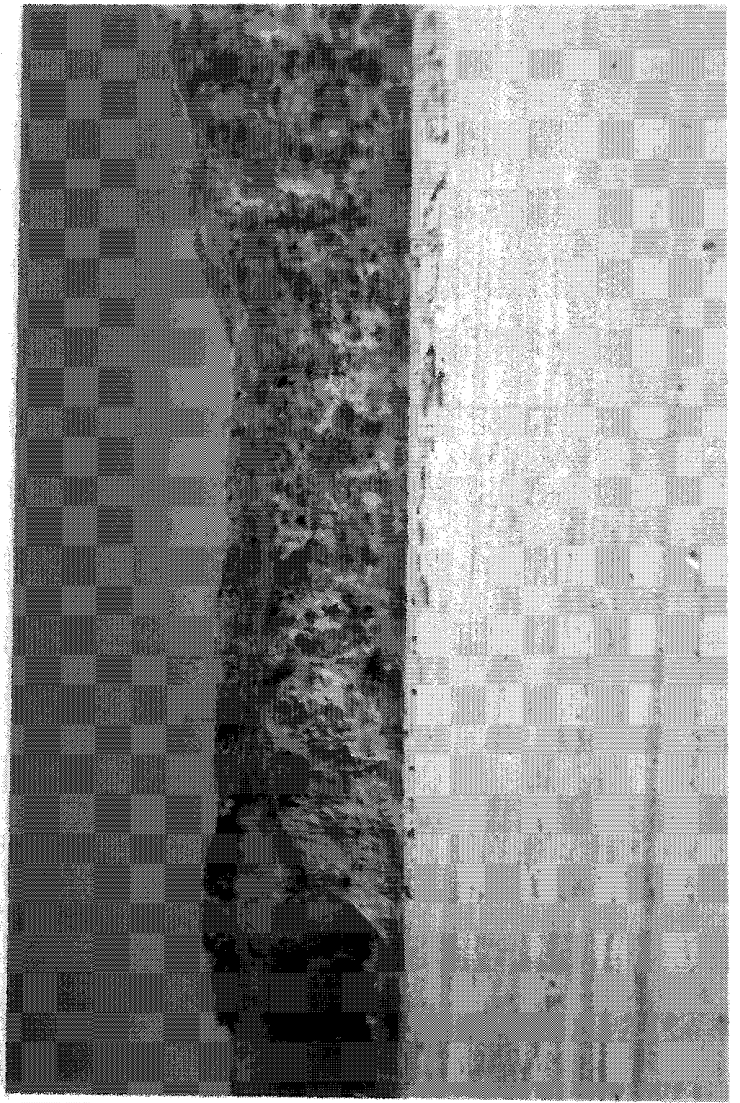
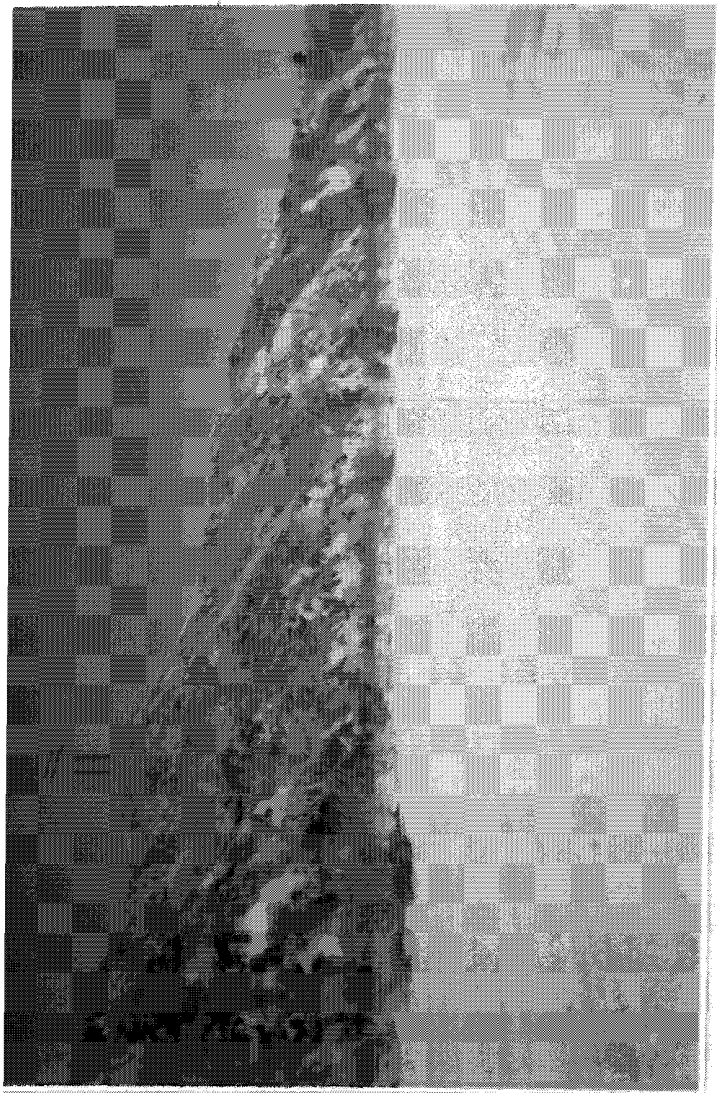


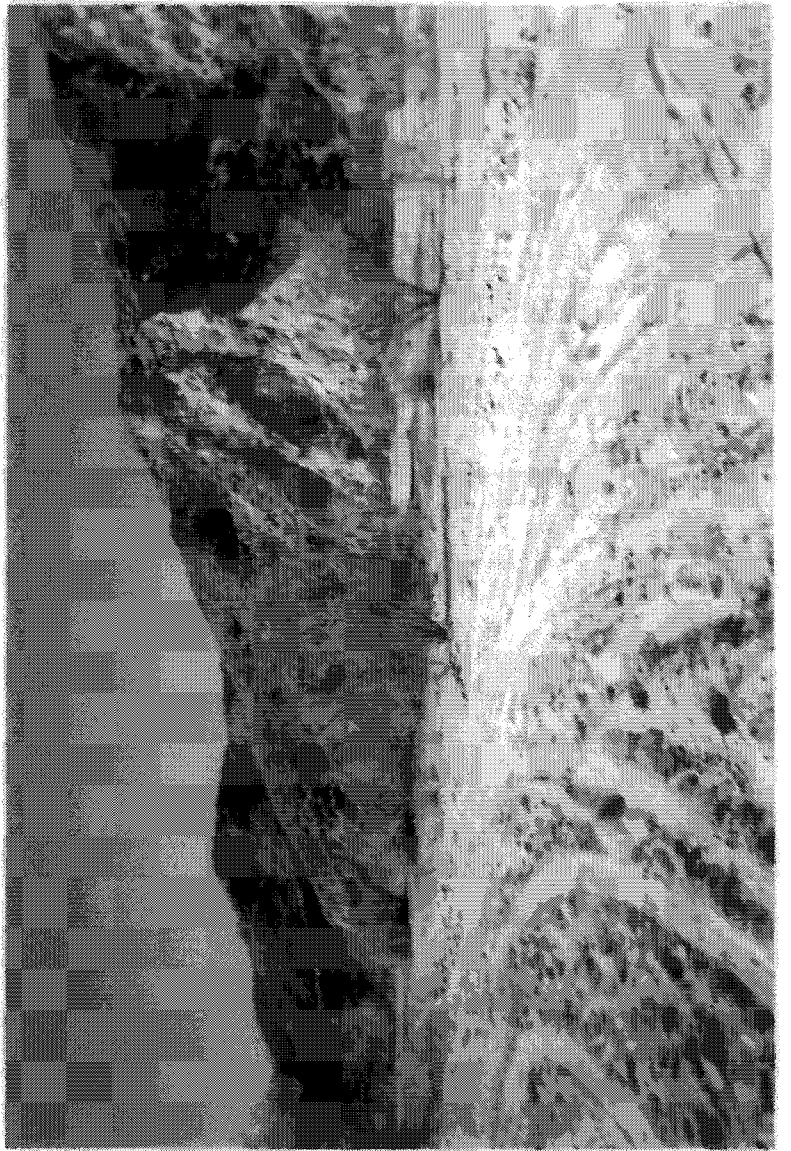
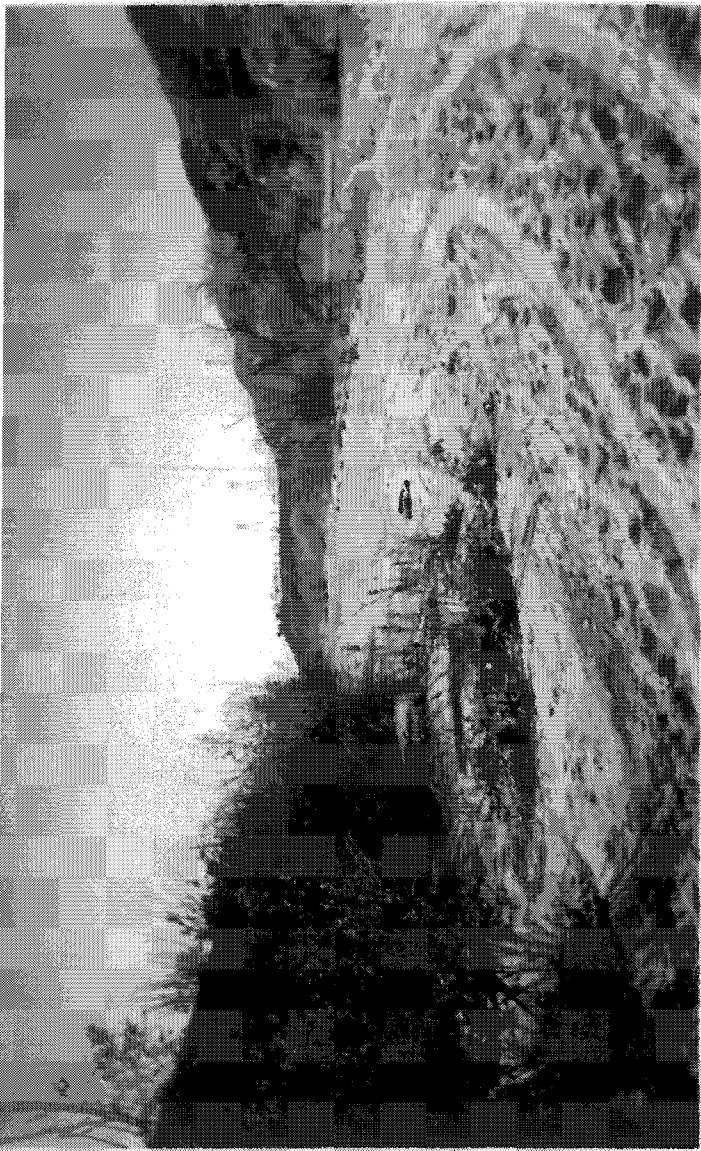








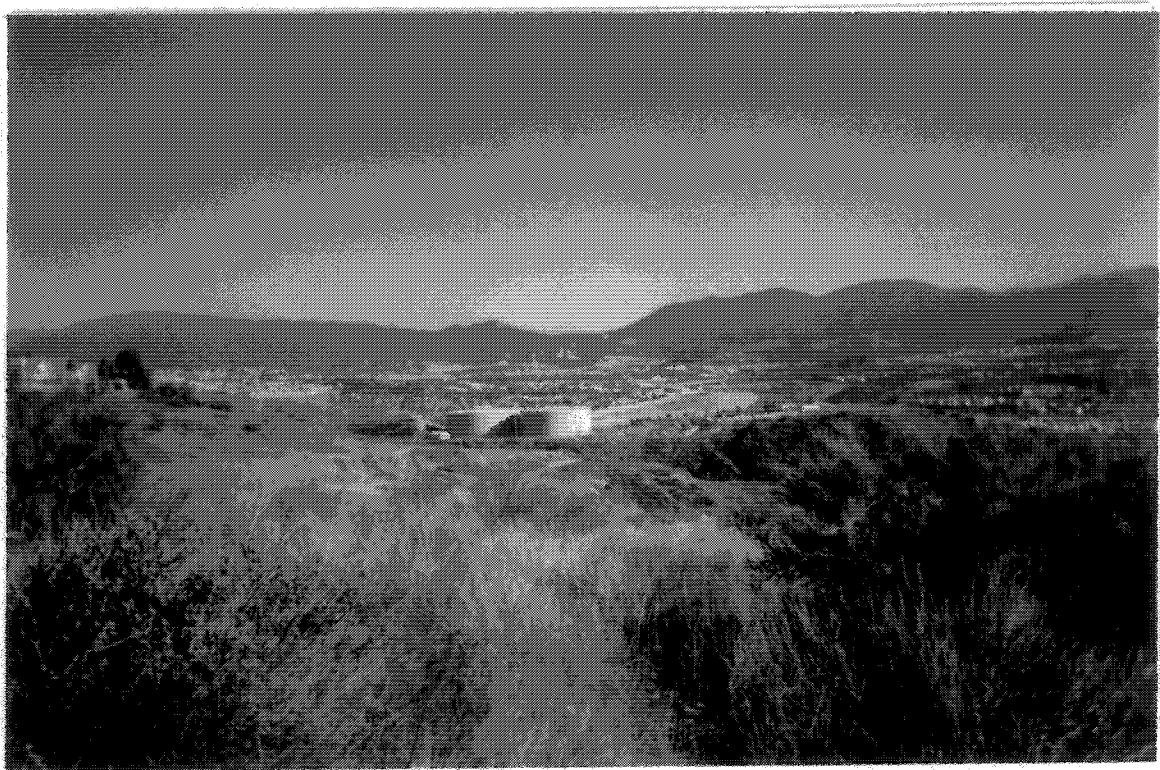
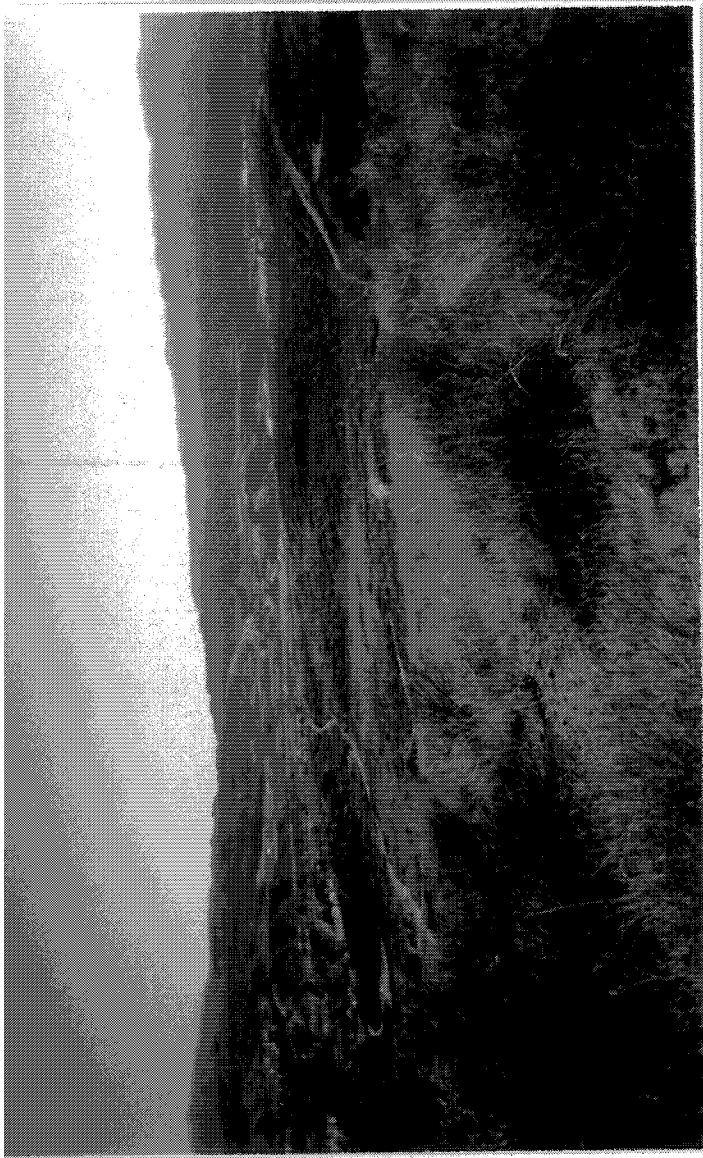


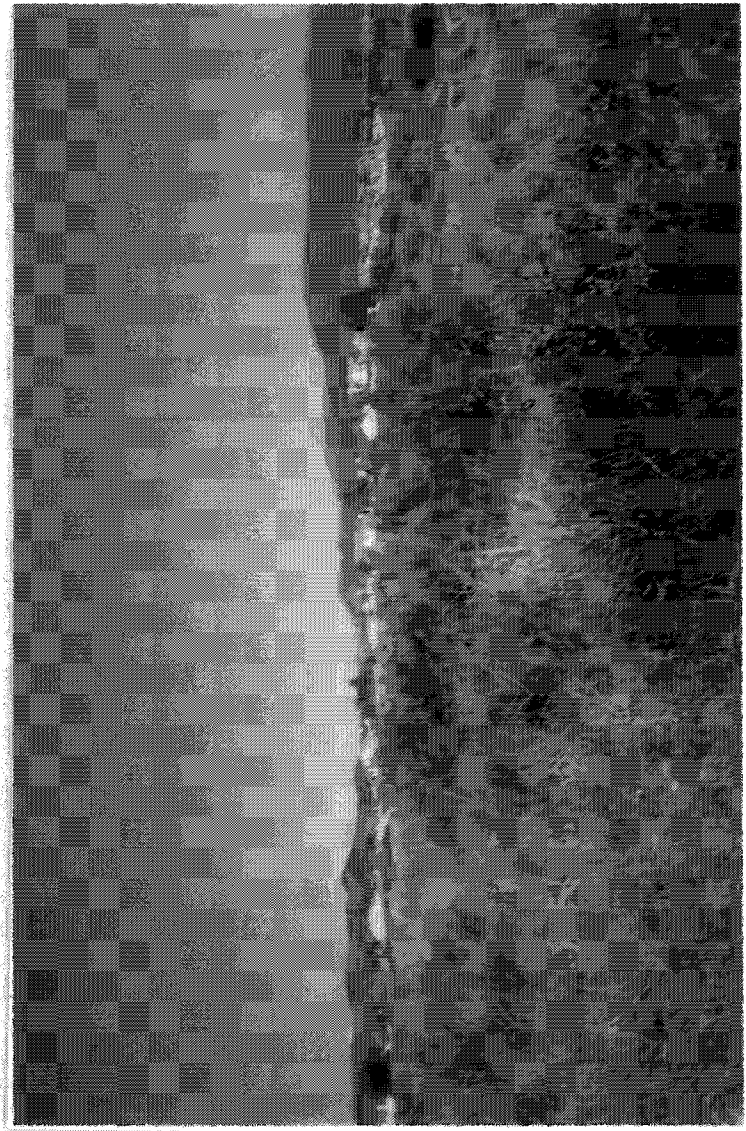
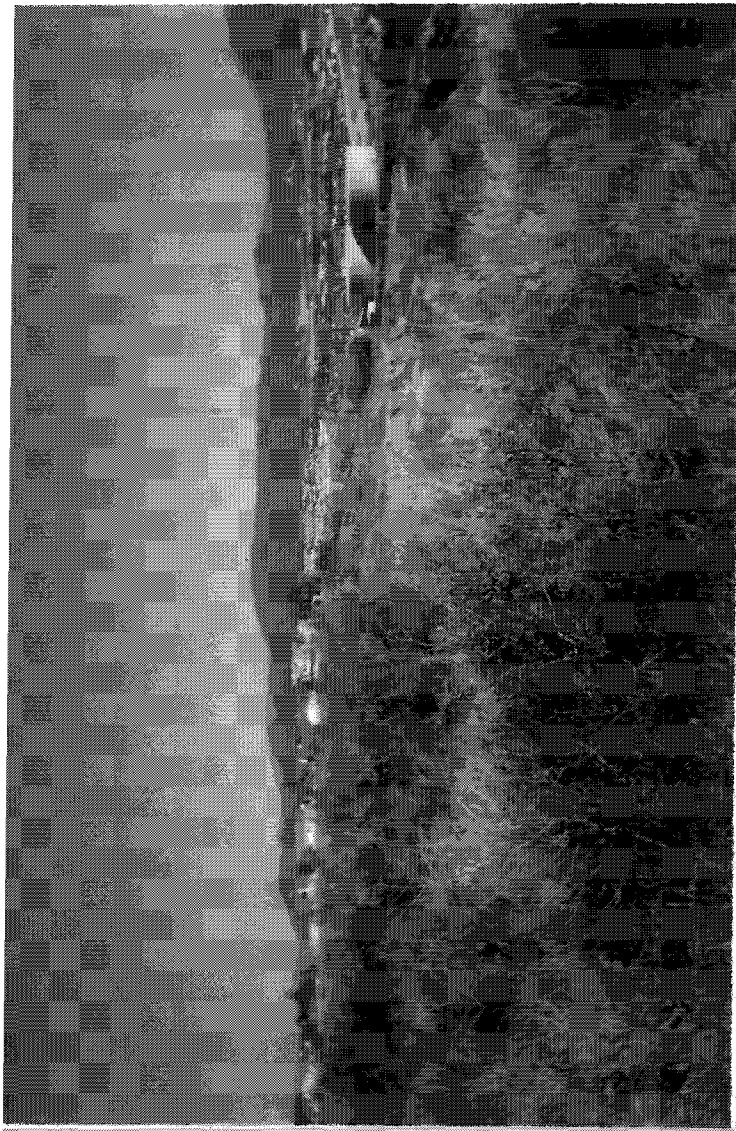


PHOTOGRAPHIC RECORD

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 Camera 35 mm (Color Prints) Lens Size: _____ Roll No. _____
 Film Type and Speed: 20Q.ASA Color Print Negatives Kept At McKenna et al. Whittier CA 90601

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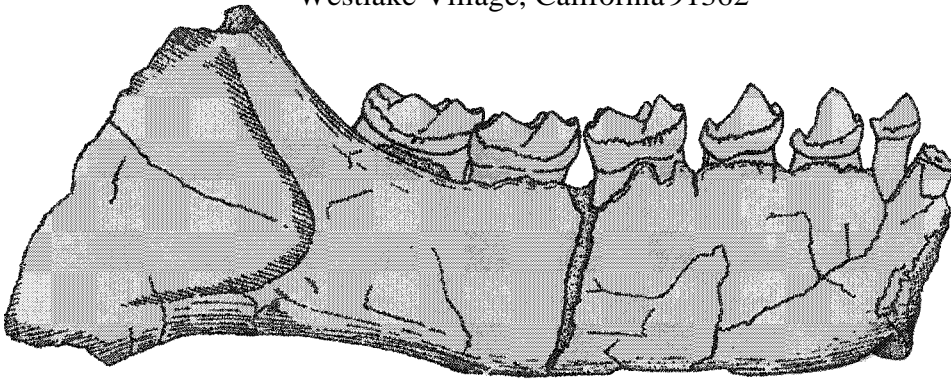
APPENDIX 4-B

**Paleontological Resources Inventory/Impact Assessment Technical Report, Paleo
Environmental Associates (July 2004)**

**PALEONTOLOGIC RESOURCE INVENTORY/
IMPACT ASSESSMENT TECHNICAL REPORT**
prepared in support of
PROPOSED KEYSTONE DEVELOPMENT
SANTA CLARITA, LOS ANGELES COUNTY, CALIFORNIA

Submitted to:

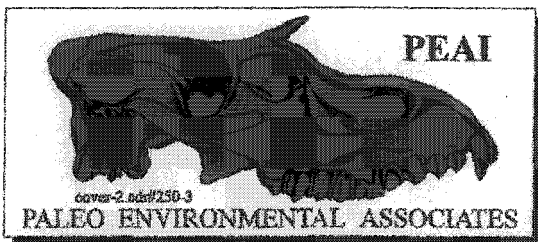
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SECTION 1

INTRODUCTION

1.1 BACKGROUND

Paleontologic resources include fossil remains, fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata. This technical report summarizes the results of the paleontologic resource inventory/impact assessment conducted by Paleo Environmental Associates, Inc. (PEAi), in support of the Keystone development project environmental impact report (EIR). The City of Santa Clarita, the CEQA lead agency for the development project, has required this inventory/impact assessment be conducted because of the potential for fossil sites and remains being encountered by earth-moving activities associated with development of the 247-acre Keystone parcel (City of Santa Clarita Vesting Tentative Tract No. 060258).

1.2 PERSONNEL

This technical report was prepared by Dr. E. Bruce Lander, a paleontologist with PEAi, Altadena, California. Dr. Lander has a Ph.D. degree in paleontology and has conducted research, authored published scientific contributions, and prepared environmental impact review documents on the paleontologic resources of California in support of other major construction projects, including a number of major earth-moving projects in the Santa Clarita area. Dr. Lander conducted the literature review, archival search, and field survey for this report.

SECTION 2

ENVIRONMENTAL

SETTING

The Keystone parcel lies in Santa Clarita, is bounded to the south by the Santa Clara River, and lies east of Bouquet Canyon, south of Plum Canyon, and west of Mint Canyon in west-central Los Angeles County (see Figure 1). The parcel occupies the eastern $\frac{1}{2}$ of the northwestern $\frac{1}{4}$ and portions of the northwestern $\frac{1}{4}$ and the southwestern $\frac{1}{4}$ of Section 18 in Township 4 North, Range 15 West of the San Bernardino Base and Meridian. Topographic map coverage of the parcel is provided at a scale of 1:24,000 by the United States Geological Survey (USGS) Mint Canyon and Newhall Quadrangles, California, 7.5-Minute Series (Topographic) (1960, photorevised 1988; and 1952, photorevised 1988, respectively).

Paleontologic resources of the parcel include rock units that immediately underlie the surface and have a potential for yielding particular types of fossil remains because they have yielded similar fossil remains at previously recorded fossil sites near the parcel. Fossils, the remains or indications of once-living organisms, are a very important scientific resource because of their use in 1) documenting the evolution of particular groups of organisms, 2) reconstructing the environments in which they lived, 3) and in determining the ages of the strata in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these strata.

2.1 METHODS

The following tasks were conducted to develop a baseline paleontologic resource inventory of the parcel by rock unit, and to assess the potential paleontologic productivity and the paleontologic/scientific importance of each rock unit, these assessments being based on the fossil remains previously recorded from the rock unit in the parcel vicinity. These tasks were completed in compliance with Society of Vertebrate Paleontology (SVP, 1995) guidelines for assessing the scientific importance of the paleontologic resources in an area of potential environmental effect.

2.1.1 Stratigraphic Inventory

Geologic maps and reports covering the surficial geology of the parcel were reviewed 1) to determine the rock units exposed in the parcel, particularly those rock units known to be fossiliferous, and 2) to delineate their respective areal distributions.

2.1.2 Paleontologic Resource Inventory

Published and unpublished geologic and paleontologic literature was reviewed to document the number and locations of previously recorded fossil sites in and near the parcel from each rock unit exposed in the parcel, and the types of fossil remains the rock unit has produced locally. The literature review was supplemented by an archival search conducted at the Natural History Museum of Los Angeles County Vertebrate Paleontology Department (LACMVP) for additional information regarding the occurrences of fossil sites and remains in and near the parcel. A field survey of the parcel was conducted 1) to determine the condition of any previously recorded site in the parcel, 2) to document the presence of any unrecorded fossil site, and 3) to substantiate the presence of strata suitable for containing fossil remains.

2.1.3 Paleontologic Resource Assessment Criteria

The paleontologic importance (high, moderate, low, none, undetermined) of a rock unit exposed in the parcel is the measure most amenable to assessing the scientific importance of the paleontologic resources of the parcel because the areal distribution of a rock unit can be delineated on a topographic map. The paleontologic importance of a rock unit reflects 1) its potential paleontologic productivity and 2) the scientific importance of the fossils it has produced locally.

The potential paleontologic productivity (high, moderate, low, none, undetermined) of a rock unit exposed in the parcel is based on the abundance/densities of fossil specimens and/or unrecorded/previously recorded fossil sites in exposures of the unit in and near the parcel. Exposures of a specific rock unit in the parcel are most likely to yield

fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the parcel. The criteria for establishing the potential paleontologic productivity of a rock unit exposed in the parcel are described below.

- 1) High potential: rock unit contains comparatively high density of unrecorded/previously recorded fossil sites and has produced numerous fossil remains in and/or near parcel, and is very likely to yield additional similar remains in parcel.
- 2) Moderate potential: rock unit contains relatively moderate density of unrecorded/previously recorded fossil sites and has produced some fossil remains in and/or near parcel, and is somewhat likely to yield additional similar remains in parcel.
- 3) Low potential: rock unit contains no or comparatively low density of previously recorded fossil sites and has yielded very few or no fossil remains near parcel, and is not likely to yield any remains in parcel.
- 4) Undetermined potential: rock unit has limited or no exposure in parcel, is poorly studied, contains no previously recorded fossil site, and has produced no fossil remains near parcel. However, in parcel region, same or correlative and/or lithologically similar rock unit contains sufficient recorded fossil sites to suggest rock unit in parcel has at least a moderate potential for containing unrecorded fossil sites (note: elsewhere in California, exposures of rock units with few or no prior recorded fossil sites have recently proven abundantly fossiliferous during surveying, monitoring, or processing of fossiliferous rock samples as part of mitigation programs for other earth-moving projects).
- 5) No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any unrecorded fossil site or yielding any fossil remains.

A fossil specimen is considered scientifically highly important if it is 1) identifiable, 2) complete, 3) well preserved, 4) age diagnostic, 5) useful in environmental reconstruction, 6) a type or topotypic specimen, 7) a member of a rare species, 8) a species that is part of a diverse assemblage, and/or 9) a skeletal element different from, or a specimen more complete than those now available for its respective species. Identifiable fossil land mammal remains, for example, are considered scientifically highly important because of their potential use in providing very accurate age determinations and environmental reconstructions for the rock units in which they occur. The geologic age of some fossil mollusk and land mammal and plant remains can be determined by carbon-14 dating analysis. Moreover, land mammal and plant remains are comparatively rare in the fossil record.

Using the definitions presented above, the paleontologic or scientific importance of a rock unit exposed in the parcel would be assessed using the following criteria.

- 1) High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains in parcel similar to those previously recorded from rock unit in and/or near parcel.
- 2) Moderate importance: rock unit has relatively moderate potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains in parcel similar to those previously recorded from rock unit near parcel.
- 3) Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains in parcel.
- 4) Undetermined importance: rock unit for which too few data are available from parcel and vicinity to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains in parcel.
- 5) No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any unrecorded fossil site or for yielding any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing strata are considered highly important paleontologically, regardless of the paleontologic or scientific importance of the rock unit in which the site and strata occur.

The following tasks were completed to establish the paleontologic importance of each rock unit exposed in the parcel.

- 1) The scientific importance of fossil remains recorded from a rock unit exposed in the parcel was assessed.
- 2) The potential paleontologic productivity of the rock unit was assessed, based on the density of fossil remains and/or previously recorded and newly documented fossil sites it contains in and/or near the parcel.
- 3) The paleontologic importance of the rock unit was assessed, based on its documented and/or potential fossil content in the parcel.

This method of resource assessment is the most appropriate for an areal paleontologic resource investigation of the parcel because discrete levels of paleontologic importance can be delineated on a topographic/geologic map.

2.2 RESULTS

2.2.1 Stratigraphic Inventory

The parcel lies near the eastern end of the late Cenozoic Ventura Basin, which, in turn, is situated in the western Transverse Ranges Province, where major linear geographic features (mountains, valleys) and the underlying geologic structures (faults, folds) trend in an east-west direction (see Jahns, 1954). The eastern end of the basin in the parcel vicinity is composed of stratigraphic or sedimentary rock units consisting of late Cenozoic marine and stratigraphically overlying nonmarine strata reflecting the final filling of the basin and its emergence above sea level.

Regional surficial geologic mapping of the parcel and vicinity is provided by Jennings and Strand (1969) at a scale of 1:250,000. Larger-scale (1:24,000) geologic mapping of the area by Dibblee (1996a, -b) and Winterer and Durham (1962) indicates that the parcel is underlain by three late Cenozoic, nonmarine rock units, including the Pliocene and Pleistocene Saugus Formation, which forms the lower slopes of the hills in the parcel; Pleistocene high terrace deposits and low terrace remnants), which cap the hills; Holocene younger alluvium, which floors the canyons and valleys; and Holocene stream channel deposits, which fill the modern active stream and river channels. A surficial geologic map of the parcel is presented at a scale of 1:12,000 in Figure 1.

2.2.2 Paleontologic Resource Inventory and Assessment by Rock Unit

An inventory of the paleontologic resources of the rock units exposed in the parcel is presented below, and the scientific importance of these resources is assessed. Although neither the literature review, the archival search, nor the field survey conducted for this inventory documented any previously recorded fossil site as occurring in the parcel, a number of previously recorded fossil sites were documented as occurring in areas mapped as being underlain by these rock units near the parcel. The fossil remains from some of these fossil sites were uncovered as a result of earth-moving activities associated with other major construction projects.

2.2.2.1 Saugus Formation.—Although no previously recorded fossil site is reported as occurring in the Saugus Formation in the parcel, fossilized bones and teeth representing extinct species of Pliocene to early or middle Pleistocene continental vertebrates assignable to the Blancan and/or Irvingtonian North American Land Mammal Age (NALMA) have been recovered from this formation near the parcel at LACMVP fossil sites 1293, 3774, 4134, 6062, 6063, 6803, and 6804, and California Institute of Technology fossil site 200 (see Lander, 1988, 1990, 1997, 2002; Pollard, 1958; Reynolds, 1987; Scott and others, 2004; Winterer and Durham, 1962, fossil sites V91 to V93). These sites occur in the hills north and south of the Santa Clara River, from near the mouth of San Martinez Chiquito Canyon and the head of Potrero Canyon, possibly as far eastward as the mouth of Bouquet Canyon. The species

represented at these sites are assignable to the Chelonia (turtles and tortoises), *Gerrhonotus* (alligator lizards), the Leporidae (rabbits), *Thomomys* (pocket gophers), *Perognathus* (pocket mice), the Proboscidea (elephants), *Pliohippus* (anomalously young record, if correctly identified) and *Equus* (horses), the Tayassuidae (peccaries), the Camelidae (camels), and the Cervidae (deer). *Thomomys*, in particular, is not recorded before the Blancan (see Korth 1992). Fine-grained strata suitable for containing fossil remains were observed during the field survey conducted in support of this assessment.

The occurrence of a number of previously recorded fossil sites near the parcel suggests that there probably is a high potential for additional similar, scientifically highly important fossil remains in the parcel being encountered by earth-moving activities at unrecorded fossil sites in the Saugus Formation. Identifiable fossil remains recovered from this rock unit in the parcel would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. There is a potential for encountering land mammal remains representing species rarely if ever recorded from the rock unit or the immediate parcel vicinity. The recovery of remains representing age-diagnostic species would be critical in determining if the rock unit is assignable to the Blancan or Irvingtonian NALMA, while the remains of environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. Moreover, the remains would contribute to a more comprehensive documentation of the diversity of animal life that existed in and near the parcel during the Pliocene to middle Pleistocene Epochs. Finally, land mammal remains also are scientifically highly important because such remains are comparatively rare in the fossil record.

2.2.2.2 High Terrace Deposits.—Although no previously recorded fossil site is reported as occurring in the high terrace deposits in the parcel, fossilized remains representing an extinct species of Pleistocene bison (*Bison*), which defines the beginning of the Rancholabrean NALMA (Savage, 1951), might have been recovered at a previously recorded fossil site in this rock unit near the parcel in the Castaic area (see Pollard, 1958; Winterer and Durham, 1962). However, this fossil site might also have been in the overlying low terrace remnants.

The possible occurrence of only one previously recorded fossil site near the parcel suggests that there is an undetermined (but probably no more than moderate) potential for additional similar, scientifically highly important fossil remains in the parcel being encountered by earth-moving activities at unrecorded fossil sites in the high terrace deposits. Identifiable fossil remains recovered from this rock unit in the parcel would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. There is a potential for encountering land mammal remains representing species rarely if ever recorded from the rock unit or the immediate parcel vicinity. The recovery of remains representing age-diagnostic species would be critical in determining if the rock unit is assignable to the Rancholabrean NALMA, while the remains of environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. Moreover, the remains would contribute to a more comprehensive documentation of the diversity of animal life that existed in and near the parcel during the Pleistocene Epoch. Finally, land mammal remains also are scientifically highly important because such remains are comparatively rare in the fossil record.

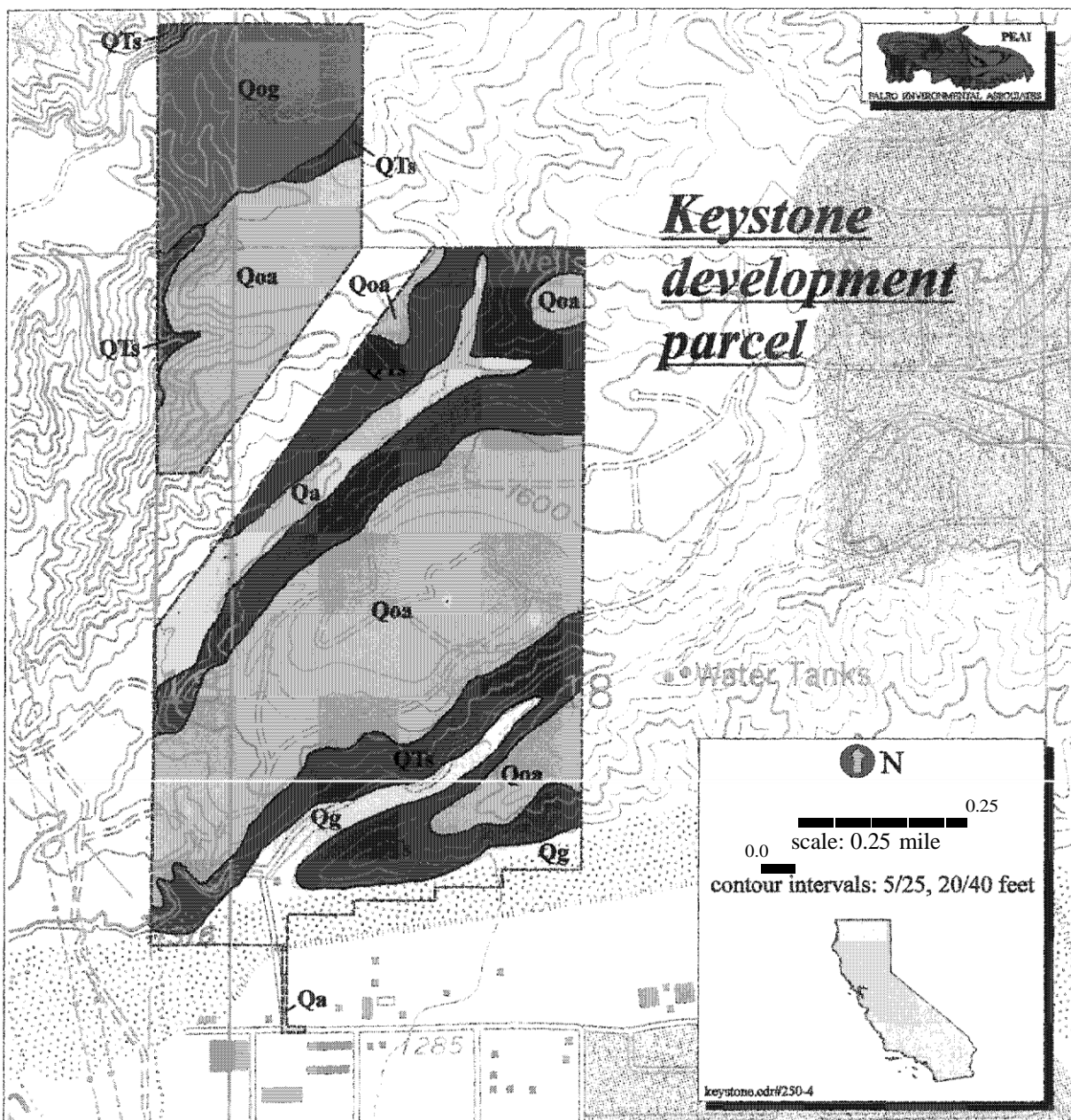
2.2.2.3 Low Terrace Remnants.—Although no previously recorded fossil site is reported as occurring in the low terrace remnants in the parcel, fossilized remains representing an extinct species of Pleistocene bison (*Bison*) were recovered at one or two previously recorded fossil sites in this rock unit near the parcel in the hills immediately northwest of the confluence of the Santa Clara River and Castaic Creek, and, if not in the underlying high terrace deposits, possibly near Castaic (see Lander, 1988, 1990; Pollard, 1958; Winterer and Durham, 1962, fossil site V94).

The occurrence of only one or two previously recorded fossil sites near the parcel suggests that there probably is no more than a moderate potential for additional similar, scientifically highly important fossil remains in the parcel being encountered by earth-moving activities at unrecorded fossil sites in the low terrace remnants. Identifiable fossil remains recovered from this rock unit in the parcel would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. There is a potential for encountering land mammal remains representing species rarely if

ever recorded from the rock unit or the immediate parcel vicinity. The recovery of remains representing environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. Moreover, the remains would contribute to a more comprehensive documentation of the diversity of animal life that existed in and near the parcel during the middle to late Pleistocene Epoch. Finally, land mammal remains also are scientifically highly important because remains are relatively rare in the fossil record.

2.2.2.4 Younger Alluvium. At and near the surface, the younger alluvium probably is too young to contain remains old enough to be considered fossilized. For this reason, there probably is only a low potential for scientifically highly important fossil remains in the parcel being encountered by earth-moving activities at unrecorded fossil sites where the parcel is underlain by younger alluvium.

2.2.2.5 Stream Channel Deposits. At and near the surface, the stream channel deposits probably are too young to contain remains old enough to be considered fossilized. For this reason, there probably is only a low potential for scientifically highly important fossil remains in the parcel being encountered by earth-moving activities at unrecorded fossil sites where the parcel is underlain by stream channel deposits.



EXPLANATION

stream channel deposits (Holocene, continental)	low sensitivity
younger alluvium (Holocene, continental)	low sensitivity
low terrace remnants (Pleistocene, continental)	moderate sensitivity
high terrace deposits (Pleistocene, continental)	undetermined sensitivity
Saugus Formation (Pliocene to Pleistocene, continental)	high sensitivity
geologic contact	

Figure 1.—Topographic/surficial geologic/paleontologic resource sensitivity map, Keystone development parcel, Santa Clarita, Los Angeles County, California. Base map: USGS Mint National Topographic Map Series (California) 7.5-Minute Series (Topographic) photorevised 1988; and USGS National Topographic Map Series (California) 7.5-Minute Series (Topographic) photorevised 1988, respectively. Geology after Dibblee (1996a, -b).

SECTION 3

ENVIRONMENTAL IMPACTS

3.1 DEVELOPMENT PHASE IMPACTS

Paleontologic resources, including an undetermined number of fossil remains and unrecorded fossil sites; associated specimen data and corresponding geologic and geographic site data; and the fossil-bearing strata, could be adversely affected by (i.e., would be sensitive to) the significant direct and indirect environmental impacts resulting from earth-moving activities associated with development of the parcel.

Direct impacts would result mostly from earth-moving activities (particularly grading) in previously undisturbed strata, but also would result from any earth-moving activity that buried previously undisturbed strata, making the strata and their paleontologic resources unavailable for future scientific investigation. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

Easier access to fresh exposures of fossiliferous strata and the accompanying potential for unauthorized fossil collecting by construction personnel, rock hounds, and amateur and commercial fossil collectors could result in the loss of some additional fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data. The loss of these additional paleontologic resources is another potentially significant long-term environmental impact.

3.1.1 Significance Criteria

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

The paleontologic significance (high, moderate, low, none, undetermined) of the potential adverse impacts of earth-moving activities on the paleontologic resources of each rock unit in the parcel was assessed and reflects the paleontologic or scientific importance/impact sensitivity of the rock unit, which, in turn, primarily reflects the potential for fossil remains and fossil sites being encountered by these activities. Note, however, that any impact on a fossil site and the fossil-bearing strata would be considered highly significant paleontologically, regardless of the paleontologic importance of the rock unit in which the site and strata occur. For example, grading in an area underlain by a moderately important rock unit would have only a moderate potential for the disturbance or burial of fossil remains and sites (i.e., the rock unit would be moderately sensitive to adverse impacts). Although the accompanying loss of any fossil remains and site would be a highly significant impact paleontologically, the impact of grading would be considered only moderately significant because of the moderate potential for the loss of paleontologic resources. This method of impact assessment is most appropriate to an areal paleontologic resource investigation of the parcel because discrete levels of paleontologic impact sensitivity/significance can be delineated on a topographic/geologic map of the parcel.

A paleontologic resource impact sensitivity assessment of the parcel is presented below and on the geologic map of the parcel included as Figure I .

3.1.2 Impact Assessment

3.1.2.1 Saugus Formation.-The Saugus Formation has yielded fossil remains at a number of previously recorded fossil sites near the parcel. For this reason, adverse environmental impacts on the paleontologic resources of the Saugus Formation that would result from earth-moving activities in the parcel would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

3.1.2.2 High Terrace Deposits.—The high terrace deposits possibly have yielded fossil remains at only one previously recorded fossil sites near the parcel. For this reason, adverse environmental impacts on the paleontologic resources of high terrace deposits that would result from earth-moving activities in the parcel would be considered to be of undetermined (but probably no more than moderate) paleontologic significance because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

3.1.2.3 Low Terrace Remnants.—The low terrace remnants have yielded fossil remains at only one or two previously recorded fossil sites near the parcel. For this reason, adverse environmental impacts on the paleontologic resources of the low terrace remnants that would result from earth-moving activities in the parcel would be considered to be of only moderate paleontologic significance because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is considered to be no more than moderate.

3.1.2.4 Younger Alluvium.—Any adverse environmental impact on the paleontologic resources of the younger alluvium that would result from earth-moving activities in the parcel probably would be considered to be of low significance because the younger alluvium probably is too young at and near the surface to contain remains old enough to be considered fossilized.

3.1.2.5 Stream Channel Deposits.—Any adverse environmental impact on the paleontologic resources of the stream channel deposits that would result from earth-moving activities in the parcel probably would be considered to be of low significance because the stream channel deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

3.2 CUMULATIVE IMPACTS

Development of the parcel, in combination with other projects in the region where a parcel is underlain by the Saugus Formation or low terrace remnants might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.

SECTION 4

MITIGATION MEASURES

4.1 DEVELOPMENT PHASE

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (particularly grading) associated with development of the parcel. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

4.1.1 Mitigation Program Design Criteria

The recommended level and type of mitigation effort in a particular area of the parcel reflects the paleontologic importance/impact sensitivity of the rock unit underlying the area and the corresponding potential for fossil remains being encountered by earth-moving activities in the parcel, the type of rock comprising the rock unit, and the types and magnitudes of the significant impacts that would occur in the area. For example, grading of an area underlain by a paleontologically highly important rock unit or of one containing a fossil site would require more intensive paleontologic construction monitoring than grading of an area underlain by a rock unit of moderate, low, or undetermined paleontologic importance. Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a rock unit of high, moderate, low, or undetermined importance would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3), if necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

4.1.2 Beneficial Environmental Effects of Mitigation Program

If the paleontologic resource impact mitigation program recommended below were implemented, earth-moving activities in the parcel might produce some beneficial effects. The fresh exposure of fossil-bearing strata would allow for the discovery of an undetermined number of unrecorded fossil sites and the recovery of some scientifically highly important fossil remains that otherwise might not even have been exposed without these activities. Moreover, these remains and associated specimen data and corresponding geologic and geographic site data, instead of being lost to earth-moving activities or to unauthorized fossil collecting, would be preserved in a museum repository, where they would be made available to qualified scientific investigators for future study. There also is the potential that some of these remains might represent new or rare species; new geologic or geographic records; and/or skeletal elements different from, or specimens more complete than those now available for their respective species. Finally, these remains would provide a more comprehensive paleontologic resource inventory of the parcel and vicinity than is now available or would have been available without development of the parcel.

4.1.3 Qualifications of Paleontologist Conducting Mitigation Program

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of

Santa Clarita and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering vertebrate fossil remains, and recovering and processing large samples of fossiliferous rock.

4.1.4 Compliance with Lead Agency and Professional Society Guidelines

The mitigation measures recommended below would be in compliance with any City of Santa Clarita environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be reported in a final technical report of results and findings submitted to the City of Santa Clarita.

4.1.5 Mitigation Measures

The literature review, archival search, and field survey, as well as a review of the geologic maps covering the parcel, indicated that the parcel is underlain partly by paleontologically highly sensitive strata, in which earth-moving activities associated with development of the parcel would have a high potential for encountering fossil remains (see Figure 1). Mitigation measures that would be implemented in a particular area of the parcel are based on the sensitivity of the underlying rock unit and include paleontologic construction monitoring, which would be conducted in conjunction with other measures provided below.

4.1.5.1 Task 1— Retention of Paleontologist.—Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Santa Clarita and LACMVP will be retained to implement the mitigation program during earth-moving activities in the parcel.

4.1.5.2 Task 2— Museum Storage Agreement.—The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP, regarding final disposition and permanent storage and maintenance of any fossil remains and associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

4.1.5.3 Task 3—Pre-grading Survey.—Prior to the start of any earth-moving activity associated with development of the parcel, the paleontologist and/or monitor will conduct an intensive survey of the parcel, including those areas that will be buried but not otherwise disturbed by these activities. The survey, particularly with regard to areas of the parcel underlain by the Saugus Formation, will allow for the discovery of any unrecorded fossil site and the recovery the fossil remains, the recording of associated specimen data and corresponding geologic and geographic site data, and the recognition of fine-grained strata suitable for containing smaller vertebrate fossil remains. The recovery of fossil remains during the survey might reduce the potential for a delay in earth-moving activities.

4.1.5.4 Task 4—Pre-grading Coordination.—The paleontologist or monitor will coordinate with the appropriate grading contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

4.1.5.5 Task 5—Paleontologic Monitoring and Fossil/Sample Recovery.—Earth-moving activities will be monitored by the monitor only in those areas of the parcel where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by Saugus Formation, half time where underlain by the low terrace remnants, and quarter time where underlain by the high terrace deposits, younger alluvium, and stream channel deposits (monitoring will not be conducted in areas underlain by younger alluvium or

stream channel deposits, unless and until these activities have reached a depth at least 5 feet below grade, or in areas where exposed strata will be buried, but not otherwise disturbed). If fossil remains are encountered by these activities, monitoring will be increased to full or half time, as appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. With City of Santa Clarita approval, if no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, remove the occurrence. If the fossil site is determined to be unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Saugus Formation or the low terrace remnants.

4.1.5.6 Task 6—Final Laboratory Tasks.—All fossil specimens recovered from the parcel as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Rock samples from the Saugus Formation and older alluvium will be submitted to commercial laboratories for microfossil, pollen, or radiometric dating analysis.

4.1.5.7 Task 7—Reporting.—The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Santa Clarita requirement.

4.2 ENVIRONMENTAL COMPLIANCE

The project will comply with any applicable environmental law, ordinance, regulation, or standard regarding paleontologic resources during earth-moving activities associated with development of the parcel.

Paleontologic resources, including fossil remains, associated specimen data and corresponding geologic and geographic site data, fossil sites, and the fossil-bearing strata, are a limited, nonrenewable, and very sensitive scientific and educational resource and, particularly with regard to fossil sites, are afforded protection under the following state environmental legislation (see California Office of Historic Preservation, 1983).

California Environmental Quality Act of 1970 (CEQA) (Division 13, California Public Resources Code: 21000 et seq.).—Requires that a public agency or private interest identify the environmental consequences of its proposed project on any object or site of significance to the scientific annals of California (Division I, Public Resources Code: 5020.1 [b]).

Guidelines for the Implementation of CEQA, as amended May 10, 1980, and March 29, 1999 (Title 14, Chapter 3, California Administrative Code: 15000 et seq.).—Define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include definitions of significant impacts on a fossil locality (Section 15023, Appendix G [5.c]).

California Public Resources Code, Section 5097.5 (Statute 1965, Chapter 1136, Paragraph 2792).-Defines any unauthorized disturbance or removal of a fossil locality or remains on public land as a misdemeanor.
California Public Resources Code, Section 30244.-Requires reasonable mitigation of adverse environmental impacts that result from development of public land and affect paleontologic resources.

In response to CEQA and subsequent acts, many regulatory agencies in California, including the City of Santa Clarita, also have developed environmental guidelines for protecting paleontologic resources in areas under their respective jurisdictions. Under its guidelines, a CEQA lead agency can require a paleontologic resource inventory/impact assessment of an area to be adversely impacted by a discretionary project deemed nonexempt under its guidelines. As part of such an assessment, the agency can require an inventory and the mapping of fossil-bearing rock units and previously recorded and newly documented fossil sites by a qualified paleontologist in the area to be affected, an evaluation of the scientific importance of these resources, a determination of the adverse environmental impacts that might arise from the project and an appraisal of their significance, and the formulation of measures to mitigate these impacts to an insignificant level. The City of Santa Clarita has required that such an assessment be conducted in support of the Keystone development project EIR because earth-moving activities associated with development of the parcel might result in the loss of unrecorded fossil sites and remains. This paleontologic resource assessment technical report, particularly with regard to the mitigation measures presented above, is in compliance with SVP (1995, 1996) standard measures for assessing the scientific importance of paleontologic resources in an area of potential environmental effect, developing measures to mitigate significant adverse construction-related environmental impacts on these resources, and with conditions for the acceptance of a paleontologic resource impact mitigation program fossil collection by a museum repository.

SECTION 5

ACRONYMS

CEQA	California Environmental Quality Act
EIR	environmental impact report
LACMVP	Natural History Museum of Los Angeles County Vertebrate Paleontology Department
NALMA	North American Land Mammal Age
PEAI	Paleo Environmental Associates, Inc.
SVP	Society of Vertebrate Paleontology
USGS	United States Geological Survey

SECTION 6

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