CULTURAL RESOURCES SURVEY AND EVALUATION OF A 286-ACRE PARCEL IN PAUMA VALLEY, THE SHADOW RUN RANCH, NORTH OF STATE ROUTE 76 SAN DIEGO COUNTY, CALIFORNIA

APNs: 111-080-08 thru 010 & 014-019; 111-070-12 & 13

TM5223RPL1
Log No. 00-02-035

Lead Agency:
County of San Diego
Planning and Development Services
Contact: Robert Hingtgen, Larry Hofreiter
5201 Ruffin Road, Suite B
San Diego, CA 92123-1666

Preparer:

Philip de Barros, Ph.D., SOPA, RPA
Professional Archaeological Services
13730 Via Cima Bella
San Diego, CA 92129
760-807-9489

Philip de Barros

Project Proponent:

Shadow Run Ranch, LLC
Attention: Sherrill Schoepe
P.O. Box 1249
Pauma Valley, CA 92061

June 2005
Revised May 18, 2009, December 15, 2010, December 16, 2013

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Author: Philip de Barros, Ph.D., SOPA, R.P.A.

Firm: Professional Archaeological Services

Client/Project Proponent: Sherrill Schoepe, Shadow Run Ranch, LLC, P.O. Box 1249, Pauma Valley, CA 92061

Report Date: June 2005; revised May 18, 2009, December 15, 2010, and December 16, 2013

Report Title: Cultural Resources Survey and Evaluation of a 286-acre Parcel in Pauma Valley, The Shadow Run Ranch, North of State Route 76, San Diego County, California.

Type of Study: survey and evaluation report

New Sites: SDI-17501, -17502, -17503, -18368 and 8 isolates

Updated Sites: SDI-246, -266, -714, -715, -722, -723, -731, -5675, -5676, -9537/H, and -9906

USGS Quad: 1968 (photorevised 1988) *Pala* 7.5'

Section, Township and Range: Sections 31 & 32 of T9S, R1W; Sections 5 & 6 of T10S, R1W

Acreage: 286-acres (248.25 acres = actual project area)

Key Words: San Diego County, State Route 76, Adams Road, Pauma Valley, San Luis Rey River, Frey Creek, survey, evaluation, South Coastal Information Center, prehistoric sites, historical archaeological site, Cottonwood Triangular point, side-notched point, obsidian, Coso, Obsidian Butte; quartz, metavolcanic, chert, chalcedony, jasper, and quartzite debitage; dart point fragment, deer and rabbit bone, corn and olive seeds, hearth, fire-altered rock, charred plant remains, cores, hammerstone, core/hammerstone, bone tool fragments, multipurpose tools, ceramics, Brownware, manos, basin metates, bedrock milling features, stone bowl, pestle, scallop shell, scraper, adze, scraper plane, ceramic whiteware, maker's mark, bottle glass, square nails, window glass, 1899 homestead patent, Hugh Magee, shovel test pits, test excavations.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

MANAGEMENT SUMMARY

Project Description, Scope of Work and Personnel

Shadow Run Ranch, LLC, plans to develop a subdivision on 248.25 acres that includes: 1) 44, minimum two-acre net residential lots); 2) a 39.12-acre agricultural open space lot (Lot 45); 3) a 91.31-acre biological open space lot (Lot 46); and, 4) a 7.96-acre recreational open space lot for the residents' use (Lot 47). A cultural resources alternative would limit the project to: 1) 38, minimum two-acre net residential lots; 2) a 39.12-acre agricultural open space lot (Lot 39); 3) a 109.47-acre biological open space lot (Lot 40); and, 4) a 7.96-acre recreational open space lot for the resident's use (Lot 41). The project is in Pauma Valley, San Diego County, California. It lies along the north side of Highway 76 west of Adams Road, about eight miles east of Interstate 15, within portions of Sections 31 and 32 of Township 9 South and portions of Sections 5 and 6 of Township 10 South, both in Range 1 West.

Previous environmental studies included an archaeological records search and survey of the property conducted by Professional Archaeological Services (see de Barros 2001). The records search was done at the South Coastal Information Center on April 6th and the Museum of Man on April 9th, 2001. Field work was done between April 7th and July 22nd, by Dr. Philip de Barros and Joel Paulson, M.A., with the assistance of advanced students and graduates of the Palomar College Archaeology Program. This 2001 survey was of a 286-acre parcel. The proposed project as now designed covers 248.25 of the original 286 acres. A number of sites had been previously recorded on the property. Some were rerecorded but a few small bedrock milling sites had been destroyed and could not be relocated. In addition, three new small bedrock milling sites and eight isolates were discovered and recorded. These are described later below.

In 2005, Professional Archaeological Services was hired by Shadow Run Ranch, LLC, to review the findings of the 2001 archaeological survey and records search, but to focus primarily on the significance evaluation of SDI-9537/H and SDI-17501 through -17503, as well as do boundary testing at SDI-714. The latter was done to allow for project redesign so the site could be placed within open space. Dr. Philip de Barros served as Principal Investigator. The fieldwork was conducted between April 17th and May 8th, 2005, with some additional work done at one site on June 5th. Fieldwork was supervised by Dr. de Barros. The crew chiefs were Lucas Piek and Josh Patterson. The field crew consisted of graduates or advanced students of the Palomar College Archaeology Program. No new records search was done in 2005 because no other work had taken place on the property since 2001.

Native American Involvement **[repagination needed through page xx]**

Benae Calac and Joda Molina of Native Ground Monitoring and Research served as Native American monitors from the Pauma Indian Reservation. No human remains or grave goods were encountered. In addition, an attempt was made to see if there are connections between Hugh Magee, the pioneer who homesteaded part of the subject property in 1899, and Magee family members at Pechanga and Pala Indian Reservations. In early June 2005, telephone messages were left for John Magee at Pechanga Indian Reservation and for Leroy Miranda at Pala Indian Reservation regarding the family lineages, but these calls were not returned. Finally, the County of San Diego has initiated consultation with the Indian Reservations within the vicinity of Pauma Valley. A sacred lands file records check with the Native American Heritage Commission was negative.

Disposition of Artifacts and Field Notes from this Project

A few surface collected artifacts were recovered from SDI-266, -714, -731 and -9537/H in 2001. The test excavations conducted in 2005 at SDI-9537/H also resulted in the collection of artifacts. All of these materials and associated field notes have been curated at the San Diego Archaeological Center.

Site Descriptions

Previously recorded sites include SDI-246, -266, -714, -731, -9537/H and -9906. In addition, three small bedrock milling sites were recorded during the 2001 survey: SDI-17501, -17502 and -17503.

SDI-246

D.L. True recorded SDI-246 in 1954 as a "small camp or temporary village" with shallow bedrock mortars and small quartz projectile points. The 2001 survey found a site 250 by 30 m in size consisting of three bedrock milling outcrops, a single quartz flake near one outcrop, and an isolated cluster of three quartz flakes south of the outcrops. The site is within a grove on a low terrace of Frey Creek at an elevation ranging from 860 to 920 feet. The milling features contain a total of four conical mortars, two oval mortars, two saucer mortars, one basin milling feature, and five slicks. SDI-246 is viewed as a San Luis Rey I site, though no obvious midden was noted. Grove construction may have removed or covered both midden and/or surface deposits.

SDI-266

True recorded the site in 1947 and 1951 as a "village site with bedrock metates and evidence of fire [that] was bulldozed in 1951 for a house site." It is on an upper terrace on the east side of Frey Creek in an orange grove at elevations ranging between 850 to 870 feet. It is 70 by 50 m in size. Despite damage from bulldozing and the installation of orange groves, it still has an important artifact scatter, including metavolcanic and quartz flakes, fire-altered rock, a bifacial mano fragment, a pestle, large fragments of a stone bowl, and a scallop shell (*Argopecten*). However, several bedrock mortars noted by past observers are no longer present. Surface collections over time produced 71 artifacts: 5 shaped manos, 46 projectile points, 5 knives, 2 domed scrapers, 2 flake scrapers, 2 drills, 2 utilized flakes, a hammer stone, a pestle fragment, a smoothing stone, a crystal, an awl fragment, a pendant blank, ochre, and a shell bead.

SDI-714

This site was recorded by True in 1960 as a "small village [with] heavy midden," and he noted "bedrock mortars, bedrock metates, mortar, metate in combination" along with "a stone ball, projectile points, shell, drilled ornaments, portable metate and mortar fragments, bone awls, [and] beads." The site was excavated in 1953 by Clement Meighan who used it to define San Luis Rey I. Surface collections made after 1954 include a stone ball, a schist pendant, a knife, a flake scraper, a utilized flake, and a small projectile point. The 2001 survey indicated the site has two components on either side of a small rocky knoll with many granite boulders and oak trees. It measures about 80 by 44 m. The east side, Locus A, contains four bedrock milling outcrops. The milling features consist of five conical mortars, four oval mortars, and seven basin milling features. The site's elevation is between 900 and 920 feet. Two projectile points were found on the surface: a nearly complete quartz Cottonwood Triangular point and a dart point fragment made from metavolcanic rock. Some darkened midden is also present. Other artifacts include numerous quartz and metavolcanic flakes, fire-altered rock, and mano fragments. The western part, Locus B, has a sparse scatter of quartz flakes with no bedrock milling outcrops and no midden soil.

SDI-731

True recorded this site in 1960 and excavations were conducted in 1968 by UC Davis and by Waugh (1986:172) for her dissertation. According to True, the site was a "camp or village [of the] San Luis Rey Type I," The deposit consisted of "light midden [and] scattered chipping waste" with "bedrock metates, bedrock mortars, combinations or pairs of metates and mortars, [and] mortars superimposed over metates," as well as "small triangular points, scrapers [and] chipping waste." Georgie Waugh's 1986 excavations, along with earlier surface collections, produced 28 metates, 7 portable metates, 3 pestles, 20 manos, 81 projectile points (mostly Cottonwood Triangular), 60 large bifaces/drills and other small flake tools, 10 cores, 2 choppers, 10 scrapers, 5 hammerstones, 1 anvil, 1 paintstone, 161 beads and ornaments, 21 modified bone tools, 1 quartz crystal, 1 ceramic sherd, 2.4 kg of animal bone, and 26.7 grams of shell. The excavations revealed an earlier deposit she labeled "Initial San Luis Rey I" dating back to ca. A.D. 1200 (Waugh 1986:216-217; 249-254; 300-304). Early surface collections are curated at UCLA, Accession No. 418 (True and Waugh 1981:108-111). The site was formerly known as Rincon 73.

In 1986, Waugh identified 22 milling outcrops and one primary midden area. The 2001 survey identified 15 bedrock milling outcrops and two discrete midden areas. Surface artifacts include numerous quartz and metavolcanic flakes, an obsidian flake, a metavolcanic core, and a pestle fragment. Milling features include one oval mortar, 11 saucer mortars, 6 basin milling features, and 4 milling slicks. It is possible that the installation of the orange groves damaged or destroyed several of the milling features and destroyed part of the original midden area, resulting in two midden loci. Survey mapping suggests the site is about 130 by 120 m. The overall site area is located on a terrace between Frey Creek and a tributary or alternate pathway of the creek. The site's elevation ranges between 760 and 800 feet.

SDI-9537/H

D.L. True first noted the site in 1948 and mapped and recorded it in 1982. Artifacts collected during a 30-year period were curated at the University of California at Davis, but are lost or cannot be found. They consisted of 44 shaped and unshaped manos, 13 hammers, 11 core-hammers, 25 hammer-grinders, 2 scraper planes, 10 domed scrapers, 5 flake scrapers, 3 flake knives, 48 utilized flakes, 9 points and/or knives, 4 cores, and 7 smoothing stones. Portable and slab metates were observed on the site in the past, but none are present today. D.L. True and Georgie Waugh viewed the site as a Pauma Complex site with possible Campbell artifacts at its southern end.

SDI-9537/H is on the east side of Frey Creek at the crest of a hill overlooking Frey Creek to the west and the San Luis Rey River to the south. Aerial photos indicate it has been an orchard since at least 1929. An orange grove currently covers the site, and the grove manager's residence sits at its eastern edge. It is a large habitation site with a moderate to dense scatter of prehistoric and historic artifacts at an elevation centered on the 800 foot contour. Its dimensions are about 210 x 160 m. The surface prehistoric artifacts consist primarily of quartz and metavolcanic flakes with some groundstone, core fragments, and fire-altered rock. A few Brownware sherds suggest a Late Prehistoric presence. A bedrock mortar is also present. The historic artifacts consist almost entirely of bottle and window pane glass and largely undecorated whiteware ceramics.

SDI-9906

This site was initially recorded in 1984 by Emig, Dehart and Valentine. It consists of two bedrock milling outcrops with six "cups" or saucer mortars, one slick and four to five possible pestles in situ on the outcrops. The site was relocated and it appears to be similar to what was described in 1984. It is located between 740 and 780 feet in elevation.

SDI-17501

SDI-17501 lies on a terrace above Frey Creek about fifty meters west of SDI-246 in an orange grove at an elevation of 880 feet. The site is 7 by 5 m in size and consists of two bedrock milling outcrops with five milling features. No midden deposit or surface artifacts are associated with the features.

SDI-17502

SDI-17502 consists of two bedrock outcrops 2.5 meters apart in an orange grove on the highest terrace on the east side of Frey Creek at an elevation of 945 feet. It is about 3 by 3 m in size. One outcrop contains a 6-cm deep mortar with an adjacent slick and the other contains only one slick. No midden deposit or surface artifacts are associated with the features.

SDI-17503

This site is located south of SDI-17501. It consists of a single bedrock milling outcrop with three milling features. The site measures about 4 by 3.5 m in size. No midden deposit or surface artifacts are present.

SDI-18368

This small bedrock milling feature was found during a pipeline project in 2008. It consists of a one mortar, 14 cm in diameter and 3 cm deep. It is at the intersection of two paved roads and has probably been driven over by vehicles. Despite good visibility, no associated artifacts were noted.

Unrelocated Sites: SDI-715, -722, -723, -5675, and -5676

SDI-715 was recorded by D.L. True in 1960. It was described as follows: "Remains of a small village or camp. San Luis Rey II. Some midden, chipping waste, etc." It consisted of bedrock mortars with "pottery, manos and metates left on site [probably] picked up by previous owners". True stated that the "area has been leveled for a building site and for all practical purposes has been destroyed." This site could not be relocated.

SDI-722 was also recorded by D.L. True in 1960. It was described as "storage shelter in boulders . . . pottery cache site." He noted the presence of "pottery fragments . . . may represent parts of several jars." The site is a kind of cache cave in a large boulder pile; burned deer antler, several charred but unmodified sticks, and a number of potsherds were collected. It may have been a part of nearby SDI-715. No trace of this site was found during the present survey.

SDI-723 was recorded by True in 1960 as well. He describes the site as a "camp or . . . scattered chipping waste… no apparent midden…" A bedrock metate is present but no artifacts are noted. This site is viewed as Pauma Complex site. It could not be relocated; however, the metate may have been outside the project area, an area to which the survey crew did not have access.

SDI-5675 (Gomez Trail) was "a traditional trail route from Pauma Valley and SDI-715 to Morgan Hill (SDI-543). It was recorded in 1978 by S. Fulmer. The site form suggests that the old route is not visible and there is a "new trail route" or "new road." This trail would have crossed the peak in the northeast corner of the subject property. A careful study of this area, which has been highly disturbed, as well as an examination of adjacent areas, did not reveal the presence of the Gomez Trail.

SDI-5676 (Mission Trail) was a "trail from Morgan Hill (SDI-543) to Pauma (SDI-721 and SDI-715)" according to the site form which cites local informants. It was also recorded by S. Fulmer in 1978. The trail would have skirted the northeast corner of the subject property. No portion of this trail was located during the course of the survey.

Eight Isolates

Six prehistoric and two historic isolates were found. They were recorded but not collected. They include the following identified by their primary numbers, P-37-

030488: one sherd of a thin-walled blue transfer ware.
030489: two metavolcanic aphanitic flakes, one secondary, one interior.
030490: one gray-black secondary metavolcanic aphanitic flake & one green metavolcanic aphanitic flake with 4-5 dorsal flake scars.
030491: one greenish metavolcanic flake, 2 x 4 cm in size.
030492: one shard of blue glass, 1-cm in diameter.
030493: one blue-gray secondary metavolcanic flake, 1 x 2 cm in size.
030494: one quartz flake and one metavolcanic flake.
030495: one piece of quartz shatter, 2 x 4 cm in size.

Boundary Testing at SDI-714

A series of 21 shovel test pits (STPs) were excavated near the eastern edge of SDI-714 to help determine its eastern boundary so that it could be avoided by project development. Five of the STPs were positive and the site boundary was adjusted accordingly. Lot boundaries were then adjusted to avoid the site and leave it open space.

Shovel Test Pits at SDI-17501, -17502, and -17503

The significance of these sites was investigated using a series of two to four STPs at each of these small bedrock milling sites to confirm that no subsurface cultural deposit was present. All of the STPS were negative confirming the absence of subsurface cultural material.

Results of Test Excavations at SDI-9537/H

This site has both prehistoric and historic components. The significance of both components needed to be evaluated under CEQA and San Diego County's Resource Protection Ordinance (RPO). The following fieldwork was executed to accomplish this: 1) the surface collection and mapping of diagnostic prehistoric and historic surface artifacts; 2) the excavation of 12, 1 x 1 m excavation units (one expanded to 1 x 1.5 m); and, 3) the excavation of 24, 30-cm square STPs. The results of these excavations at the two components are summarized in outline form below:

Summary of Prehistoric Component at SDI-9537/H

SDI-9537/H is located on a high terrace or hill above Frey Creek situated 150 m to the west. Frey Creek flows into the San Luis Rey River a few hundred meters to the south. The subsurface deposits of the site are associated with a relatively flat terrain ranging from 800-825 ft in elevation over a distance of about 230 m. The native vegetation was once sage scrub but has been almost completely replaced by citrus groves, mostly orange and grapefruit. Groves were planted on and in the vicinity of the site as early as the late 1920s.

Site Type:	Habitation site – seasonal residential base?
Time Periods:	Archaic: Three Coso obsidian hydration band readings of 7.2, 7.3 and 7.8 microns indicate occupation between ca.1250 and 700 B.C. Late Prehistoric?: Later Late Prehistoric occupation indicated by Tizon Brownware ceramics (if prehistoric) and possibly by the base of an obsidian side-notched point from an unknown source. Three radiocarbon dates that indicate post-1650 A.D. could reflect either prehistoric or historic occupation or both. Historic: late 19th-early 20th century homestead based on a ceramic maker's marks, square nails, bottle types, and an 1899 homestead patent by Hugh Magee. Tizon Brownware ceramics may be historic.
Dimensions/Area:	Surface scatter: 305 m (NE-SW) x 162 m (NW-SE) Subsurface: 205 m (NE-SW) x 110 m (NW-SE)
Depth:	range: 20-80 cm; typically 50 cm in western portion; 70-80 cm in eastern portion
Landform:	bajada (confluent alluvial fans along piedmont slope)
Elevation:	775-825 feet (subsurface component 800-825 ft)

Features:	1) bedrock milling station with a single saucer mortar NOTE: Other bedrock milling stations may have been destroyed when the terrain was prepared for groves. 2) probable hearth feature in Units 2 & 4, SW quad. 3) possible hearth feature in STP 1, NE quadrant 4) 4 large basin metate fragments in Unit 9, NE quad.
Artifact Types:	1 mano, 7 mano fragments, a mini-metate fragment, 6 basin metate fragments, a metate fragment, 6 cores, a core fragment, 4 exhausted cores, an adze or chopper, 921 pieces of debitage, a hammerstone, an adze-hammerstone, a core-hammerstone, an adze or scraper plane-core?-hammerstone, a side-notched arrow point base fragment, 3 biface fragments, a retouched flake tool, a biface preform fragment, 24 Tizon Brownware ceramics (which could be historic), 2 antler tine fragments, and a bone tool fragment, and 62.2 kg of fire-altered rock.
Flaked Stone Debitage Materials:	milky/white quartz 66.7%; metavolcanic aphanitic 16.7%; clear/crystalline quartz 8.3%; metavolcanic porphyritic 4.7%; chert 1.6%; quartzite & chalcedony 0.8% each; obsidian 0.3%; jasper & unknown 0.1%. Cores made of white quartz (75%) and metavolcanic aphanitic (25%) materials. Arrow (?) point fragment made from obsidian; multipurpose tools & biface fragments made mostly of metavolcanic stone.
Ground Stone Lithic Materials:	all granitic except for one volcanic mano fragment
Vertebrate Fauna:	2,123 bones weighing 278.1 g. 2.2% (47) were identifiable to species: <u>small mammals</u> -- black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), desert cottontail rabbit (*Sylvilagus audubonii*), and Botta's pocket gopher (*Thomomys bottae*); <u>medium mammals</u> – coyote (*Canis latrans*); <u>large mammals</u> -- mule deer (*Odocoileus hemionus*); aquatic species – south-western pond turtle (*Clemmys marmorata*) and bat ray (*Myliobatos californica*). <u>Not identifiable to species</u>: large mammal (57.5%), medium mammal (7.4%), small mammal (32.8%), freshwater and marine resources (0.3 and 0.1 %, respectively)

Invertebrate Fauna:	none
Floral Remains:	Little evidence of prehistoric charred food remains; charred seeds from historic period; wood fuel sources included oak, sunflower family, western sycamore, poplar/willow, sage, California Bay (mostly riparian).

Density of Remains:

debitage:	highest:	Unit 9	–	510/m^3
	average of 10 units*		--	167/m^3
	lowest:	Unit 6	--	58/m^3
faunal remains:	highest:	Unit 9	--	1,954/m^3
		Unit 4	--	735/m^3
		Unit 1	--	425/m^3
	average of 10 units*		--	379/m^3
	lowest:	Unit 8	--	0/m^3
	Units 3, 5, 6 & 7		--	<20/m^3

*sterile units 11 & 12 excluded

Diversity of Remains:	moderate to high
Degree of Disturbance:	moderate to heavy in tree rows; light to moderate between tree rows

Total Volume Excavated (12 units): 5.53 m^3

Summary of Historic Component at SDI-9537/H

SDI-9537/H is located on a high terrace or hill above Frey Creek situated 150 m to the west. Frey Creek flows into the San Luis Rey River a few hundred meters to the south of the site. Based on surface artifacts, the historic component measures about 85 by 85 m in size; however, the subsurface deposit measures only about 60 by 50 m. The other material has eroded downslope over time. The historic component is on relatively flat terrain ranging from 800-815 ft in elevation. The native vegetation was once sage scrub but has been almost completely replaced by citrus groves, mostly orange and grapefruit. Groves were planted on and in the vicinity of the site as early as the late 1920s.

Site Type:	Turn of the century homestead site.
Time Periods:	late 19th-early 20th century homestead based on a ceramic maker's marks, square nails, bottle types,

and 1899 homestead patent by Hugh Magee; may have been occupied until the 1920s

Dimensions/Area:	Surface scatter: 85 m (NE-SW) x 85 m (NW-SE) Subsurface: 60 m (NE-SW) x 50 m (NW-SE)
Depth:	20-30+ cm
Landform:	bajada (confluent alluvial fans along piedmont slope)
Elevation:	775-815 feet (subsurface component 800-815 ft)
Features:	none
Artifact Types:	square nails; largely undecorated whiteware (some molding); aqua, green, brown, purple, and clear bottle glass; 1880s bottle; ceramic maker's mark 1878-1890; window pane glass; shovel fragment; burned wood; a screw; a brad; and Tizon Brownware ceramics that may be historic.
Vertebrate Fauna:	none
Invertebrate Fauna:	none
Floral Remains:	olive seeds and maize
Density of Remains:	moderate, mainly in upper 20-30 cm.
Diversity of Remains:	low to moderate
Degree of Disturbance:	moderate to heavy in tree rows; light to moderate between tree rows

Total Volume Excavated (5 units): 2.63 m^3

Site Significance

Significant Sites

SDI-9537/H. The text excavation program determined that the prehistoric component of site SDI-9537/H is a significant historical resource under Criterion

D of the California Register of Historical Resources, and therefore under CEQA. It does not qualify, however, for RPO status.

Sites Placed In Open Space. The following sites will be placed in open space and are therefore assumed to be significant archaeological sites: SDI-246, -266, -714, -731, and -9906.

If the cultural resources alternative is adopted, SDI-9537/H will also be placed in open space.

Sites That Are Not Significant

Historic Component of SDI-9537/H. The combined archival research and test excavations determined that the historic component of SDI-9537/H is not a significant historical resource under Criteria A, B or D of the California Register of Historical Resources, and therefore under CEQA. It is also not a significant historical resource under the County's RPO.

Small Bedrock Milling Sites SDI-17501, -17502, -17503 and -18368. The shovel test pits at the small bedrock milling sites, SDI-17501, -17502, and -17503, determined that they have no subsurface deposit and are therefore not significant under Criterion D of the California Register of Historical Resources, and therefore under CEQA. They are also not significant resources under the County's RPO. In addition, recent project redesign now places SDI-17501 and -17503 just outside of the proposed development area.

Given that SDI-18358 is an isolated find situated well away from the known sites on the property, and given that no artifacts are present despite good ground visibility, and given that it has been disturbed by vehicular traffic, and given that its useful information has already been recorded (location, milling outcrop size, milling feature dimensions), it has been determined that SDI-18368 is not a significant historical resource under CEQA or the County's RPO.

Sites Not Relocated: SDI-715, -722, -723, -5675, and -5676. Sites SDI-715, -722, and -723 have apparently been destroyed by the expansion of orchards on the property back in the late 1960s. If there ever were portions of the two historic trails SDI-5675 (Gomez Trail) and -5676 (Mission Trail) on the property, there are no indications of them now.

Therefore, SDI-715, -722, and -723 are not significant sites because they have been destroyed. If buried remnants of these sites remain, they will not be impacted by the project as the site locations are within proposed project open space. SDI-5675 and -5676 may exist outside the subject property but they cannot be evaluated for this project because they are not present.

Eight Isolates. Six prehistoric isolates and two historic isolates were recorded in the 2001 survey. Isolates, which have no subsurface component, are not considered significant historical resources under CEQA or the County's RPO.

Management Recommendations

SDI-9537/H – Prehistoric Component

Impacts to the prehistoric component of SDI-9537/H will be mitigated through data recovery excavations that implement a written research design. Any site destruction during construction grading will be monitored by both a County certified archaeologist and a Native American Observer to check for the presence of unusual features and/or human remains. All artifacts recovered from data recovery will be analyzed and reported on and the artifacts will be curated at the San Diego Archaeological Center. These steps are discussed in more detail below.

If the cultural resources alternative is adopted, there will be no impacts to SDI-9537/H and no mitigation through data recovery will be necessary.

Mitigation of Impacts Through Data Recovery. While the surface scatter of this site extends across most or parts of six proposed development lots, the subsurface component covers portions of only four lots of the development project (see maps showing site locations within the site plan in Part I of the Confidential Site Records Appendix). If development is to proceed under the proposed plan, data recovery excavations will be required to mitigate the impacts of such development in those four lots.

A research design for implementation of the data recovery excavations at SDI-9537/H entitled, *Data Recovery Research Design for Mitigation of Prehistoric Archaeological Site SDI-9537/*H, has been written by Dr. Philip de Barros; it is provided as a separate attachment to this report. After this research design has been approved by the County Archaeologist, the data recovery excavations may be implemented by a County certified archaeologist.

If the cultural resources alternative is adopted, there will be no impacts to SDI-9537/H and no mitigation through data recovery will be necessary.

Grading Monitoring the Destruction of SDI-9537/H. It is recommended that the site area be monitored during construction grading to check for the presence of human remains and/or unique archaeological features by both a County certified archaeologist and a Native American Observer. The site areas to be monitored include the area of the ranch manager's house and auxiliary structures located along the eastern edge of the site, because it is possible that the site extends underneath these structures. The grading in the area of SDI-9537/H shall be controlled grading, i.e., the site will be graded in 10-15 cm layers at a time to avoid the destruction of any human remains and/or unique archaeological features that may be present.

If human remains are encountered, California State law will be followed as specified under Point 4 under Grading Monitoring below. If unique archaeological features are encountered, the monitoring archaeologist will stop construction in that area so this feature can be exposed, mapped, photographed, and any unusual artifacts removed for analysis. Radiocarbon dating samples will also be taken, if appropriate. The documentation and analysis of such features will be included as part of the monitoring report for the project as a whole and all recovered artifacts will be curated as specified below.

If the cultural resources alternative is adopted, there will be no impacts and no grading monitoring of the destruction of SDI-9537/H will be necessary.

Curation. All artifacts recovered during data recovery excavations, along with a copy of the data recovery report and associated field notes and other records, will be curated at the San Diego Archaeological Center (SDAC).

If the cultural resources alternative is adopted, there will be no artifacts to curate from data recovery excavations at SDI-9537/H.

Sites Placed In Open Space: SDI-246, -266, -714, -731, and -9906

As noted above, these sites will not be impacted by the project because they will be placed in open space and they are assumed to be significant. No further work will be required at these sites unless the proposed boundaries of open space were to be changed and one or more of these sites might be potentially impacted by development.

If the cultural resources alternative is adopted, SDI-9537/H will also be placed in open space.

Mitigation Measures Applying to the Entire Project

The following are requirements set forth by the Department of Planning and Development Services (DPDS) for this project.

Grading Monitoring. The developer will contract with a County certified archaeologist to implement a grading monitoring program to the satisfaction of the Director of Planning and Development Services (DirPDS). Verification of the contract shall be presented in a letter from the Project Archaeologist to the DirPDS. This program shall include, but not be limited to, the following action:

1) The County certified archaeologist and Native American Observer shall attend the pre-grading meeting with the contractors to explain and coordinate

the requirements of the monitoring program. The DPDS shall approve all persons involved in the monitoring program prior to any pre-construction meetings. The consulting archaeologist shall contract with a Native American Observer to be involved with the grading monitoring program.

2) During the original cutting of previously undisturbed deposits, the archaeological monitor(s) and Native American Observer shall be onsite full-time to perform periodic inspections of the excavations. The frequency of the inspections will depend on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features.

3) Isolates and clearly non-significant deposits will be minimally documented in the field and the monitored grading can proceed.

4) In the event that previously unidentified potentially significant cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operations in the area of discovery to allow evaluation of potentially significant cultural resources. The archaeologist shall contact the County Archaeologist at the time of discovery. The archaeologist, in consultation with County staff archaeologists, shall determine the significance of the discovered resources. The County Archaeologist must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the County Archaeologist, then carried out using professional archaeological methods. If any human bones are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

5) Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The archaeological monitor(s) and Native American Observer shall determine the amount of material to be recovered for an adequate artifact sample for analysis.

6) In the event that previously unidentified cultural resources are discovered, all cultural material collected during the grading monitoring shall be processed and curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation.

7) In the event that previously unidentified cultural resources are discovered, a report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and submitted to the satisfaction of the DirPDS prior to the issuance of any building permits. The report will include Department of Parks and Recreation (DPR 523) Primary and Archaeological site forms.

8) In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the DirPDS by the consulting archaeologist that the grading monitoring activities have been completed.

9) Prior to rough grading inspection sign-off, the archaeological monitor shall provide evidence that the grading monitoring activities have been completed to the satisfaction of the DirPDS.

Temporary Fencing for Archaeological Sites within Open Space. Prior to and during any construction grading, a temporary fencing plan for any grading activities for the protection of archaeological sites shall be prepared and implemented for sites CA-SDI-246, -266, -714, -731, and -9906. Said fencing will be implemented for any grading activities within one hundred (100') feet of said sites. The fencing plan shall be prepared in consultation with a qualified archaeologist to the satisfaction of the DirPDS. The fenced area should include a buffer sufficient to protect the archaeological site(s). The fence shall be installed under the supervision of the qualified archaeologist prior to commencement of grading or brushing and be removed after grading operations have been completed.

If the cultural resources alternative is adopted, temporary fencing will also be necessary for SDI-9537/H.

Curation of Archaeological Collections. The consulting archaeologist shall provide evidence to the satisfaction of the DirPDS that all archaeological remains recovered during the archaeological investigations of the property, including all significance testing, data recovery, and grading monitoring activities, have been curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation.

SECTION 1 – INTRODUCTION

1.1 PROJECT DESCRIPTION

Shadow Run Ranch, LLC, plans to develop a subdivision on 248.25 acres that includes: 1) 44, minimum two-acre net residential lots); 2) a 39.12-acre agricultural open space lot (Lot 45); 3) a 91.31-acre biological open space lot (Lot 46); and, 4) a 7.96-acre recreational open space lot for the residents' use (Lot 47). A cultural resources alternative would limit the project to: 1) 38, minimum two-acre net residential lots; 2) a 39.12-acre agricultural open space lot (Lot 39); 3) a 109.47-acre biological open space lot (Lot 40); and, 4) a 7.96-acre recreational open space lot for the resident's use (Lot 41). The project is in Pauma Valley, San Diego County, California. It lies along the north side of Highway 76 west of Adams Road, about eight miles east of Interstate 15, within portions of Sections 31 and 32 of Township 9 South and portions of Sections 5 and 6 of Township 10 South, both in Range 1 West (Figures 1-3).

1.2 SCOPE OF WORK AND PERSONNEL

Previous environmental studies included an archaeological records search and survey of the property conducted by Professional Archaeological Services (see de Barros 2001). The records search was done at the South Coastal Information Center on April 6th and the Museum of Man on April 9th, 2001. Field work was done between April 7th and July 22nd, by Dr. Philip de Barros and Joel Paulson, M.A., with the assistance of Jeanie Jones, Koji Tsunoda, Craig Kierulff, Akesa Kirkpatrick, and Laura Anderson, all advanced students and graduates of the Palomar College Archaeology Program. A number of sites had been previously recorded on the property. Some were rerecorded but a few small bedrock milling sites had been destroyed and could not be relocated. In addition, three new small bedrock milling sites and eight isolates were discovered and recorded (see later sections of this report for data on record searches and site descriptions).

Most of sites on the property are located within proposed project open space and are assumed to be significant archaeological sites. The current study reviews the findings of the archaeological survey and records search, but focuses primarily on the significance evaluation of SDI-9537/H and SDI-17501 through -17503, as well as boundary testing at SDI-714. The boundary testing was done to allow for project redesign so the site could be placed within open space. Shadow Run Ranch, LLC, hired Professional Archaeological Services to perform this work within the project area. Dr. Philip de Barros served as Principal Investigator (see Appendix A). The fieldwork was conducted between April 17th and May 8th, 2005, with some additional work done on June 5th. No new records search was done in 2005 because no other work had taken place on the property since 2001.

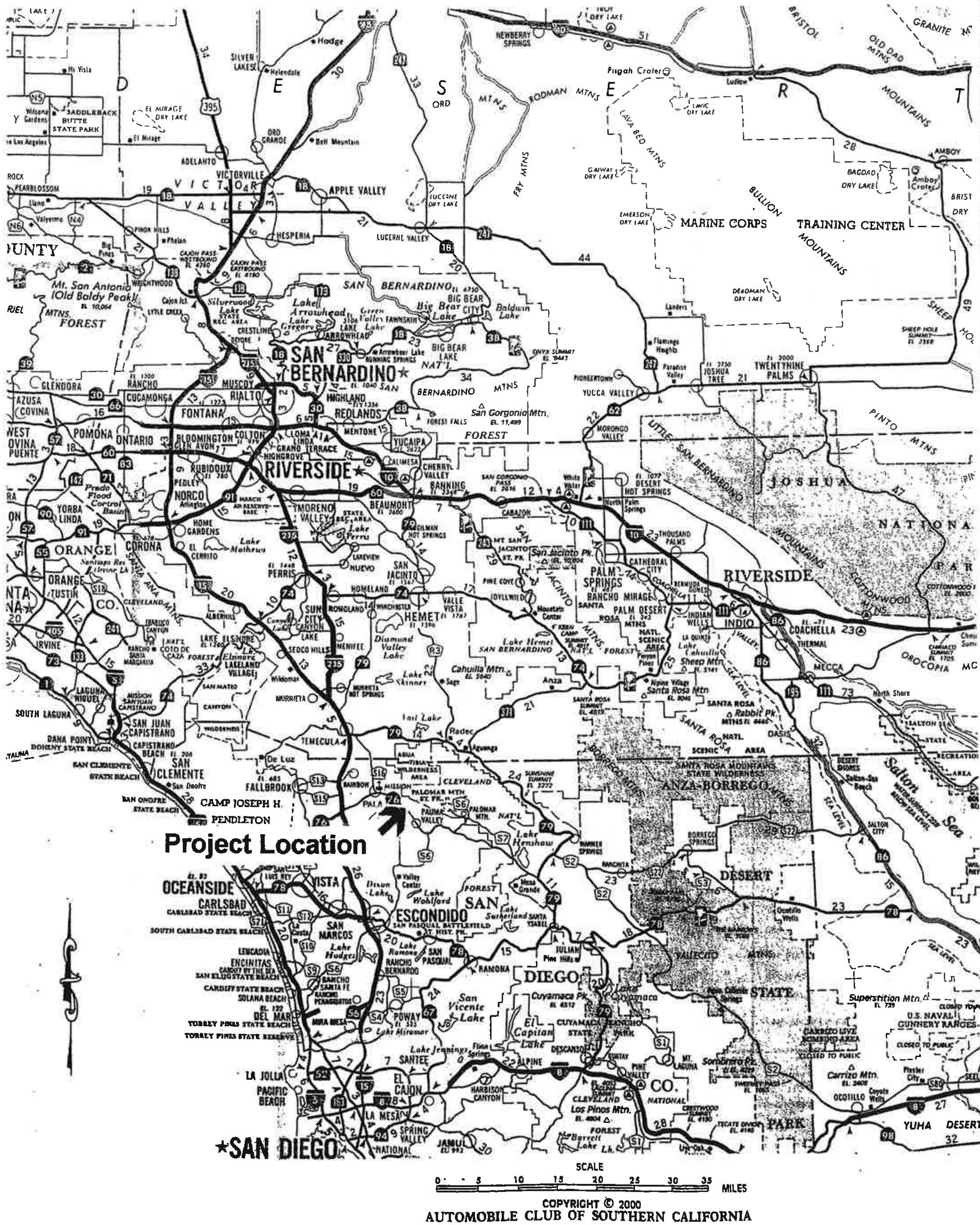
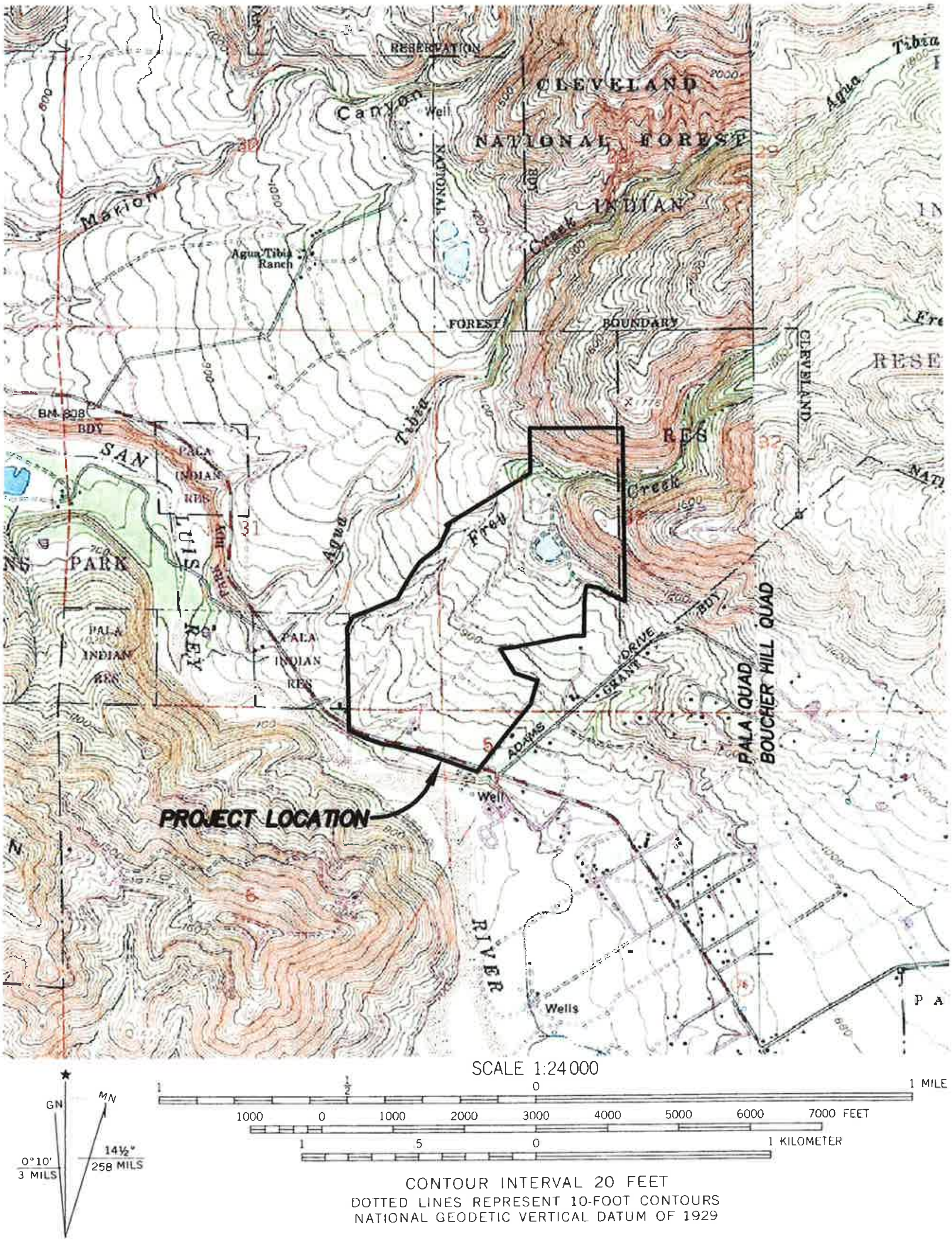


Figure 1: Regional and Site Vicinity Map



SITE LOCATION MAP

FIGURE 2

COUNTY OF SAN DIEGO TRACT NO. TM 5223 RPL-3

SHADOW RUN RANCH, PAUMA VALLEY

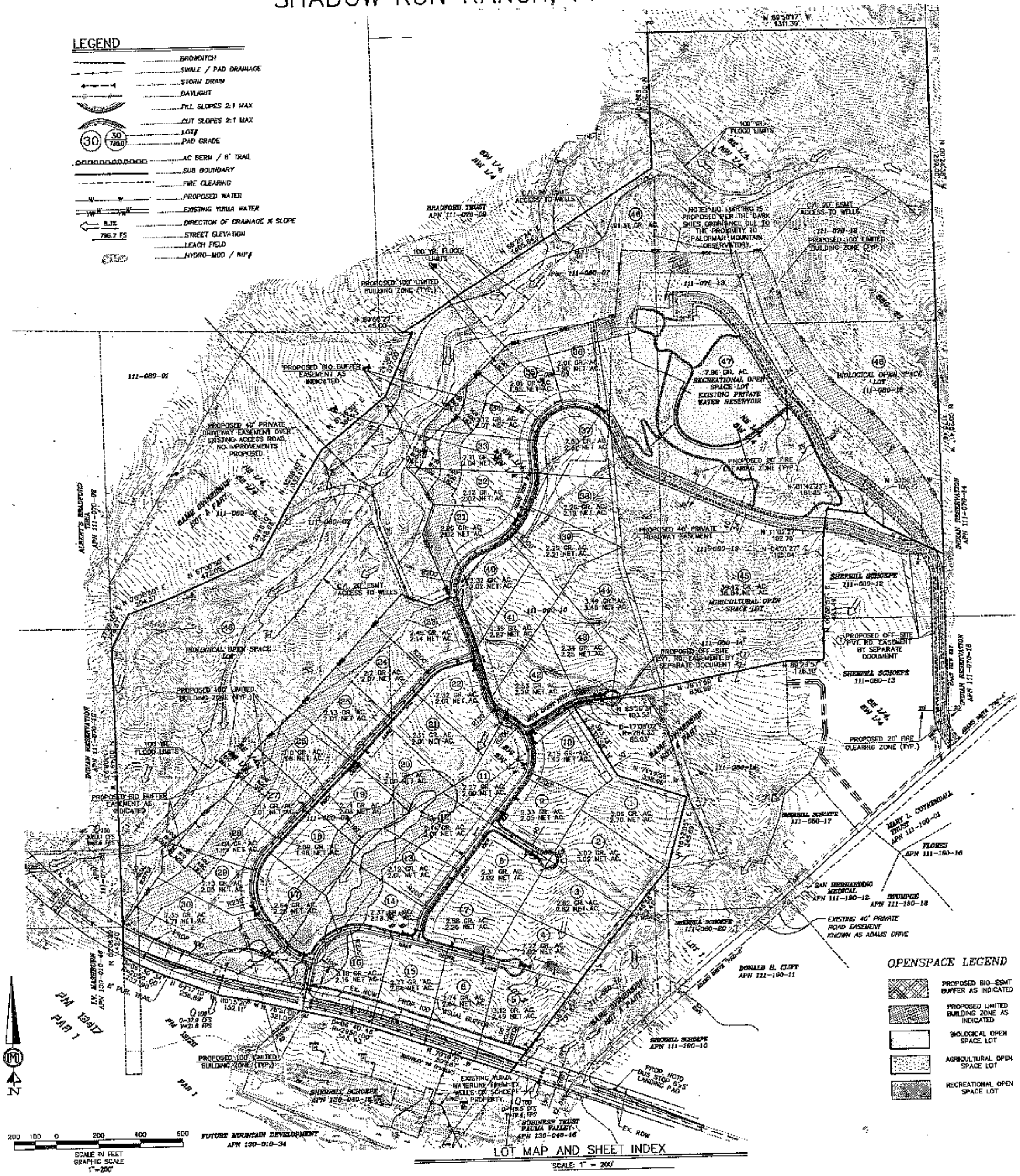


Figure 3a: Site Plan Map

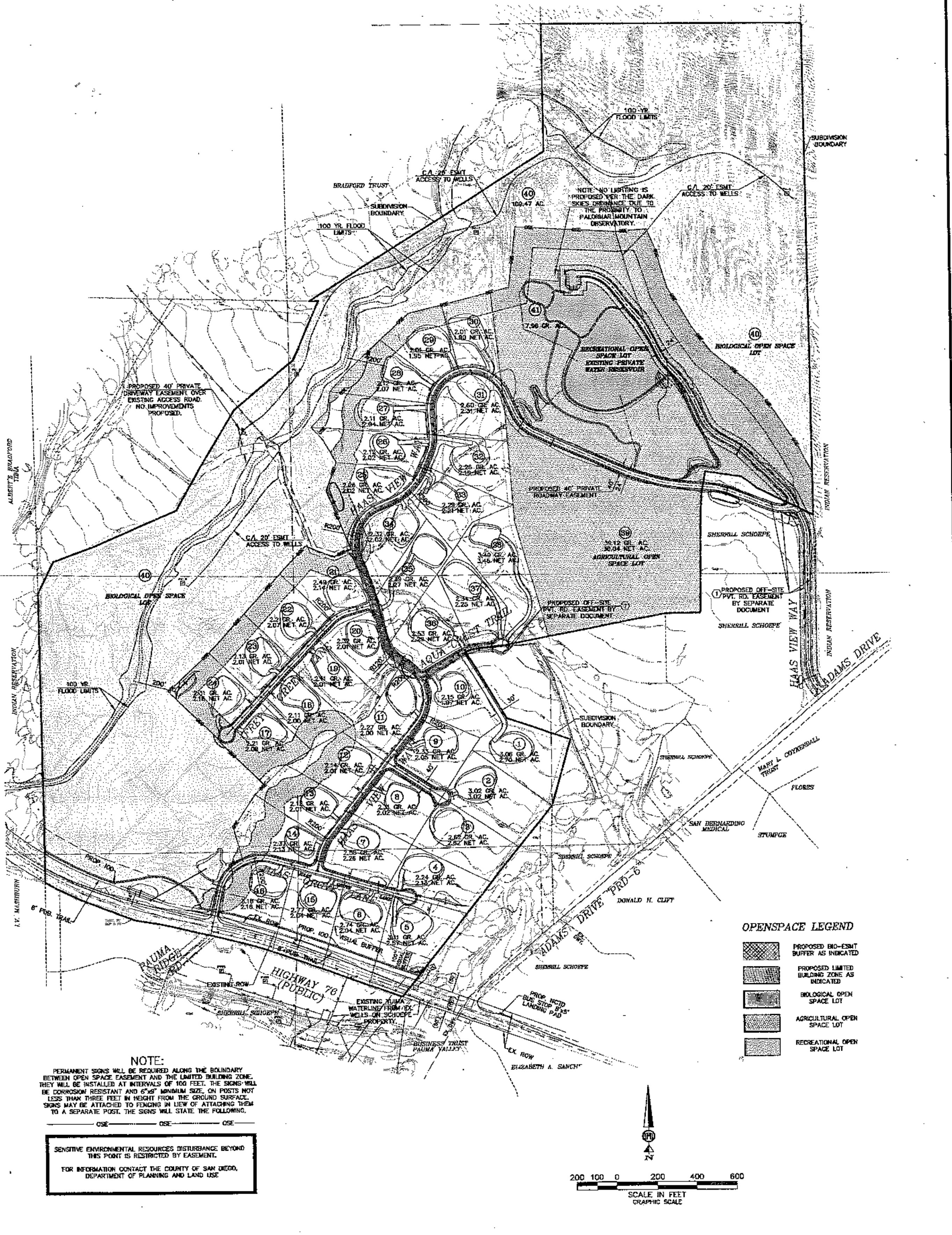


Figure 3b: Site Plan Map Showing Cultural Resources Alternative

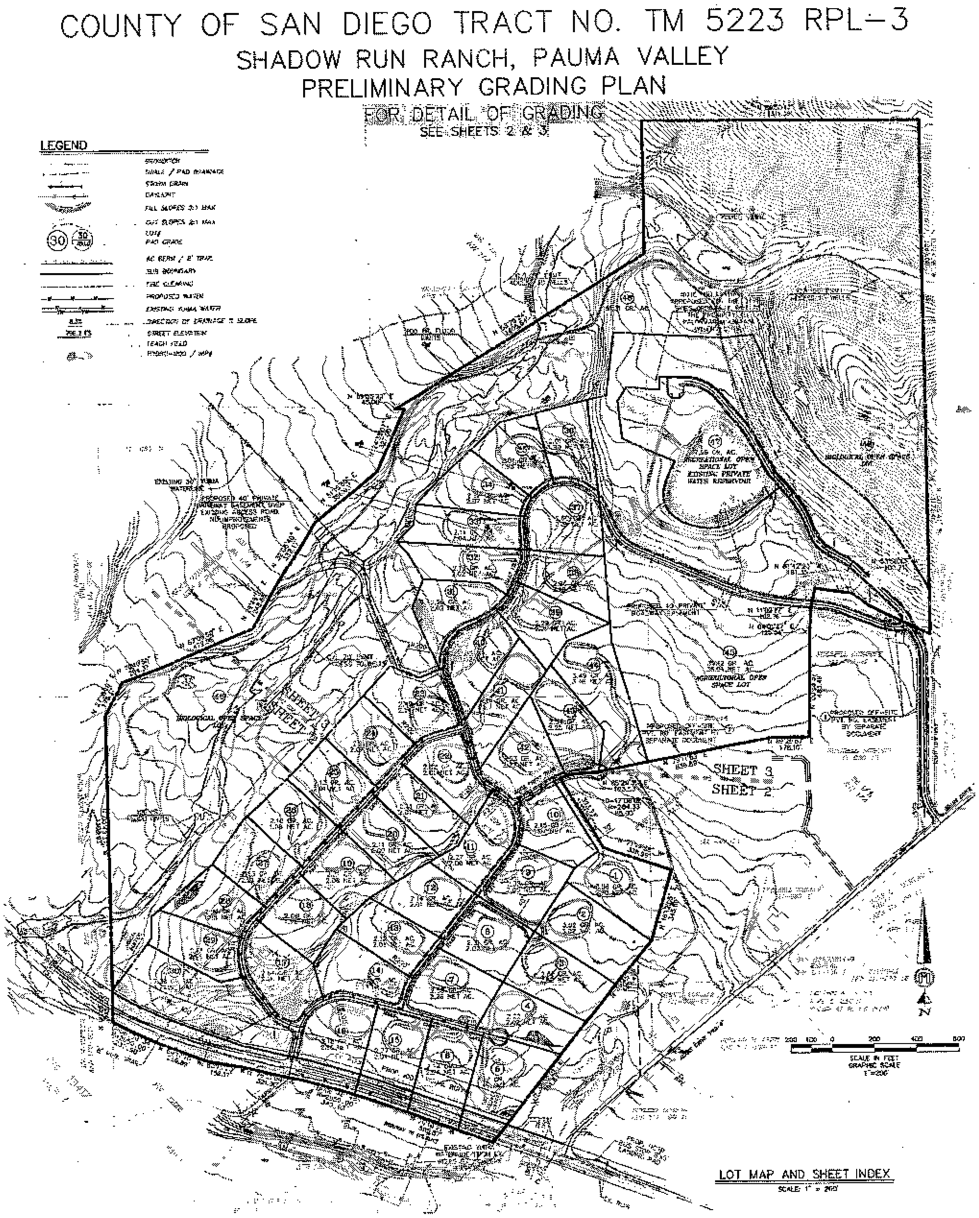


Figure 3c: Site Grading Plan Map

Fieldwork was supervised by Dr. de Barros. The crew chiefs were Lucas Piek and Josh Patterson. Field crew included Bryana Caldwell, Jennifer Ferreira, Ian Skinner, Jeanie Jones, Laura Anderson, Craig Kierulff, Nick Doose, Debra Farris, Rudy Reyes, Liz Wernieke, and Jill de Barros. Nearly all of the crew are graduates or advanced students of the Palomar College Archaeology Program. Benae Calac and Joda Molina of Native Ground Monitoring and Research, served as monitors from the Pauma Indian Reservation. Joda Molina also assisted in excavation screening. Analytical studies were done by Dr. Scott Crull (historic glass artifacts), Susan Walter (whiteware ceramics), Patricia Mitchell (animal bone), Dr. Richard Hughes (obsidian sourcing), Tom Origer (obsidian hydration), Beta Analytic (radiocarbon dating), Dr. Virginia Popper of the Cotsen Institute of Archaeology at UCLA (macrofloral analysis), Monica Guerrero of Gallegos and Associates (ceramic thin section analysis), and Dr. Philip de Barros (lithic analysis, Brownware ceramic studies, and historic archival research). Lucas Piek did all of the artifact illustrations in this report.

1.3 NATIVE AMERICAN INVOLVEMENT

At the suggestion of Professor Patty Dixon of the American Indian Studies Department at Palomar College, Benae Calac of the Pauma Indian Reservation was contacted regarding monitoring the archaeological test excavations. Her firm, Native Ground Monitoring and Research, provided monitors for these excavations. Benae Calac served as monitor on April 17th and Joda Molina served as monitor for all of the remaining fieldwork. No human remains or grave goods were encountered. In addition, an attempt was made to see if there are connections between Hugh Magee, the pioneer who homesteaded part of the subject property in 1899, and Magee family members at Pechanga and Pala Indian Reservations. In early June 2005, telephone messages were left for John Magee at Pechanga Indian Reservation and for Leroy Miranda at Pala Indian Reservation regarding the family lineages, but these calls were not returned. Finally, the County of San Diego has initiated consultation with the Indian Reservations within the vicinity of Pauma Valley. This is an ongoing process.

A sacred lands file records check was also initiated with the Native American Heritage Commission. The results were negative (see Appendix M).

1.4 DISPOSITION OF ARTIFACTS AND FIELD NOTES FOR WORK AT AT SDI-266, -714, -731, -9537/H, -17501, -17502 AND -17503

A few surface collected artifacts were recovered from SDI-266, -714, -731, and -9537/H in 2001. These were stored with the owner at his request and were retrieved in 2005. In addition, the test excavations conducted in 2005 at SDI-9537/H also resulted in a collection of artifacts. All of these materials and associated field notes have been curated at the San Diego Archaeological Center (see Appendix L).

SECTION 2 – NATURAL AND CULTURAL SETTING

2.1 NATURAL SETTING

The project site primarily consists of a gently sloping fan of alluvium from the Palomar Mountain range. As an alluvial fan, the surface and underlying soils vary greatly from small-grained sands and clay deposits to large boulders that have been washed from the mountain above. The elevation of the alluvial fan ranges between 770 and 990 feet. Frey Creek runs through the project site, splitting into several sub-drainages near the southern end of the project boundary along Highway 76. In some locations, the creek has washed out the underlying alluvium, creating steep escarpments at its banks (see Figure 3). Frey Creek and Agua Tibia Creek just to the west are tributaries of the San Luis Rey River which drains through Pauma Valley on the way to the Pacific Ocean. This river is located 200-250 m south of the subject property. Both the San Luis Rey River and its associated tributaries are essentially seasonal drainages, although water is abundant in them in June of this year due to the above-average rainfall of the past winter.

The northern portion of the project region contains steep mountain slopes culminating in a peak whose elevation is 1,427 feet. This mountain still contains native vegetation consisting of sage scrub and some chaparral. A wide of variety of native shrubs and grasses provided foodstuffs for prehistoric inhabitants and local deer and rabbit are particularly abundant. The vast majority of the site has been cleared and planted in fruit groves, including oranges, lemons, grapefruit, avocados, and persimmons. A population of California Live Oaks (*Quercus agrifolia*) remains on the site, primarily along the banks of Frey Creek, but also at various other locations. A few isolated locations within the groves also contain remnant populations of the sage scrub that originally covered the region. The local geological bedrock is essentially granitic and soils are derived from this decomposing bedrock.

2.2 CULTURAL SETTING

2.2.1 Prehistory

The Paleoindian or San Dieguito Culture

At present there is no agreed upon sequence for the early prehistory of the San Diego area (Warren et al. 1993). While estimates have been made for early occupation as early as 12,000 B.P. (Jones 1991; Moratto 1984), the earliest radiocarbon date is 9,030 B.P. ± 350 (Byrd and Serr 1993:9; Higgins 1995:9). This early Paleoindian culture, generally referred to as the San Dieguito culture, was first described by Malcolm Rogers (1945, 1966), and most agree that its appearance in southern California was the result of environmental change leading peoples to migrate westward through Jacumba Pass (Byrd and Serr 1993:9).

While the San Dieguito was initially associated with a hunting complex, it is now seen as a generalized hunting and gathering subsistence pattern, which probably included marine and riverine shellfish (Jones 1991). The moist climate of the early-to-mid Holocene created a landscape of pinyon-juniper forests and rich riparian communities along major lakes and watercourses where the hunting of small and large (deer, elk) game were central to subsistence (Byrd and Serr 1993:9). One of the earliest San Dieguito occupations was the C.W. Harris Site on the San Dieguito River which dates to the 8th millennium B.C. (see Kyle et al. 1990). Warren (1966), Moriarty (1967), Kaldenberg (1982), and Gallegos and Carrico (1984) have reported on other important sites dating to this period or slightly later (see Higgins 1995:9). San Dieguito camps are most commonly found on mesas or ridge tops which enabled hunters to spot game from afar (Byrd and Serr 1993:9).

Byrd and Serr (1993:9), citing Davis et al. (1969), summarize the basic elements of the San Dieguito assemblage as containing

> heavy "horsehoof" planes, which were probably used as scrapers, a variety of other kinds of scrapers which may have been hafted, choppers made on large, heavy primary flakes, a variety of large knives or points, rare crescentic stones of unknown use, thick primary flakes and thin trimming and finishing flakes. Flaking was frequently bifacial and of good quality.
> (Byrd and Serr 1993:9)

The San Dieguito occupation is thought to have come to a close somewhere between 8500 and 7500 B.P. (Warren and True 1961).

The La Jolla Culture (Millingstone Horizon or Encinitas Tradition)

The following is summarized primarily from material presented in Higgins (1995) and Byrd and Serr (1993).

The La Jolla culture was a local manifestation of the "Milling Stone Horizon" of southern California (see Wallace 1955; Warren 1968). The La Jollans were also hunters and gatherers, but with a heavy emphasis on plant and plant seed processing as evidenced by abundant manos and metates. Coastal groups placed a strong emphasis on marine resources, especially shellfish, whereas inland groups clearly could not. The assemblages of the inland sites are more heavily dominated by millingstones. Small mammals were also processed using manos and metates (see Yohe et al. 1991; de Barros 1996). Other tools associated with La Jollan sites include relatively crudely shaped flaked stone tools, polished stone artifacts and drills, and a variety of projectile points. La Jollan sites also indicate burial of the dead, first in living areas and later in defined cemeteries (Byrd and Serr 1993:9). Both the La Jollan tradition and its inland manifestation are local representations of the Encinitas Tradition defined by Warren (1968).

By about 3000 B.P., True (1966) believes two separate subsistence patterns are present: an inland pattern (sometimes referred to as the Pauma Complex), and a refined marine-oriented economy on the coast (Byrd and Serr 1993:9). Trade probably flourished between these groups and between them and desert peoples. True (1966) believes these trading contacts were eventually followed by migrations to the coast, leading to the displacement of the Hokan speaking La Jolla populations (see also Byrd and Serr 1993:9).

Some authors have emphasized that the early Late Prehistoric was a period of cultural hiatus or at least reduced activity. Moriarty (1967) suggests this period was between 1000 B.C. and A.D. 500, but more recent studies (Moratto et al. 1994:3.3) suggest it was earlier, i.e., ca. 1,500 to 500 B.C. This corresponds to a similar cultural hiatus or reduced activity period during the early Intermediate Period in Orange County (see Mason and Peterson 1994; de Barros 1991, 1993).

Late Prehistoric Period

This period begins around 1,000 B.C. (3000 B.P.) Desert migrants from the east gradually replaced the La Jollan peoples. The actual timing of this transition is in dispute (Warren et al. 1993:III-42 to III-50, as cited in Higgins 1995:10), but certainly the Late Prehistoric culture was well established by A.D. 900.

According to Byrd and Serr (1993):

> It is generally accepted that these eastern groups were the ancestors of the historic and present native populations of southern California. The Shoshonean speaking *Luiseño* occupied the northern portion of San Diego County at the time of contact, while the Yuman-speaking *Iipay-Kumeyaay* (formerly referred to as the *Diegueño*) occupied the south. The boundary dividing these peoples runs east-west through Escondido, possibly slightly further north.

Meighan (1954) documented a site occupied by a Late Prehistoric population ancestral to the *Luiseño*. The assemblage is characterized by mortars and pestles, bedrock millingstone sites, manos, portable metates, small pressure-flaked projectile (arrow) points, drilled stone ornaments and *Olivella* beads, and pictographs (see Byrd and Serr 1993:10), and is known as San Luis Rey I. Cremation was practiced and pottery production began during this period (see his San Luis Rey II which began ca. A.D. 1700).

According to Byrd and Serr (1993:10), a pre-ceramic Yuman occupation, reflecting *Iipay-Kumeyaay* occupation appears at certain La Jollan sites along the coast at about 2000 B.P. Instead of a marine-focused economy, the Yuman subsistence economy focused on acorns and other seeds along with hunting. Food storage was practiced, including food surpluses, using baskets and pottery vessels. Byrd and Serr (1993:10) continue:

> *Iipay-Kumeyaay* society was organized around patrilineal residence groups, with hereditary positions of political and ceremonial importance (Luomala 1978). Permanent villages and campsites are located in oak woodland valleys and catchment basins in the coastal zone, the foothills, the Peninsular Range and, to a lesser extent, in the desert beyond. Resource extraction and processing sites are clustered in an optimizing pattern around the settlements. Temporary camps and further extractive sites are located in more distant areas. Seasonal movements within a communally-owned village territory were practiced; these movements were directly related to the changing availability of critical resources.
> (Byrd and Serr 1993:10)

The artifact assemblage of the *Iipay-Kumeyaay* sites is similar to *Luiseño* sites in many ways. Typical of both cultures are the presence of small triangular and corner-notched, pressure-flaked arrow points, shell and stone ornaments, Tizon Brownware ceramics, and cremated human remains (Turnbow et al. 1995:10-11). Ceramic pipes and soapstone arrowshaft straighteners, vessels, and shaman sucking tubes also make their appearance. Exotic pottery includes Colorado Buff and Parker Buff pottery from the Colorado River Basin and obsidian from Obsidian Butte near the Salton Sea.

Ethnohistoric or Contact Period

Prior to Spanish contact, San Diego County was inhabited by four Indian groups: the Yuman-speaking *Iipay-Kumeyaay* (*Diegueño*) and the Shoshonean-speaking *Cahuilla*, *Luiseño*, and *Cupeño*. Higgins (1995:11) continues:

> These people maintained flexible territories and occupied over 85 villages throughout San Diego County at the time of contact (Carrico 1986:6). The people engaged in a foraging lifestyle . . . Acorns and rabbits were primary resources. Periodic burns were used by the natives to manage the vegetation and maintain oak parklands and grass lands. Tule rafts and plank canoes were used to exploit marine resources. Pottery and finely crafted baskets were made for domestic usage. Elaborate sandpaintings and artifacts, such as ornately incised steatite tubes and shell inlaid wands, were fabricated to accompany various curing ceremonies and rituals (Carrico 1986:9).
> (Higgins 1995:11)

As Byrd and Serr (1993:10) note, the Yuman-speaking peoples were designated as the *Diegueño* because of their association with Mission San Diego; however, they did not have a name that they used themselves to refer to all Yuman-speaking people. The term *Diegueño* has fallen into disuse because of its foreign origin. More recently, the terms *Iipay* and *Kumeyaay* have been used to refer to different geographical subdivisions of Yuman-speaking groups (see Ruth Almstedt in Fulmer et al. 1979). The term *Iipay* includes those groups previously referred to as the Northern or Northwestern, Coastal, and the northern parts of the Western and Mountain divisions of the *Diegueño*; *Kumeyaay* includes the Southern (or Eastern or Southeastern) *Diegueño*, the *Bajeno* or Mexican *Diegueño*, the *Kamia* and southern portion of the Western and Mountain *Diegueño* (see Byrd and Serr 1993:10).

> The Agua Hedionda Lagoon [Carlsbad] is regarded as the northern boundary of *Iipay-Kumeyaay* territory; the Todos Santos Bay in Baja California marks the probable southern limit. In the east this territory extends to the Sand Hills. The boundary between the *Iipay* and *Kumeyaay* divisions is difficult to precisely define. Economic and ritual cooperation, intermarriage and mixed settlements were common. A village near Santa Ysabel is usually regarded as the northernmost *Kumeyaay* settlement, though *Iipay* groups also inhabited this area.
> (Byrd and Serr 1993:10)

2.2.2 Ethnography

The Luiseño

At European contact times, the study area was in a region occupied by groups known as the Luiseño, named after the Mission San Luis Rey de Francia in present-day Oceanside, California, which some of their cultural group frequented. The Luiseño culture area incorporated southwestern Riverside County, northern San Diego County, and eastern Orange County. Its language belongs to the Shoshonean language family (Kroeber 1925: Plate 57). The Contact period ethnicity of the study area is clear as the project area lies within historic Luiseño territory (see Bean 1978: Figure 1). The modern Luiseño reservations in northern San Diego County include the Pala and Pauma reservations to the west and east. Ethnographic literature pertinent to the Luiseño and surrounding ethnographic groups is fairly extensive and has been collected since the 1800s (see Barrows 1900; Sparkman 1908; Kroeber 1925; White 1963; and Bean 1972, 1978).

A number of researchers, [Sparkman (1908), Kroeber (1925), White (1963), Bean and Shipek (1978)] have attempted to reconstruct past Luiseño lifeways. Based upon their work the following observations are suggested. The Luiseño were intensive hunters and gatherers that utilized both coastal and inland resources.

They lived in large sedentary villages that were typically located along valley bottoms, streams, coastal strands, and mountain ranges. These villages were usually in good defensive locations near perennial water sources with every village having access to a number of well-defined and well-defended resource areas that were usually within a day's travel from the village. These resource areas were owned either individually, by a family, or by the village as a whole, and it was only with permission that one could exploit another's territory (Bean and Shipek 1978). Although most of the villages were sedentary or semi-permanently located, year round occupation of the village was not always the case. Small working parties would move to temporary camps to hunt, harvest seeds or conduct special ceremonies. At least once a year most of the village would move and establish temporary camps either on the coast to collect shellfish or in the mountains to harvest acorns or other resources not available near the main village. Therefore, within the Luiseño region several different temporary site types can occur such as hunting camps, fishing camps, or acorn gathering camps.

Native Americans During the Historic Period

Spanish contact began with the Cabrillo expedition in 1542 which explored portions of the coast and the Channel Islands to the north. Spanish mission settlement did not begin until 1769 with the founding of the first mission and presidio. California became part of Mexico in 1821 with Mexican independence from Spain, and in 1848 California became part of the United States. According to Schwaderer (1986:4), many of the Yuman villages around the southern end of San Diego Bay continued to be occupied until American homesteaders arrived in about 1870 (Higgins 1995:11). However, the area south of the San Dieguito River toward San Diego Bay contained no recorded ethnographic villages (see Kroeber 1925). This is in part due to missionization which led to the Indians being removed from such areas as Del Mar and taken to Missions San Diego and San Luis Rey (see Richards 1974:6).

The Christianization and Europeanization of southern California (1769 to the 20th century) drastically altered the lives and culture of the Native American populations, "disrupting and reducing native populations with disease, missionization, indentured servitude, and dispersal" (Shipek 1986:13-23).

2.2.3 History

There is not a lot written about the history of neighboring Pala and Pauma Valley. No attempt is made here to be comprehensive. According to Grace and Reeves (2005), the Pauma Valley Indians or Paumas (who are part of the Luiseño) took their name from an Indian word that means "spring water". Before the San Luis Rey River was named by the Spanish, the local Indians called it "Qee'sh." The Spanish first entered the area during the late 18th century. In 1816, the

Assistencia of Mission San Antonio de Pala was established near the San Luis Rey River along Pala Creek, which later became the main road north to Temecula (Pala Road today). Spanish land grants later created the Pauma and Guejito Ranchos in 1844 and Rancho Cuca in 1845. The 13,309-acre Rancho Pauma was awarded to Antonio Jose Serrano. The Butterfield Stage Route crossed the area to the east during the American Period (Grace and Reeves 2005).

The Cupeño joined the Luiseño at Pala in 1901 when they were forcibly removed from their homeland near Warner Springs. This followed California Governor John Downey's purchase of much of the Cupa homeland in 1880 and his eventual lawsuit to evict the Indians from the land. This lawsuit was upheld by the California courts and later by the Supreme Court, leading to the 1901 eviction and the Cupa 40-mile trek to Pala, referred to as their "Trail of Tears." (see Pala History website 2005).

The 1862 Homestead Act eventually encouraged early American settlers to come to the general vicinity of the project area. These settlers focused on ranching and the development of orchards. The 1901 30' USGS *San Luis Rey* quad, based on surveys conducted in 1891 and 1898, shows a number of settlements along the San Luis Rey River in both the Pala and Pauma Valley areas. Late 19th century homestead patents within Sections 31 and 32 of Township 9 South, Range 1 West revealed the following as shown in Table 1 below:

Table 1: Late 19th C. Homestead Patents in Sections 31 & 32 of T9S, R1W

Date	Location	Homesteader	Parcel Size
Jan. 25, 1888	NE ¼ NE ¼, S1/2 NE ¼ and NW ¼ SE ¼ of Section 31	Edward Case	160 acres
Oct. 6, 1888	SW ¼ NW ¼ Section 32	Lee H. Utt	40 acres
Dec. 25, 1891	E ½ SW ¼ and SE ¼ SW ¼ of Section 32	John Frey	120 acres
Jan. 19,1899	East ½ of SE ¼ of Section 31 and West ½ SW ¼ of Section 32	Hugh Magee	160 acres

The above data indicate that Hugh Magee homesteaded a good portion of the subject property in 1899. The other homesteads were located to the north and west. Frey Creek was named after John Frey. The Magee homestead structure is not present on the *San Luis Rey* quad because it was surveyed in 1898, a year before the homestead patent. This early homestead is almost certainly represented on the property by the turn of the century historic artifact scatter that makes up the historic component of SDI-9537/H. A brief examination of grantor-grantee records at the San Diego City-County Administration Building revealed the property was tied up with water district holdings for some time and it is not clear when Magee sold the property. However, data from the Bureau of Land Management indicate his land patent was only authorized through 1924 (Scott Crull, personal communication, 2005). The 1928-29 aerial photos at the San Diego County archives show orchards in many parts of the Pala and Pauma

Valleys, including on the subject property; however, the latter were probably not associated with Hugh Magee. The 1928-29 and 1953 aerial photos show that these orchards are restricted to the southwestern part of the property during this time period. The present owner, the Schoepe family, purchased the property in 1965 (Becky Kiehl, personal communication, May 2005). This seems to roughly correlate with a major expansion of orchards over much of the rest of the property as shown on the 1968 7.5' *Pala* quad.

2.3 PREVIOUS ARCHAEOLOGICAL RESEARCH

Records searches within a 1-mile radius of the project area were conducted at the South Coastal Information Center (SCIC) on April 6, 2001, and at the Museum of Man on April 9th. Eleven cultural resources had been previously recorded within the project area and 16 outside of the boundary. Four cultural resources studies covered areas within a one-mile radius of the project. Results are summarized in Tables 2 and 3 below:

Table 2: Cultural Resources Identified by the Records Search

Site No.	Site Description	Date Recorded
Sites Located Within Or Partially Within Project Boundaries		
SDI-246	Small camp or temporary village: shallow mortars, proj. points	1954
SDI-266	Village site: bedrock mortars, points, manos, shell	1947
SDI-714	Small Village, heavy midden: Stone ball, proj. points, shell ornaments, etc.	1960
SDI-715	Small Village or Camp: midden, chipping waste, pottery manos & metates	1960
SDI-722	Pottery cache in boulders: pottery fragments	1960
SDI-723	Camp: scattered chipping waste, bedrock metate or small mortar	1960
SDI-731	Camp or Village area, SLR I: light midden, metates, mortars, points scrapers, chipping waste	1960
SDI-5675	Gomez Trail: Trail from Pauma Valley to Morgan Hill	1978
SDI-5676	Mission Trail: Trail from Morgan Hill to Pala Assistencia	1978
SDI-9537/H	Artifact Scatter, Pauma Complex: manos, metates, hammerstones	1982
SDI-9906	Bedrock Mortars	1984
Sites Outside Project Boundaries But Within a One-Mile Radius		
SDI-243	Bedrock Mortar Site: 14 Mortars, 1 slick	1984
SDI-247	Camp site or temporary village: bedrock mortars, some quartz chips	1954
SDI-267	Milling site: metates, manos	1953
SDI-505	Type Site for the Pauma Complex: manos, metate, scraper planes	1958
SDI-510	Campsite: points, scraper, metates, manos	1954
SDI-624	Bedrock milling features	1952
SDI-720	Village or Camp site, SLR I: midden, points, knives, burnt bone,	1960
SDI-721	Village Site, SLR II: heavy midden, projectile points, pottery, arrow straightener, metates.	1960
SDI-726	Camp or Chipping station: scattered chipping waste.	1960
SDI-727	Bedrock mortars	1960
SDI-734	Bedrock metate	1960
SDI-739	Bedrock mortars	1960
SDI-740	Bedrock mortars	1960
SDI-5675	Gomez Trail: Trail from Pauma Valley to Morgan Hill	1978
SDI-5676	Mission Trail: Trail from Morgan Hill to Pala Assistencia	1978
SDI-9905	Bedrock mortars	1984

Table 3: Cultural Resources Reports and Overviews Within the Project Vicinity, *Pala* 7.5' USGS Quadrangle

Author Company/Agency	Report Title	Year and NADB No.
Napton, L. Kyle & E.A. Greathouse	*Cultural Resource Investigations, Pala Indian Reservation, California*	1984 1121288
Crafts, K., M. Johnson, D&S. Saunders	*Negative Archaeological Survey Report – Third Addendum: State Route 11-sd-56*	1991 1122442
Waugh, Georgie	*Intensification and Land Use: Archaeological Indication of Transition and Transformation in a Late Prehistoric Complex in Southern California*	1986 1123449
Rector, C. H., P. Welch and J. E. Reed	*Cultural Resources Inventory for the 1984 and Part of 1985 California Metropolitan Project Area Public Lands Sale Program*	1984 1121692

Important archaeological research has already been conducted in the Frey and Agua Tibia Creek drainages, especially at SDI-714 and SDI-731. The major works are those of Meighan (1954), True (1980), True and Waugh (1981, 1982, 1983), and Waugh (1986).

A study of the historic maps and aerial photos revealed the following:

- *The Official Map of the Western Portion of San Diego County, A.D. 1872*, M.C. Wheeler, County Surveyor. 1" = 2 miles. No structures were noted in or near the study area.

- *Historic Stagecoach Routes of San Diego, CA*, by B.B. Moore and R. Henrich, 1955. 1" = 2.5 miles. No stagecoach routes or old major roads were noted in the study area, other than antecedents of State Route 76.

- 1901 USGS 30' *San Luis Rey* quad (based on 1891 and 1898 surveys). Two dirt roads run across portions of the property and a structure is present just west of the property in a 40-acre parcel of the Pala Indian Reservation.

- 1939 USGS 15' *Temecula* quad. No new information is present on this map. No structures are shown on the property.

- 1968 7.5' USGS *Pala* quad. No structures are present within the study area and no dirt roads are indicated. However, on the 1988 photorevision, several structures are present, all less than 45 years old. Orchards are shown covering most of the property.

Aerial photographs at the San Diego County archives were also examined.

- The 1928-29 aerial photo of the region (sheet 9A-1, Q53 430-1767) shows that the portion of the property where SDI-9537/H is located is already planted in orchards. There is a small clearing within the orchard that roughly corresponds to where early 20th century artifact debris is present on the property within SDI-9537/H, but it is not clear whether a structure is present.

- The 1953 aerial photo (AXN-10M-48) shows the orchard still in place without the expansion that would come in later years. There is no clear evidence of structures in the photo.

SECTION 3 – SURVEY RESEARCH DESIGN AND METHODS

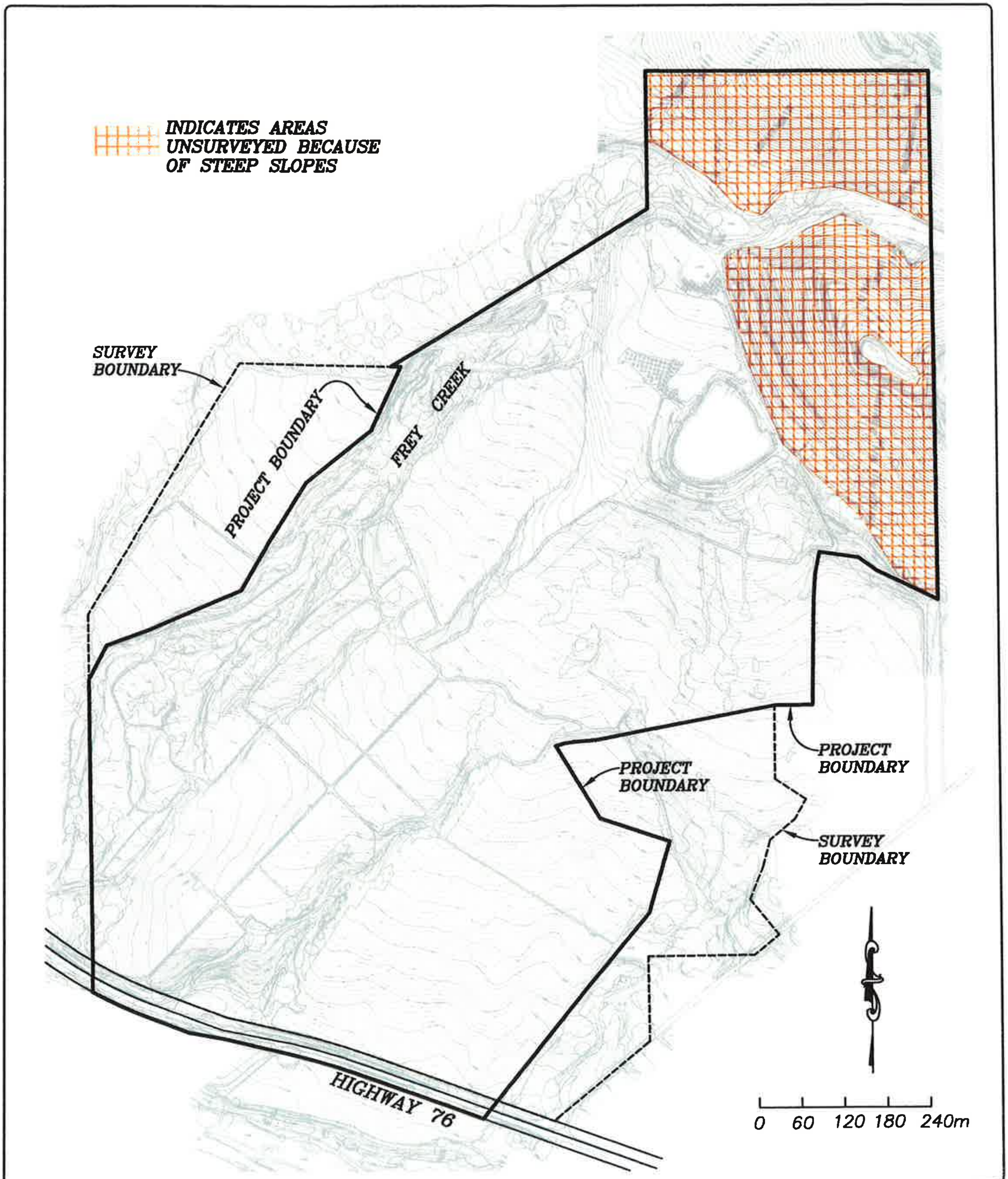
3.1 BASIC SURVEY RESEARCH DESIGN

Research designs for inventory studies of properties which contain historic structures and potential archaeological sites consist of the following basic steps:

- Conduct and analyze results of records search to
  - ✓ determine whether the property has been previously surveyed, and whether any previously recorded sites exist on or adjacent to the subject property
  - ✓ help predict what kinds of resources may exist in the area, such predictions assisting the direction of both the field survey and future archival research
  - ✓ help determine whether existing structures may be more than 45 years old
- Conduct a pedestrian field survey to
  - ✓ check for the presence of archaeological sites
  - ✓ examine and assess the architectural significance of any structures
  - ✓ examine results of, or observe, geotechnical trenching and boring if available
- Conduct archival research if historic structures or artifacts are present to
  - ✓ provide an historical context for the evaluation of the structures or artifacts
  - ✓ ascertain when the structures were built or moved onto the property
  - ✓ ascertain whether the structures or artifacts are associated with a significant person(s) or events
- Record all sites on standard DPR site forms
- Present findings and recommendations

3.2 SURVEY FIELD METHODS

The records search indicated that a number of known prehistoric habitation sites exist within and in the vicinity of the project area, including habitation sites, milling stations, lithic scatters, as well as Indian trails. A pedestrian survey was conducted over all accessible areas by Dr. Philip de Barros, Principal Investigator; Joel Paulson, Assistant Project Director; and a crew consisting of Jeanie Jones, Koji Tsunoda, Craig Kierulff, Laura Anderson, and Akesa Kirkpatrick. Because most of the project had been planted with groves, the rows between the trees dictated logical (and essential) transect lines, which varied between three and five meters, depending on the distance between the rows of trees. Ground visibility varied considerably from excellent (approximately 90%) in citrus groves to poor (<10%) in the avocado groves. The original parcel surveyed in 2001 encompassed 286 acres; however, the mountain at the northeast end of the project site includes extremely steep and rough slopes and, except for the peak accessible by road, was not surveyed. This steep area covers 41 acres (see Figure 4). North of the mountain, along Frey Creek, is an area of natural riparian vegetation. Although the area was surveyed, the extremely thick vegetation limited accessibility and visibility. However, both the



SHADOW RUN RANCH SURVEY

FIGURE 4

steep mountain area, the Frey Creek drainage, and the avocado orchards are within the proposed open space areas of the project, so any undiscovered resources will not be directly threatened by project implementation. Finally, the actual development project area covers only 248.25 acres of the original survey area of 286 acres (Figures 2 and 3).

SECTION 4 – SURVEY FINDINGS AND RECOMMENDATIONS

4.1 INTRODUCTION

Eight sites were encountered during the survey, including six already recorded: SDI-246, -266, -714, -731, -9906, and -9537/H. The survey also discovered three new sites, SDI-17501, -17502, and -17503, and eight isolates. Three other recorded sites, SDI-715, -722, and –723, could not be relocated. They were probably destroyed by orchard expansion. In any case, these three site locations fall within Area B of proposed open space (Figure 3). In addition, no traces of the Gomez and Mission trails, SDI-5675 and SDI-5676, were found on the property.

California Department of Parks and Recreation site forms and site updates as well as isolate records have been prepared and are incorporated into the Confidential Site Record Appendix for this report. The following is a brief description of each of the sites and isolates. More detailed information is provided on SDI-9537/H in Sections 6 and 7 which summarize the results of the test excavations conducted in 2005.

4.2 SITE DESCRIPTIONS AND ASSOCIATED RECOMMENDATIONS

4.2.1 SDI-246

Description

D.L. True recorded SDI-246 in 1954 as a "small camp or temporary village" with shallow bedrock mortars and small quartz projectile points. The 2001 survey found a site 250 by 30 m in size consisting of three bedrock milling outcrops, a single quartz flake near one outcrop, and an isolated cluster of three quartz flakes south of the outcrops. The site is within a grove on a low terrace of Frey Creek at an elevation ranging from 860 to 920 feet. The milling features contain a total of four conical mortars, two oval mortars, two saucer mortars, one basin milling feature, and five slicks. Because the milling features lie along Frey Creek on the same terrace, they have been included as part of a single site (see also True and Waugh 1981:89-94, Table 11, Figure 19). True and Waugh (1982:43) classified SDI-246 as a San Luis Rey I site. No obvious midden was noted. Grove construction may have removed or covered both midden and/or surface deposits. Six arrow points collected over time are at UCLA, Accession No. 418; the site was formerly known as Rincon 19 (True and Waugh 1981:Table 11).

Management Recommendations

The proposed project would place this site fully within proposed open space. An existing dirt road passes through the north portion of the site, but there are no plans to improve this road (see site plot plan with archaeological site locations in the Confidential Site Records Appendix). Therefore, no additional work is recommended. By placing this site within open space, it is assumed that it is a significant archaeological site.

4.2.2 SDI-266

Description

True recorded the site in 1947 and 1951 as a "village site with bedrock metates and evidence of fire [that] was bulldozed in 1951 for a house site." It is on an upper terrace on the east side of Frey Creek in an orange grove at elevations ranging between 850 to 870 feet. It is 70 by 50 m in size. Despite damage from bulldozing and the installation of orange groves, it still has an important artifact scatter, including metavolcanic and quartz flakes, fire-altered rock, a bifacial mano fragment, a pestle, large fragments of a stone bowl, and a scallop shell (*Argopecten*). Several "round, shallow, and round-bottomed" bedrock mortars mentioned by True and Waugh (1981:89) are no longer present. Surface collections over time produced 71 artifacts: 5 shaped manos, 46 (mostly triangular) projectile points, 5 knives, 2 domed scrapers, 2 flake scrapers, 2 drills, 2 utilized flakes, a hammer stone, a pestle fragment, a smoothing stone, a crystal, an awl fragment, a pendant blank, ochre, and a shell bead (True and Waugh 1981:Tables 8-10, Figures 13-18). These are curated at UCLA under Accession No. 418 as site SD 133 (True and Waugh 1981:101-103). The site was once known as Rincon 16.

Management Recommendations

This site is well within the proposed open space of the current development. Therefore, no additional work is recommended at this time. By placing this site within open space, it is assumed that it is a significant archaeological site.

Three large fragments of a stone bowl or mortar and a fragment of scallop shell (*Argopecten*) were collected from the surface in 2001 and were in the possession of the landowner at his request until they were retrieved in April 2005. These artifacts were curated at the San Diego Archaeological Center (see Appendix L).

4.2.3 SDI-714

Description

True recorded SDI-714 in 1960 as a "small village [with] heavy midden" with "bedrock mortars, bedrock metates, mortar, metate in combination," along with "a stone ball, projectile points, shell, drilled ornaments, portable metate and mortar fragments, bone awls, [and] beads." It was excavated in 1953 by Meighan (1954) who used it to define San Luis Rey I. The 160 artifacts are at UCLA under site SD 132. They include 61 (mostly small Cottonwood) points, 30 manos, 6 portable metates, 5 pestles, 4 mortars, 10 scrapers, 2 hammerstones, 2 drills, 3 perforated stones, a steatite stone pipe or bead fragment, 2 stone pendants, 4 quartz crystals, 2 bone awls, 4 antler flakers, 5 worked bone fragments, a triangular bone object, a possible bone gaming piece, 7 *Olivella* shell disc beads, 2 spire-lopped *Olivella* beads, a limpet ring bead, a *Donax* punched bead, and 75 shell fragments (*Cerithidea, Pecten, Haliotis, Donax*)(see Meighan 1954:Table 1). Post-1954 surface collections include a stone ball, a schist pendant, a knife, a flake scraper, a utilized flake, and a small projectile point; these are at UCLA, Accession No. 418 (True and Waugh 1981:88-90;Table 4, Figure 6). The site has two loci on either side of a small rocky knoll with boulders and oak trees at elevations ranging from 900 to 920 feet. It is 80 by 44 m in size. The east side, Locus A, has four bedrock milling outcrops with five conical mortars, four oval mortars, and seven basin milling features. It is on the same upper terrace of Frey Creek as SDI-266 to the south. Two points found on the surface include a nearly complete quartz Cottonwood Triangular (straight base) point and a distal dart point fragment of metavolcanic aphanitic rock that broke during manufacture. Some dark midden exists near the deepest mortars. Quartz and metavolcanic flakes, fire-altered rock, and mano fragments are also present. The western part, Locus B, has a sparse quartz flake scatter with no bedrock milling outcrops and no midden soil; it was not excavated by Meighan. The site is also known as Rincon 15 and was once listed as SDI-501 (True and Waugh 1981:87).

Management Recommendations and Shovel Test Pit Program

In 2001, the site plan had the site partially within two housing lots. Shovel test pits (STPs) were recommended to better define the east boundary. On April 17, 2005, 21, 30-cm square STPs were excavated in 20-cm levels. Artifacts were identified but not collected; they were returned to their 20-cm level when the STPs were backfilled. STP results are shown in Figure 5 (STP 19 was not excavated). Only five STPs were positive, primarily east of the major bedrock milling features. Some flakes were exposed in the dirt road on the site's eastern edge. Positive STP results are shown in Table 4 below:

Table 4: Positive Shovel Test Pits along the Eastern Boundary of SDI-714

STP No.	Artifacts Encountered	Depth (cm)
3	1 possible metavolcanic aphanitic interior flake	0-20
4	1 clear quartz interior flake fragment	0-20
	2 clear quartz flake fragments; 1 brownish-cream secondary chert flake; some possible fire-altered rock	20-40
8	2 interior metavolcanic aphanitic flakes	0-20
9	2 pieces of white quartz angular shatter; 1 beige metavolcanic interior flake fragment	0-20
	1 clear quartz crystal pressure flake	20-40
21	1 white quartz flake	0-20
	1 piece of white quartz angular shatter	20-40

On the basis of some quartz and metavolcanic flakes on the surface of the dirt road and the subsurface contents of the above STPs, the site boundary was redrawn. Shadow Run Ranch, LLC, then adjusted the western boundaries of two lots to avoid SDI-714, including a 10-15 m buffer zone. Therefore, no additional work is recommended at this time. By placing this site within open space, it is assumed that it is a significant archaeological site.

The two projectile points were collected from the surface in 2001 (see Figure 5). They were curated at the San Diego Archaeological Center (see Appendix L).

4.2.4 SDI-731

Description

True recorded the site in 1960 and excavations were conducted in 1968 by UC Davis and later by Waugh (1986:172) for her dissertation. According to True, the site was a "camp or village [of the] San Luis Rey Type I" (True and Waugh 1982:43). The deposit consisted of "light midden [and] scattered chipping waste" with "bedrock metates, bedrock mortars, combinations or pairs of metates and mortars, [and] mortars superimposed over metates," as well as "small triangular points, scrapers [and] chipping waste." Waugh's (1986:Tables 5.22 and 6.8) excavations, along with earlier surface collections (True and Waugh 1981), produced 28 metates, 7 portable metates, 3 pestles, 20 manos, 81 projectile points (mostly Cottonwood Triangular), 60 large bifaces/drills and other small flake tools, 10 cores, 2 choppers, 10 scrapers, 5 hammerstones, 1 anvil, 1 paintstone, 161 beads and ornaments, 21 modified bone tools, 1 quartz crystal, 1 ceramic sherd, 2.4 kg of animal bone, and 26.7 grams of shell. The excavations revealed an earlier deposit she labeled "Initial San Luis Rey I" dating back to ca. A.D. 1200 (Waugh 1986:216-217; 249-254; 300-304). Early surface collections are curated at UCLA, Accession No. 418 (True and Waugh 1981:108-111). The site was formerly known as Rincon 73.

The 2001 survey relocated SDI-731, but attempts to match Waugh's map contours, milling feature descriptions and locations, and midden areas with data recorded in the field proved problematic. Waugh (1986:1790) identified 22 milling outcrops and one midden area. The 2001 survey found 15 bedrock milling outcrops and two discrete midden areas. Surface artifacts included quartz and metavolcanic flakes, an obsidian flake, a metavolcanic core, and a pestle fragment. Milling features included one oval mortar, 11 saucer mortars, six basin milling features, and four milling slicks. Given the survey data generally corresponded to SDI-731 as first recorded, all milling features and midden areas were included within a single revised site form and map of SDI-731. It is possible that the installation of the orange groves damaged or destroyed several of the milling features and destroyed part of the original midden area, resulting in two midden loci. This site was originally mapped by Waugh as 110 by 80 m in size. Survey mapping suggests the site is about 130 by 120 m. The overall site area is located on a terrace between Frey Creek and a tributary or alternate pathway of the creek. The site's elevation ranges between 760 and 800 feet.

Management Recommendations

This site falls entirely within the proposed open space of the proposed development, so no further work is recommended at this time. By placing this site within open space, it is assumed that it is a significant archaeological site.

A possible pestle found in-situ in bedrock milling Feature A and an obsidian core rejuvenation flake found near bedrock milling Feature L were collected from the site surface in 2001. They were left in the possession of the landowner at his request, but were retrieved in May 2005. These artifacts were curated at the San Diego Archaeological Center. In 2005, the obsidian flake was sourced to the Obsidian Butte source by Dr. Richard Hughes and Tom Origer assessed its hydration band width at 3.7 microns (see Appendices C and D). These data have been incorporated into a revised site form.

4.2.5 SDI-9537/H

Description

D.L. True first noted the site in 1948 and mapped and recorded it in 1982. The site form says artifacts were collected during a 30-year period and some of them were curated at the University of California at Davis. In 2005, attempts were made by telephone to locate this collection at UC Davis, Los Angeles, and Berkeley, without success. They consisted of 44 shaped and unshaped manos, 13 hammers, 11 core-hammers, 25 hammer-grinders, 2 scraper planes, 10 domed scrapers, 5 flake scrapers, 3 flake knives, 48 utilized flakes, 9 points and/or knives, 4 cores, and 7 smoothing stones (True and Beemer 1982:239). Portable and slab metates were observed but none were collected (True and Waugh 1981:Table 2). The site is viewed as a Pauma Complex site with possible Campbell artifacts at its southern end (True and Waugh 1981:88; True 1980).

The site is on the east side of Frey Creek on top of a hill overlooking Frey Creek 150 m to the west and the San Luis Rey River 250-300 m to the south. Aerial photos show it has been an orchard since at least 1929. An orange grove currently covers the site and the grove manager's residence sits at its eastern edge. It is a large habitation site with a moderate to dense scatter of prehistoric and historic artifacts at an elevation centered on the 800 foot contour. It is about 210 x 160 m in size. The surface prehistoric artifacts consist primarily of quartz and metavolcanic flakes with some groundstone, core fragments, and fire-altered rock. A few Brownware sherds suggest a Late Prehistoric presence. A bedrock mortar is also present (Figure 6). The historic artifacts consist almost entirely of bottle and window pane glass and whiteware ceramics (Figure 7). The whiteware is largely undecorated, with portions of a maker's mark on one sherd.

Management Recommendations

SDI-9537/H lies entirely within the area to be developed by the current project. Portions of the site as recorded in 2001 fall within six proposed lots. It was therefore recommended that test excavations take place to assess site significance under CEQA and the County's Resource Protection Ordinance (RPO). Archival research was also recommended to better understand the context of the historic period materials.

A number of artifacts were collected during the course of mapping the site in 2001. They include eight Brownware sherds; a bifacial granitic mano and a large adze made from a flake; two clear, conjoining bottle glass fragments with embossed lettering; and a whiteware plate base with part of a maker's mark -- all on the west side of a paved road that traverses the site. In addition, a partially shaped granitic mini-metate fragment and a core-hammerstone were collected on the east side of the same road. These artifacts were left in the possession of the landowner in 2001 at his request, but were retrieved in May 2005. They were curated at the San Diego Archaeological Center (see Appendix L).

Test excavations were conducted in April and May of 2005 at SDI-9537/H. Shovel test pits (STPs) were also excavated to reassess its northeastern boundary within a dense grove of grapefruit trees. These STPs revealed the site extended further in this direction than was thought in 2001. The research design and results of these test excavations are presented in Sections 5-7 below.

4.2.6 SDI-9906

This site was initially recorded in 1984 by Emig, Dehart and Valentine. It consists of two bedrock milling outcrops with six "cups" or saucer mortars, one slick and four to five possible pestles in situ on the outcrops. The site was relocated and it appears to be similar to what was described in 1984. It is located between 740 and 780 feet in elevation.

Management Recommendations

The site is situated within an area designated as open space. No further work is required. By placing the site within open space, it is assumed that the site is a significant cultural resource.

4.2.7 SDI-17501

SDI-17501 is on a terrace above Frey Creek about 50 m west of SDI-246 in an orange grove at an elevation of 880 feet. The site is 7 by 5 m in size and has two bedrock milling outcrops. Feature A has one saucer mortar and Feature B has two conical mortars, a saucer mortar, and a milling slick. When the site was first recorded in 2001, there was a mapping error and three bedrock milling features were placed within the site. In 2005, this error was corrected and the third milling feature, which lies at a considerable distance to the south, was designated as a separate site (see SDI-17503 below).

Management Recommendations

The site was once located entirely within the proposed development area. In 2001, it was recommended that STPs be excavated to see if a subsurface cultural deposit was present. Four 30-cm square STPs were excavated in 20-cm levels on April 17, 2005. All were negative. It was determined that the site is not a significant historical resource under CEQA or under the County's RPO. No further work is required. However, the project was redesigned in June 2005 and SDI-17501 is now just outside the project area (see site plan map showing archaeological site locations in the Confidential Site Records Appendix).

4.2.8 SDI-17502

SDI-17502 consists of two bedrock outcrops 2.5 meters apart in an orange grove on the highest terrace on the east side of Frey Creek at an elevation of 945 feet. It is 3 by 3 m in size. One outcrop has a 6-cm deep mortar with an adjacent slick and the other has one slick. No midden deposit or artifacts are present.

Management Recommendations

SDI-17502 is within one of the project lots. In 2001, it was assessed as not significant due to its small size and lack of surface artifacts. However, in 2005, it was decided to excavate three STPs to confirm the absence of a subsurface deposit. These STPs were excavated on June 5th and all were negative. In short, it has been determined that SDI-17502 is not a significant historical resource under CEQA or the County's RPO. No further work is required.

4.2.9 SDI-17503

This site was mistakenly recorded as a part of SDI-17501 (PV-1) in 2001. It is located considerably to the south and was made into a separate site (PV-3). It consists of a single bedrock milling outcrop with two saucer mortars, one with an associated milling slick collar. The site measures about 4 by 3.5 m in size. No surface artifacts are present.

Management Recommendations

This site was once entirely within the project area. On April 27, 2005, two 30-cm square STPs were excavated to check for a subsurface deposit. The soil is thin and there were not many areas to excavate. No subsurface cultural material was found. In short, it has been determined that SDI-17503 is not a significant historical resource under CEQA or the County's RPO. No further work is required. However, the project was redesigned in June 2005 and the site is now just outside the project area (see site plan map showing archaeological site locations in the Confidential Site Records Appendix).

4.2.10 SDI-18368

This small bedrock milling feature was found during a pipeline project in 2008. It consists of a one mortar, 14 cm in diameter and 3 cm deep. It is at the intersection of two paved roads and has probably been driven over by vehicles (Laylander et al. 2008:49). Despite good visibility, no associated artifacts were noted (*ibid.*)

Management Recommendations

Given it is an isolated find situated well away from the known sites on the property, and given that no artifacts are present despite good ground visibility, and given that it has been disturbed by vehicular traffic, and given that its useful information has already been recorded (location, milling outcrop size, milling feature dimensions), it has been determined that SDI-18368 is not a significant historical resource under CEQA or the County's RPO. No further work is required.

4.2.11 Unrelocated Sites: SDI-715, -722, -723, -5675, and -5676

SDI-715 was recorded by D.L. True in 1960. It was described as follows: "Remains of a small village or camp. San Luis Rey II. Some midden, chipping waste, etc." It consisted of bedrock mortars with "pottery, manos and metates left on site [probably] picked up by previous owners". True states that the "area has been leveled for a building site and for all practical purposes has been destroyed." No collections were made by True and Waugh (1981:94-95). This site could not be relocated and was presumably destroyed as noted. It was formerly known as Rincon 18. This site was located in an area that will be part of open space, so even if buried remnants remain, they will not be impacted.

SDI-722 was also recorded by D.L. True in 1960. It was described as "storage shelter in boulders . . . pottery cache site." He noted the presence of "pottery fragments . . . may represent parts of several jars." The site is a kind of cache cave in a large boulder pile; burned deer antler, several charred but unmodified sticks, and a number of potsherds were collected, the latter curated at UCLA (True and Waugh 1981:95-96). These authors believe this site, also known as Rincon 44, was probably part of nearby SDI-715 (see above). No trace of this site was found during the present survey. This site was located in an area that will be part of open space, so even if buried remnants remain, they will not be impacted.

SDI-723 was recorded by True in 1960 as well. He describes the site as a "camp or . . . scattered chipping waste... no apparent midden..." A bedrock metate is present but no artifacts are noted. True and Waugh (1981:87, 89) classified this site as a Pauma Complex site. This site, which is also known as Rincon 46, could not be relocated; however, the metate may have been outside the project area, an area to which the survey crew did not have access. This site was located in an area that will be part of open space, so even if buried remnants remain, they will not be impacted.

SDI-5675 (Gomez Trail) was "a traditional trail route from Pauma Valley and SDI-715 to Morgan Hill (SDI-543). It was recorded in 1978 by S. Fulmer. The site form suggests that the old route is not visible and there is a "new trail route" or "new road." This trail would have crossed the peak in the northeast corner of the subject property. A careful study of this area, which has been highly disturbed, as well as an examination of adjacent areas, did not reveal the presence of the Gomez Trail.

SDI-5676 (Mission Trail) was a "trail from Morgan Hill (SDI-543) to Pauma (SDI-721 and SDI-715)" according to the site form which cites local informants. It was also recorded by S. Fulmer in 1978. The trail would have skirted the northeast corner of the subject property. No portion of this trail was located during the course of the survey.

4.2.12 Eight Isolates

Six prehistoric and two historic isolates were encountered in different parts of the property. They were not collected. They include the following by primary number, P-37-

030488: one sherd of a thin-walled blue transfer ware.
030489: two metavolcanic aphanitic flakes, one secondary, one interior.
030490: one gray-black secondary metavolcanic aphanitic flake & one green metavolcanic aphanitic flake with 4-5 dorsal flake scars.
030491: one greenish metavolcanic flake, 2 x 4 cm in size.
030492: one shard of blue glass, 1-cm in diameter.
030493: one blue-gray secondary metavolcanic flake, 1 x 2 cm in size.
030494: one quartz flake and one metavolcanic flake.
030495: one piece of quartz shatter, 2 x 4 cm in size.

Isolates are not significant cultural resources. No further work is required. Isolate forms are included in the Confidential Site Records Appendix.

SECTION 5 – TEST EXCAVATIONS AT SDI-9537/H

After a discussion about the criteria used to establish site significance under CEQA and San Diego County's Resource Protection Ordinance (RPO), this section presents the research design and field and lab methods used for the test excavations for both the prehistoric and historic components of SDI-9537/H.

5.1 SITE SIGNIFICANCE EVALUATION – APPLICABLE LEGISLATION

In San Diego County, cultural resources must be evaluated under the County's Resource Protection Ordinance (RPO) and the California Environmental Quality Act (CEQA). The creation of the California Register of Historical Resources (CRHR), along with revisions to the CEQA Guidelines, have resulted in new criteria for the evaluation of historical resources, including archaeological resources. According to Section 15064.5(a)(3) of the revised CEQA Guidelines, "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, Section 4852) including the following:

A. Is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage;

B. Is associated with the lives of persons important in our past;

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

D. Has yielded, or may be likely to yield, information important in prehistory or history.

If an archaeological site does not meet one of the criteria defined above, "but does meet the definition of a unique archaeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2 [Section 15064(c)(3) of the CEQA Guidelines]."

If an archaeological resource is neither a unique archaeological resource nor an historical resource, both the resource and the effect on it shall be noted in the Initial Study EIR but need not be considered further in the CEQA process [Section 15064.5(c)(4)].

In addition, sites must be evaluated for their significance under the County's Resource Protection Ordinance (RPO). One of the goals of this ordinance is to protect “Environmentally Sensitive Lands,” which include significant prehistoric and historic sites. Such sites are defined as follows:

> Location of past intense human occupation where buried deposits can provide information regarding important scientific research questions about prehistoric or historic activities that have scientific, religious, or other ethnic value of local, regional, state, or federal importance. Such locations shall included, but not be limited to: any prehistoric or historic district, site, interrelated collection of features or artifacts, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places or the State Landmark Register; or included or eligible for inclusion, but previously rejected, for the San Diego County Historical Site Board list; any area of past human occupation located on public or private land where important prehistoric or historic activities and/or events occurred; any location of past or current sacred religious or ceremonial observances protected under Public Law 95-341, the American Religious Freedom Act or Public Resources Code Section 5097.9, such as burial(s), pictographs, petroglyphs, solstice observatory sites, sacred shrines, religious ground figures, and natural rocks or places which are of ritual, ceremonial, or sacred value to any prehistoric or historic ethnic group.

5.2 ASSESSING THE SIGNIFICANCE OF SDI-9537/H

There are three important goals of archaeological test excavations: 1) assess the site’s scientific research potential (Criterion D in Section 5.1 above); 2) determine its horizontal extent and the depth of its deposits; and, 3) determine the site’s depositional integrity. In addition, it is important to note that SDI-9537/H has both prehistoric and historic components. Historic components must also be evaluated in terms of whether they are associated with significant events or patterns of history or significant persons of the past (Criteria A and B above). Finally, the prehistoric and historic components of SDI-9537/H must be individually assessed for significance.

5.2.1 <u>Research Potential</u>

Prehistoric and historical archaeological sites are almost always evaluated under Criterion D of the significance criteria for listing a site on the California Register of Historical Resources, i.e., its scientific research potential for contributing to our knowledge of prehistory and/or history. This is usually done through archaeological test excavations in association with a research design. It is important to excavate a sufficient number of units distributed over the site to allow one to assess the types and quantities of artifacts, ecofacts, and features present. These data will permit one to assess whether a site has significant scientific research potential in the context of relevant regional research questions.

5.2.2 Site Boundaries and Depositional Integrity

The combination of mapping the distribution of surface artifacts and the placement of a number of test excavation units (including shovel test pits when needed) are useful in assessing the horizontal and vertical boundaries of a site. A careful examination of the stratigraphy of the soil in the excavation units is also helpful to determine whether the site retains sufficient depositional integrity to provide useful scientific information about the past. This was an important issue at SDI-9537/H since it has been the site of orchards since at least the late 1920's. It was assumed that the planting of the trees in rows did considerable damage to that part of the site where the trees are presently located, but what about the rows of open space between the trees? Finally, the western and southwestern portions of the site are on relatively important slopes. Were these portions of the site actually occupied or are the surface artifacts simply the result of downslope erosion?

5.3 RESEARCH DESIGN FOR SDI-9537/H

5.3.1 Prehistoric Component

The original survey in 2001 indicated that the prehistoric component of SDI-9537/H measured about 210 by 160 m, a very large site. What kinds of research questions might it be able to address? We can't know this until we determine the types and quantities of artifacts, ecofacts and features present and whether the site has depositional integrity. After the test excavations are completed, the recovered archaeological assemblage must be evaluated in terms of whether it can address the various research questions associated with the basic research domains listed below.

Chronology

1) During what time periods was the site excavated?
2) Was it occupied continuously?
3) Was it occupied contemporaneously with other habitation nearby sites, such as SDI-246, -266, -714 and -731?
4) What chronologically sensitive artifacts are present at the site?
5) Will obsidian hydration data from the site help clarify periods of occupation?
6) Has previous disturbance at the site made it difficult to obtain unmixed charcoal samples for radiocarbon dating?

Lithic Technology

7) What flaked stone reduction strategies were employed at SDI-9537/H?
8) Did flaked stone reduction strategies differ by lithic material?
9) What kinds of tools were manufactured at the site?
10) What kinds of tools were probably imported to the site?
11) Were lithic materials imported to the site for primary reduction or were they brought to the site partially worked?
12) Is there any emphasis on the use of nonlocal materials?
13) Is there evidence for differing reduction strategies during different periods of occupation at the site, e.g., the Archaic vs. Late Prehistoric occupations?
14) Are groundstone tools shaped and/or intensively used suggesting long term use as a habitation site or are they mostly unshaped cobbles?
15) What kinds of site activities do the artifacts, ecofacts and features suggest were taking place?
16) What do they suggest about food procurement and processing, woodworking, and the like?

Settlement and Subsistence

17) What plant and animal foods appear to have been consumed by the inhabitants of SDI-9537/H?
18) What was (were) the probable function(s) of SDI-9537/H and how does this relate to the broader regional settlement system?
19) Does SDI-9537/H reflect the settlement-subsistence trends of the Pauma Complex defined by D.L. True and elaborated upon by Georgie Waugh?
20) Does SDI-9537/H reflect the trends of the San Luis Rey I and II complexes defined by Meighan and elaborated on by True?
21) Is there evidence that SDI-714, -731, and -9537/H were occupied contemporaneously and were thus part of a local settlement system?
22) Is there evidence of contact with the coast and coastal sites at SDI-9537/H?
23) Is there any evidence of marine shell at the site?

Trade

24) Was there primarily a focus on local lithic materials, such as metavolcanic rock, or is there evidence of the importation of significant amounts of nonlocal materials?
25) What nonlocal materials, other than obsidian, are present at the site? Is there evidence for Piedra del Lumbre chert from Camp Pendleton? Monterey banded chert from Orange County? fused shale from Grimes Canyon in Ventura County? steatite from either Stonewall Peak in San Diego County and/or Catalina Island?
26) Are the ceramics at the site entirely Tizon Brownware or is there evidence for trade with the desert Kumeyaay in the form of Salton Brown?
27) Are the Tizon Brownware ceramics from the terminal Late Prehistoric and/or Historic Period?

28) Is there any evidence of the use of Coso obsidian during the later Late Prehistoric or the use of Obsidian Butte obsidian during the Archaic?

5.3.2 Historic Component

This component consists of a surface scatter of bottle glass, window pane glass, and some largely undecorated whiteware ceramics. It is located only on the west side of the paved road. The significance of this component should be examined in the light of Criteria A, B and D noted in Section 5.1 above. Is it associated with a significant event or pattern of history or important person of the past (Criteria A and B)? Does the site have significant research potential for advancing our understanding of the recent historic past (Criterion D)?

It should be noted that because there appear to be no historic structural remains or other features, this reduces the likelihood of the site being significant under Criteria A and B. Finally, for an historical archaeological site to be significant in terms of its research potential, it must be able to contribute significant information that is not already available in the archival record.

The following research questions within the following research domains are relevant.

Chronology

1) When was the land homesteaded on which the historic component of SDI-9537/H lies?
2) During what time period was the property occupied by the homesteader?

Associations

3) Who lived at this site?
4) Was he an important local or regional figure?
5) Were there any important events associated with this site?

Socioeconomic Status, Occupation, Family, and Diet

6) What does the archaeological assemblage tell us about the socioeconomic status of the homesteader?
7) Does the assemblage provide insights into the diet of its occupants?
8) Is there an indication of how the homesteader made his living?
9) Was he or she married? Did they have children?

Trade Networks and Access to Nonlocal Goods

10) Is there evidence that important exotic goods made it to the site or were all of the goods obtained locally?
11) Does the assemblage suggest the homesteader had little contact beyond his own locality?

5.4 FIELD METHODS

5.4.1 Prehistoric Component

2001 Surface Collection and the Placement of the 2005 Test Units

The site was viewed in terms of four quadrants: northwest, northeast, southwest, and southeast, based on the paved road that bisects the site from roughly north to south and the combination of a paved and dirt road that bisects the site from roughly east to west. In 2001, maps of the surface distribution of prehistoric and historic artifacts indicated the extent and intensity of prehistoric and historic occupation quite well (see Figures 6 and 7 in Section 4.2.5 above). It was decided that 10, 1x1 m units would suffice to get information about variation in site contents. The units were placed based on surface artifact indications. More units were placed in the southwest quadrant than elsewhere because the historic component was largely concentrated in that area along with prehistoric debris. These included Units 1-5 which all contained a diversity of artifacts, including a hearth-like feature in Units 2 and 4 (see Figure 8). Unit 10 investigated the nature of the prehistoric deposit in the flatter portion of the northwest quadrant. Units 7 and 8 were used to investigate the nature of the northeast quadrant. Unit 7 hit a rich deposit of artifacts, including multiple basin metate fragments, which made it clear that this portion of the site was important. Unit 9 in the southeast quadrant hit a very rich deposit of lithic debitage and animal bone, indicating the importance of this area. Unit 11 was used to verify the relative lack of prehistoric deposit in the northern part of the northwest quadrant and was in fact sterile. In addition, Units 6 and 12 were placed on the sloped portion of the site to confirm whether the deposits there were superficial ones resulting from erosion. Unit 6 contained some material in the upper 15 cm and then faded out rapidly. Unit 12 located farther downslope contained no cultural material at all.

Shovel Test Pits

The northeastern boundary of the site as determined in 2001 was suspect because it was aligned with a dirt road. This was the result of poor visibility within a neighboring grapefruit tree grove on the north side of this dirt road. It was decided to verify whether a subsurface deposit was present with a series of STPs spaced within alternate rows of trees. A subsurface deposit was immediately encountered. Additional STPs were then excavated at 20 m intervals within the grove until evidence for a deposit faded and/or soils became very thin due to the rocky nature of the area. The results of these STPS (Nos. 1-17) led to an extension of the site boundary for SDI-9537/H (see Figures 8 & 9). The 84 items recovered from the 12 positive STPs are summarized in Table 5 below. Additional STPs (Nos. 18-24) were excavated on the other side of the road in the northwest quadrant to verify the lack of subsurface material implied by the lack of surface material and to determine whether the grapefruit tree grove also had important subsurface deposits there. All of these STPS were negative (see Figures 8 and 9). All STPs were excavated in 20-cm levels.

Table 5: Contents of 12 Positive STPs from the NE Quadrant of SDI-9537/H

STP No.	Cat. No.	Artifacts Encountered	Depth (cm)	Count
1	251	1 quartz flake fragment	0-20	1
	252	1 quartz angular shatter; 1 quartz flake fragment; 3 FAR	20-40	5
	253	3 quartz flakes	40-60	3
	254	1 burned animal bone	40-60	1
2	256	3 quartz flakes; 3 quartz flake fragments; 1 clear quartz flake	0-20	7
	257	2 animal bones	0-20	2
	258	1 charred seed	0-20	1
	259	2 quartz flakes; 1 quartz flake fragment	20-40	3
	260	1 quartz flake; 2 quartz flake fragments; 1 green MVa shatter; 1 green MVa flake fragment	40-60	5
	261	7 animal bones	40-60	7
	263	2 animal bones	60-80	2
3	264	1 quartz shatter	0-20	1
	265	2 animal bones	0-20	2
	266	2 quartz flakes	20-40	2
	267	3 animal bones	20-40	3
	269	3 quartz flakes; 1 clear quartz shatter	40-60	4
	270	8 animal bones	40-60	8
	271	1 charred seed	40-60	1
4	273	1 quartz flake	0-20	1
	274	1 quartz flake and 1 quartz angular shatter	20-40	2
6	275	1 quartz flake fragment and 1 quartz angular shatter	0-20	2
7	277	1 quartz flake	0-20	1
	279	2 charred seeds	0-20	2
8	281	2 quartz flakes; 1 quartz flake fragment; 1 beige MVa shatter	0-20	4
	283	1 quartz flake	40-60	1
9	284	1 quartz flake; 1 quartz flake fragment; 1 MVa green core rejuvenation flake	0-20	3
	285	1 animal bone	0-20	1
10	287	1 quartz flake	0-20	1
12	288	1 large gray MVa core rejuvenation flake	0-20	1
	289	1 burned seed	0-20	1
15	291	1 possible light brown MVa angular shatter	20-40	1
	292	2 burned seed fragments	20-40	2
	293	1 quartz flake	40-50	1
16	294	1 quartz shatter; 1 green MVa flake	0-20	2
ALL				**84**

Figure 9: Excavating Shovel Test Pits, NE Quadrant of SDI-9537/H

Additional Surface Collection in 2005

The author carefully resurveyed the site during the test excavations and encountered some additional diagnostic surface artifacts that had been missed or not collected in 2001. These included a basin metate fragment, a cobble mano fragment, a hammerstone, and a sherd of Tizon Brownware pottery near Units 2 and 4. These were mapped with GPS and analyzed as part of the archaeological assemblage (see Figure 8; the Brownware sherd is not shown).

Unit Level and STP Records and Soil Profiles

Careful records were kept of subsurface excavations in unit and STP bundles grouping all information for each unit and group of test pits as a package. Soil profiles were drawn for each of the ten units that produced cultural material. No soil profiles were drawn for the STPs, but information was kept on what material was encountered and at what depth.

5.4.2 Historic Component

2001 Surface Collection and the Placement of the 2005 Test Units

The 2001 surface collection indicated that the historical archaeological debris was located primarily in the southwest quadrant of the site with some also extending into southernmost part of the northwest quadrant (see Figure 7). There was no evidence of historic artifacts on the east side of the paved road. The surface distribution of artifacts led to the placement of Units 2 (and its extension, Unit 4), 3, 5 and 10 (see Figure 10). All of these units yielded important quantities of bottle glass, pane glass, and square nails. Few whiteware ceramics were recovered. These units also tapped into the prehistoric component in this area. Unit 1 yielded no historic artifacts. The same is true for Units 7-9 in the northeast and southeast quadrants.

2005 Surface Collection

The historic component of SDI-9537/H was systematically resurveyed by the author with the assistance of a few crew members. More than 50 artifacts were mapped and collected relating to the historic occupation of the site. These items all came from the northwest and southwest quadrants of the site (see Figure 10). A considerable number of whiteware sherds were obtained in this way, along with a shovel fragment, and a number of bottle glass items. Two late 19^{th} century bottle tops were also recovered. These surface artifacts added considerable numbers of diagnostic items to the recovered historical archaeological assemblage.

Archival Research

A certain level of archival research was conducted to ascertain the following: 1) Who first homesteaded the property in question and left the artifactual debris behind? 2) When was the property first homesteaded? 3) Was it an important person in history of the area? 4) When were orchards first developed on the property? 5) Where was the homestead structure located on the property? These questions were pursued by looking at the following sources: 1) aerial photos from 1928-1929, the 1940s, and 1953; 2) homestead patent records from the archives of the Bureau of Land Management; 3) historic USGS topographic maps; 4) the grantor-grantee indexes at City-County Administrative Building in downtown San Diego; 5) and local histories. These data were to be used in conjunction with the archaeological data to help assess the significance of the historic component.

5.5 LAB METHODS

All of the historic artifacts and prehistoric debitage and ceramics were thoroughly washed. Flaked and groundstone tools were not washed in case they contain protein residues that might be detected with future studies.

Debitage, charcoal, seeds, bone, historic glass artifacts and fragments of metal were assigned catalog numbers by 10-cm level. Fire-altered rock was counted and weighed by 10-cm level and then discarded. Subsurface and surface formal stone tools, bone tools, obsidian debitage, and whiteware ceramics were assigned individuals catalog numbers. Many surface bottle glass items were also assigned individual catalog numbers. Two-liter soil samples for each 10-cm level were taken as column samples in Units 2 and 9 and catalogued. They were then floated for the future analysis of charred plant, tree and seed remains. Soil that was not floated was discarded. The floated remains retained their soil sample catalog numbers. All catalog entries were put into a MS Access electronic database. The site catalog is provided in Appendix J.

5.6 ANALYTICAL METHODS

5.6.1 Lithic Analysis

The analysis of the flaked stone and groundstone tool assemblage from SDI-9537/H was done by Dr. Philip de Barros. Basic attributes of flaked stone tools included: 1) provenience (unit and level or surface location); 2) general artifact type, e.g., core, hammerstone, and so forth, including whether it was whole or a fragment; 3) a description of basic characteristics, such as shape, color and type of lithic material; location(s) of worked or battered edges or surfaces; presence of cortical surfaces, number and location of core platforms, number of flake scar removals on cores, and so forth; and, 3) the length, width, thickness, and weight of individual specimens.

Groundstone tool attributes included the following: 1) provenience; 2) artifact type, e.g., unifacial mano, basin metate, and so forth, and whether it was whole or a fragment; 3) number of ground surfaces; 4) whether the tool was unshaped or shaped; 5) whether the tool was fire-altered; 6) the profile of the ground surface, e.g., concave, convex, slightly convex, nearly flat, flat, etc.; 7) evidence of end battering on manos; and, 8) the length, width, thickness, weight, and depth (where appropriate) of each individual specimen.

Debitage was broken down by type of lithic material for each 10-cm level for each unit. The colors of the lithic materials were also noted. For each lithic material category, the following attributes were noted: 1) debitage type, e.g., flake, flake fragment or angular shatter; 2) platform type, e.g., cortical, single facet or multifacet; 3) reduction stage, e.g., primary, secondary, early interior, later interior, early biface thinning, and late biface thinning flakes (including both percussion and pressure flakes as well as resharpening flakes); and, finally, size, e.g., 0-1 cm; 1-2 cm; 2-4 cm; and >4 cm (see Appendix B for the debitage worksheets). These data were then tabulated and counts and frequencies were established for the various units and for the site as a whole depending upon the attribute. These data were then used to infer lithic procurement, reduction, and tool use strategies at SDI-9537/H.

5.6.2 Obsidian Sourcing and Hydration Studies

Five pieces of obsidian were obtained from SDI-9537/H and one from SDI-731. The piece from SDI-731 and four pieces from SDI-9537/H were sent for sourcing by Dr. Richard Hughes. The fifth specimen was discovered after these materials were already sent and was not included. After Dr. Hughes finished his studies, he sent the material to Tom Origer who read the hydration band widths on the specimens in microns. Their reports are in Appendices C and D.

5.6.3 Analysis of Brownware Ceramics

The sherds recovered from SDI-9537/H were described by Dr. de Barros focusing on the following attributes: 1) vessel body part (rim, neck, body, base); 2) exterior and interior surface color; 3) paste color; 4) type of surface treatment for the interior and exterior surfaces (e.g., unsmoothed, smoothed, burnished; 5) presence and nature of carbon cores in the pastes; 6) presence of evidence for the use of the paddle and anvil manufacturing technique; 7) presence of fire clouds and/or soot; 8) sherd length and thickness; 9) probable function (bowl, pipe, etc.), and, finally 10) any evidence that sherds were from the same vessel, especially whether they fit together.

This evidence was then used to select some sherds for thin sectioning and petrographic analysis by Monica Guerrero of Gallegos and Associates. The thin sections were analyzed for mineral types using a point-count method to help determine whether desert or mountain clays were used and to thus sort out Tizon Brown from Salton Brown, for example. Guerrero's results are presented in Appendix E. These data help infer contact and trade patterns between groups.

5.6.4 Faunal Analysis

The animal bone recovered from SDI-9537/H was relatively abundant, particularly from Unit 9. The bone was analyzed by Patricia Mitchell using standard procedures that are described in her technical report in Appendix F. She also identified three bone tool fragments.

5.6.5 Analysis of Charred Plant, Tree and Seed Remains

Two column samples consisting of 2-liter soil samples from each 10-cm level were excavated in the side walls of Units 2 and 9. The samples were then floated and the floated fractions sent to Dr. Virginia Popper, Director of the Paleoethnobotany Lab at the Cotsen Institute of Archaeology at U.C.L.A. Her methods are clearly outlined in her technical report in Appendix G. Dr. Popper's study shed light on both the historic and prehistoric occupations of the site.

5.6.6 Radiocarbon Dating

Charcoal samples thought to be associated with a hearth-like feature in Units 2 and 4 and from Unit 9, which had a dense concentration of bone, were sent for radiocarbon dating by Beta Analytic, Inc. The dating results are in Appendix H.

5.6.7 Historic Artifact Analysis

The historic whiteware ceramics were analyzed as to vessel function, type of ware, and decorative type with the assistance of Susan Walter. She also was able to identify the single maker's mark available on these ceramics. The historic bottle glass and nails were analyzed by Dr. Scott Crull, who sought information on dates of manufacture, manufacturer, function, and vessel contents. Nails were identified as to length and type (square vs. wire nails).

SECTION 6 – FINDINGS FROM PREHISTORIC COMPONENT OF SDI-9537/H

6.1 INTRODUCTION

Sections 6 and 7 summarize the findings of the excavations for the prehistoric (Section 6) and historic (Section 7) components of SDI-9537/H. Each section includes: 1) an brief site description and a summary of findings, followed by sections on 2) site stratigraphy and structure; 3) artifactual finds (e.g., flaked stone tools, ground stone tools, obsidian, fire-altered rock, ceramics or historic ceramics or bottle glass); 4) ecofactual finds (e.g., bone and charred plant remains); 5) site temporal placement or occupation periods; 6) site function; and, 7) a discussion of site significance. Management recommendations for both components are discussed in Section 8 as they are for the other sites on the property (from information provided in Section 4 above).

6.2 SUMMARY OF PREHISTORIC COMPONENT OF SDI-9537/H

SDI-9537/H is located on a high terrace or hill above Frey Creek situated 150 m to the west. Frey Creek flows into the San Luis Rey River a few hundred meters to the south. The subsurface deposits of the site are associated with a relatively flat terrain ranging from 800-825 ft in elevation over a distance of about 230 m. The native vegetation was once sage scrub but has been almost completely replaced by citrus groves, mostly orange and grapefruit. Groves were planted on and in the vicinity of the site as early as the late 1920s.

Site Type:	Habitation site – seasonal residential base?
Time Periods:	Archaic: Three Coso obsidian hydration band readings of 7.2, 7.3 and 7.8 microns indicate occupation between ca.1250 and 700 B.C. Late Prehistoric?: Later Late Prehistoric occupation indicated by Tizon Brownware ceramics (if prehistoric) and possibly by the base of an obsidian side-notched point from an unknown source. Three radiocarbon dates that indicate post-1650 A.D. could reflect either prehistoric or historic occupation or both. Historic: late 19th-early 20th century homestead based on a ceramic maker's marks, square nails, bottle types, and an 1899 homestead patent by Hugh Magee. Tizon Brownware ceramics may be historic.
Dimensions/Area:	Surface scatter: 305 m (NE-SW) x 162 m (NW-SE) Subsurface: 205 m (NE-SW) x 110 m (NW-SE)

Depth:	range: 20-80 cm; typically 50 cm in western portion; 70-80 cm in eastern portion
Landform:	bajada (confluent alluvial fans along piedmont slope)
Elevation:	775-825 feet (subsurface component 800-825 ft)
Features:	1) bedrock milling station with a single saucer mortar NOTE: Other bedrock milling stations may have been destroyed when the terrain was prepared for groves. 2) probable hearth feature in Units 2 & 4, SW quad. 3) possible hearth feature in STP 1, NE quadrant 4) 4 large basin metate fragments in Unit 9, NE quad.
Artifact Types:	1 mano, 7 mano fragments, a mini-metate fragment, 6 basin metate fragments, a metate fragment, 6 cores, a core fragment, 4 exhausted cores, an adze or chopper, 921 pieces of debitage, a hammerstone, an adze-hammerstone, a core-hammerstone, an adze or scraper plane-core?-hammerstone, a side-notched arrow point base fragment, 3 biface fragments, a retouched flake tool, a biface preform fragment, 24 Tizon Brownware ceramics (which could be historic), 2 antler tine fragments, and a bone tool fragment, and 62.2 kg of fire-altered rock.
Flaked Stone Debitage Materials:	milky/white quartz 66.7%; metavolcanic aphanitic 16.7%; clear/crystalline quartz 8.3%; metavolcanic porphyritic 4.7%; chert 1.6%; quartzite & chalcedony 0.8% each; obsidian 0.3%; jasper & unknown 0.1%. Cores made of white quartz (75%) and metavolcanic aphanitic (25%) materials. Arrow (?) point fragment made from obsidian; multipurpose tools & biface fragments made mostly of metavolcanic stone.
Ground Stone Lithic Materials:	all granitic except for one volcanic mano fragment
Vertebrate Fauna:	2,123 bones weighing 278.1 g. 2.2% (47) were identifiable to species: <u>small mammals</u> -- black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), desert cottontail rabbit (*Sylvilagus audubonii*), and Botta's pocket gopher (*Thomomys bottae*); <u>medium mammals</u> – coyote (*Canis latrans*); <u>large mammals</u> -- mule deer

	(*Odocoileus hemionus*); aquatic species – southwestern pond turtle (*Clemmys marmorata*) and bat ray (*Myliobatos californica*). Not identifiable to species: large mammal (57.5%), medium mammal (7.4%), small mammal (32.8%), freshwater and marine resources (0.3 and 0.1 %, respectively)
Invertebrate Fauna:	none
Floral Remains:	Little evidence of prehistoric charred food remains; charred seeds from historic period; wood fuel sources included oak, sunflower family, western sycamore, poplar/willow, sage, California Bay (mostly riparian).

Density of Remains:

debitage:	highest:	Unit 9	– 510/m^3
	average of 10 units*		-- 167/m^3
	lowest:	Unit 6	-- 58/m^3
faunal remains:	highest:	Unit 9	-- 1,954/m^3
		Unit 4	-- 735/m^3
		Unit 1	-- 425/m^3
	average of 10 units*		-- 379/m^3
	lowest:	Unit 8	-- 0/m^3
		Units 3, 5, 6 & 7	-- <20/m^3

*sterile units 11 & 12 excluded

Diversity of Remains: moderate to high

Degree of Disturbance: moderate to heavy in tree rows; light to moderate between tree rows

Volume Excavated (m^3): (excluding 24 STPs)

Unit 1 --	1x1 m to 40 cm	0.40 m^3
Unit 2 --	1x1 m to 56 cm	0.56 m^3
Unit 3 --	1x1 m to 20 cm	0.23 m^3
Unit 4 --	1x1 m to 48 cm	0.48 m^3
Unit 5 --	1x1 m to 50 cm	0.56 m^3
Unit 6 --	1x1 m to 40 cm	0.40 m^3
Unit 7 --	1x1.5 m 80 cm	1.20 m^3
Unit 8 --	1x1 m to 20 cm	0.20 m^3
Unit 9 --	1x1 m to 70 cm	0.70 m^3
Unit 10 --	1x1 m to 40 cm	0.40 m^3
Unit 11 --	1x1 m to 20 cm (sterile)	0.20 m^3
Unit 12 --	1x1 m to 20 cm (sterile)	0.20 m^3
ALL UNITS		**5.53 m^3**

6.3 SITE STRATIGRAPHY AND STRUCTURE

The stratigraphy was relatively homogeneous across the site. The upper deposits consisted of a dark yellowish brown (10 YR 4/4) gravelly silt, sometimes underlain by a brown (7.5 YR 5/4) less gravelly silt with some clay, with the deepest layer consisting of granitic rocks and/or decayed granite bedrock soil whose color ranges between 7.5 4/6 (strong brown) to yellowish red (5 YR 4.5/6). This general scheme is represented by the soil profile from Unit 5 in Figure 11 below. There was no clear pattern of soil disturbance (e.g., truncated or mixed soil layers) within the units which were excavated between the rows of orange trees. However, historic artifacts and ecofacts are mixed in with prehistoric materials in a number of units to a depth of 20-30+ cm. Overall, however, the depositional integrity of the site is relatively good between the rows of orange and grapefruit trees. Finally, much of the western and northern portions of SDI-9537/H consist of relatively steep slopes. The surface artifacts in these areas represent erosional debris washed down from above. As a result, subsurface deposits are absent or consist of a thin layer of erosional debris.

6.4 SITE FEATURES

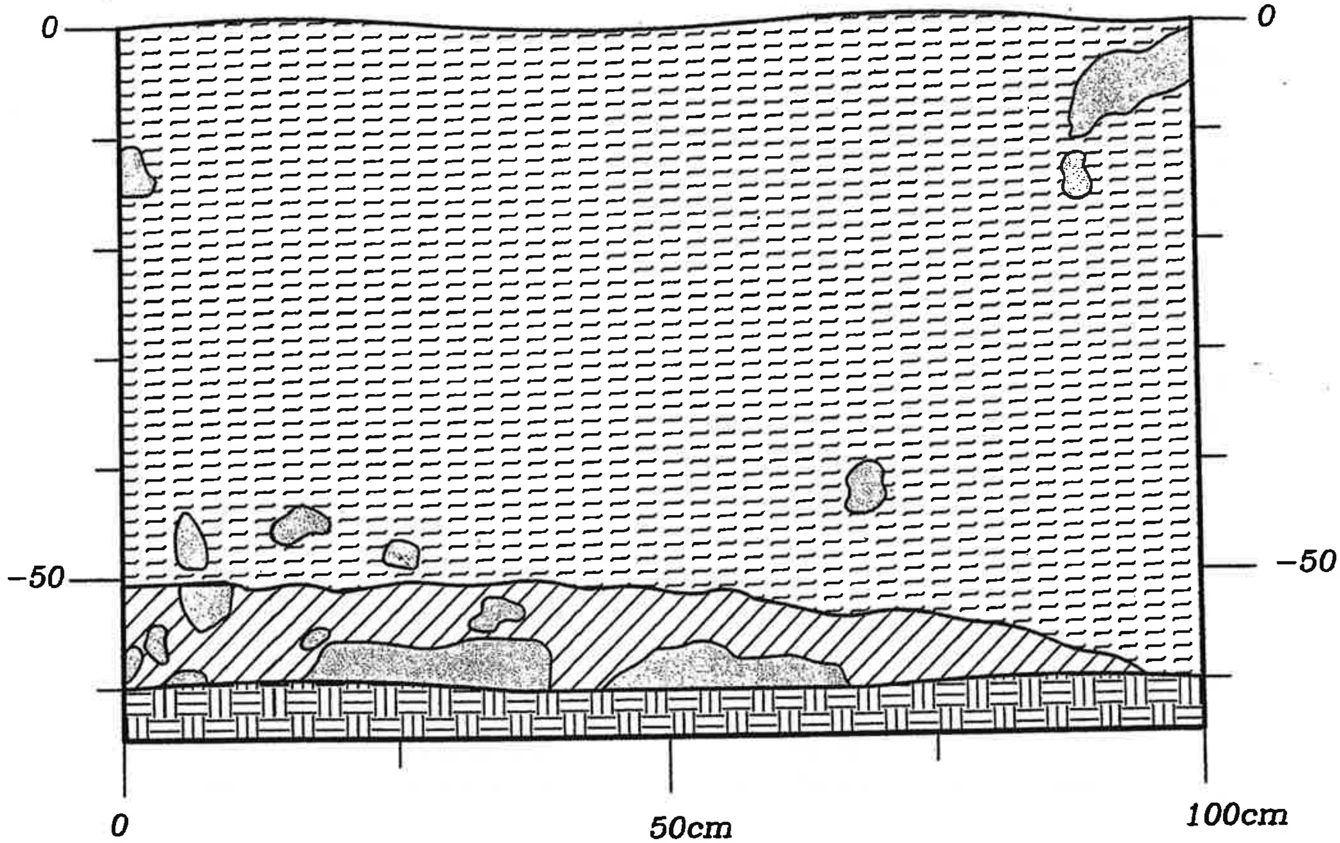
Four probable features were identified: 1) a bedrock milling feature with a single saucer mortar in the northeast quadrant of the site; 2) a probable hearth-like feature in Units 2 and 4 in the southwest quadrant; 3) a cluster of four relatively large basin metate fragments in Unit 7 in the northeast quadrant; and, 4) a probable hearth feature encountered in STP 1, also in the northeast quadrant.

6.4.1 Bedrock Milling Feature

A single bedrock milling outcrop is present within the boundaries of SDI-9537/H. It measures 1.85 by 1.27 m in size and is 6 cm high. The milling feature consists of an oval mortar which measures 20 x 17 x 1 cm. This feature is in the northeast quadrant of the site (see Figure 8).

6.4.2 Hearth-Like Feature in Units 2 and 4

The excavation of Unit 2 produced what appeared to be a possible hearth feature in the 30-40 cm level consisting of well-burned fire-altered rock. As a result, Unit 4 was excavated directly adjacent to Unit 2 to try to expose the entire feature. The end result was a rather amorphous-looking cluster of rocks that may be discards associated with stone boiling rather than an actual hearth (see Figures 12 and 13). The triangular shaped rock within the hearth feature is a fire-altered metate fragment (see Figure 13).



SOILS

STRATUM A — Dark Yellowish Brown, 10 YR 4/4
Silty Gravel

STRATUM B — Brown 7.5 YR 5/4
Decomposed Granite with Clay

STRATUM C — Strong Brown, 7.5 YR 4/6 to
Yellowish Red, 5YR 5/6
Decayed Granite Bedrock

LEGEND

Rock

SDI-9537/H, UNIT 5, EAST WALL | FIGURE 11

Figure 12: Hearth Feature in Unit 2 at 30-40 cm Facing North

Figure 13: Hearth Feature in Units 2 & 4 at 30-40 cm Facing North

6.4.3 Cluster of Basin Metate Fragments in Unit 7

The excavation of Unit 7 revealed the presence of a large granitic basin metate fragment (Cat. No. 195) in the west wall at about a depth of 55 cm (Figures 14 and 15). This led to the decision to expand Unit 7 a half meter to the west in order to retrieve the artifact. At the time, it was not known that the large whitish granitic rock in the south wall of Unit 7 was a second large, overturned basin metate fragment (Cat. No. 196). It would be accidentally discovered when a crew member stumbled and dislodged the stone from the south wall (see right center of Figure 15). The expansion of Unit 7 revealed a third large basin metate fragment (Cat. No. 197) which first appeared at a depth of about 40 cm in the extension of Unit 7 (see metate with partially moist surface in the center of Figure 16). Finally, a fourth, smaller basin metate fragment was recovered at a depth of 50-60 cm underneath the third one (not shown in photograph). The significance of this cluster of broken basin metates, which do not appear to be fire-altered, is not known. There was no evidence of any human remains or grave goods present in Unit 7.

6.4.4 Possible Hearth Feature in STP 1

Finally, the excavation of STP No. 1 in the grapefruit orchard in the northeast quadrant of SDI-9537/H (see Figure 8) produced a large, fire-altered rock that may be part of a subsurface hearth feature that was not excavated. STP No. 1 also produced debitage and a fragment of burned animal bone.

Figure 14: Laying Out Unit 7 Facing South

Figure 15: Basin Metate Fragment in West Wall (Cat. #195) and One in South Wall (Cat. #196) in Unit 7 Facing West

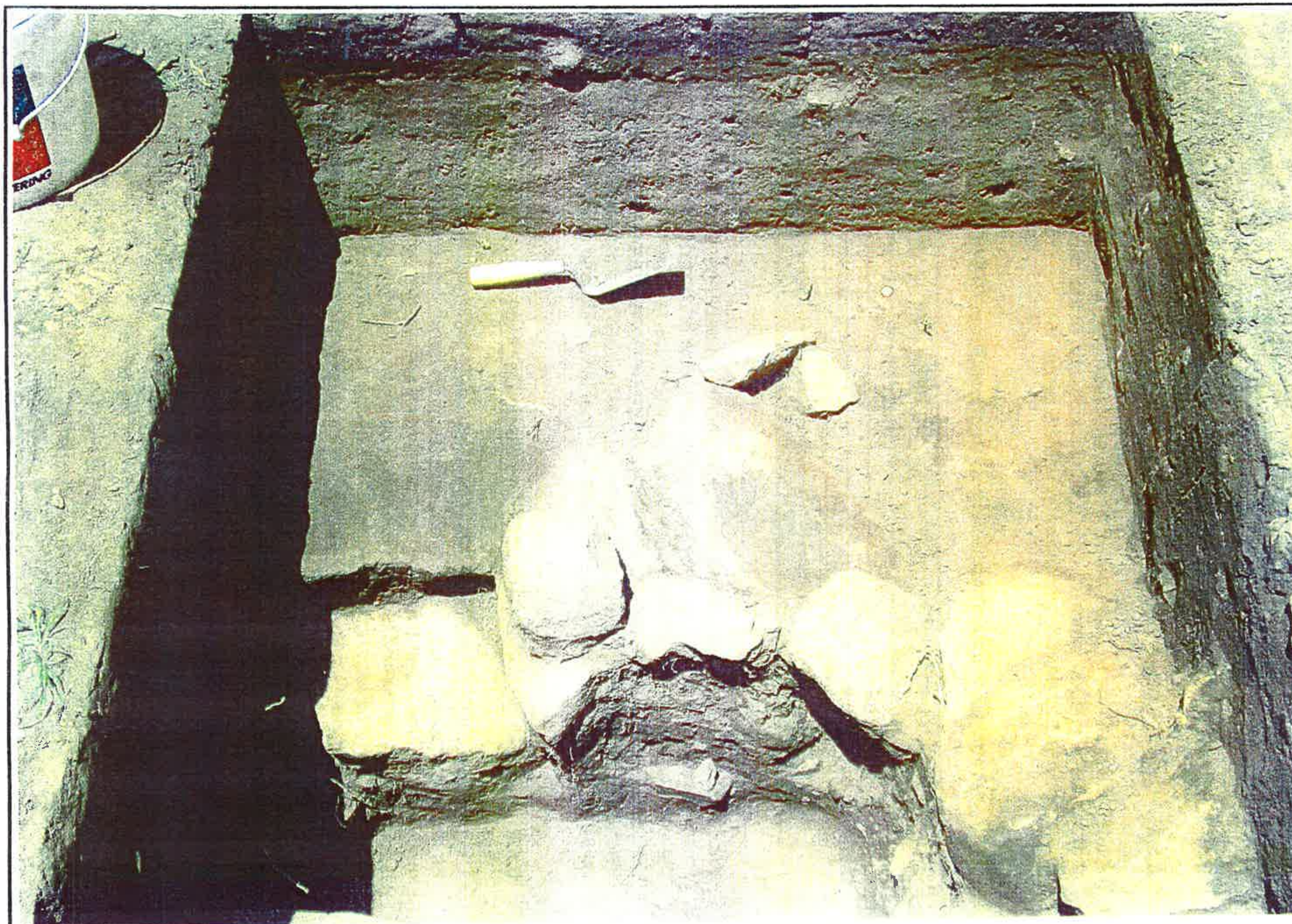


Figure 16: Basin Metate Fragment in Extension of Unit 7 (Cat. #197) Appears at 40 cm Depth

6.5 FLAKED STONE DEBITAGE AND CORES

6.5.1 Quantities and Spatial Distribution of the Debitage

A total of 921 pieces of debitage were recovered from the 10 excavation units that produced cultural material. The spatial distribution of the debitage in terms of both counts and densities is shown in Table 6 below.

Table 6: Spatial Distribution of Debitage From SDI-9537/H

Site Quadrant	Excavated Units	Excavation Volume (m^3)	Counts	%	Density/m^3
southwest	1-6	2.63	386	41.9	147
northwest	10	0.40	56	6.1	140
northeast	7-8	1.40	122	13.2	87
southeast	9	0.70	357	38.8	510
Entire Site	10 Units	5.13	921	100.1	180

We can see that Unit 9 produced very high densities of debitage, three to four times more dense than much of the rest of the site. It is interesting to note that the same phenomenon is true for animal bone which was recovered in very high densities from this same unit. Unit 9 also produced important quantities of biface thinning flakes (see below) suggesting that at least a portion of the southeast quadrant was an important area for stone tool manufacturing and maintenance.

6.5.2 Frequency and Weight of Flaked Stone Debitage

The prehistoric inhabitants of SDI-9537/H used a wide variety of lithic rock types for flaked stone reduction with a strong emphasis on quartz and metavolcanic materials. Tables 7 and 8 present the frequencies and weights of the various lithic materials recovered from the ten test excavation units that produced cultural material. These tables show that most of the debitage is made from milky quartz (66.7%) and metavolcanic aphanitic (16.7%) toolstone. Other materials of some importance are clear quartz (8.3%) and metavolcanic porphyritic stone (4.7%). Chert (1.6%), quartzite and chalcedony (0.8% each), and very small amounts of obsidian (0.3%) and other materials, including jasper (0.2%), were also used. About 50% of the metavolcanic aphanitic consists of very fine-grained material that is various shades of green (see lithic worksheets in Appendix B).

Table 7: Debitage Frequencies By Lithic Material at SDI-9537/H

	Debitage Counts and Percentages By Unit Number																					
Lithic Type	**1**	**%**	**2**	**%**	**3**	**%**	**4**	**%**	**5**	**%**	**6**	**%**	**7**	**%**	**8**	**%**	**9**	**%**	**10**	**%**	**ALL**	**%**
MVp	1	**1.4**	9	**7.2**	3	**9.0**	11	**9.6**	1	**5.6**			8	**7.5**	1	**6.3**	5	**1.4**	4	**7.1**	43	**4.7**
MVa	10	**13.7**	19	**15.2**	8	**24.2**	30	**26.3**	5	**27.8**			20	**18.9**	3	**18.8**	49	**13.7**	10	**17.9**	154	**16.7**
Milky Quartz	50	**68.5**	78	**62.4**	19	**57.6**	57	**50.0**	11	**61.1**	20	**87.0**	66	**62.3**	11	**68.8**	262	**73.4**	40	**71.4**	614	**66.7**
Clear Quartz	5	**6.8**	14	**11.2**	2	**6.0**	11	**9.6**			2	**8.7**	11	**10.4**	1	**6.3**	29	**8.1**	1	**1.8**	76	**8.3**
Obsidian			2	**1.6**					1	**5.6**											3	**0.3**
Quartzite	2	**2.7**	1	**0.8**									1	**0.9**			3	**0.8**			7	**0.8**
Chert	4	**5.5**	1	**0.8**	1	**3.0**	4	**3.5**			1	**4.3**					4	**1.1**			15	**1.6**
Chalcedony	1	**1.4**	1	**0.8**													4	**1.1**	1	**1.8**	7	**0.8**
Jasper			0	**0.0**			1	**0.9**													1	**0.1**
Other			0	**0.0**													1	**0.3**			1	**0.1**
TOTALS	73	**100.0**	125	**100.0**	33	**99.8**	114	**99.9**	18	**100.1**	23	**100.0**	106	**100.0**	16	**100.2**	357	**99.9**	56	**100.0**	921	**100.1**

Table 8: Debitage Weights in Grams by Lithic Material at SDI-9537/H

	Debitage Weights in Grams and Percentages By Unit Number																					
Lithic Type	**1**	**%**	**2**	**%**	**3**	**%**	**4**	**%**	**5**	**%**	**6**	**%**	**7**	**%**	**8**	**%**	**9**	**%**	**10**	**%**	**ALL**	**%**
MVp	0.8	**1.3**	8.9	**11.2**	0.9	**4.0**	5.5	**7.9**	7	**21.1**			6	**10.1**	0.7	**8.8**	1.5	**0.7**	2.4	**3.4**	33.7	**5.4**
MVa	1.6	**2.6**	4.8	**6.0**	4.2	**18.7**	8.7	**12.4**	2.2	**6.6**			11.7	**19.6**	3	**37.5**	28.5	**13.2**	7.7	**10.9**	72.4	**11.5**
Milky Quartz	52.4	**86.8**	60	**75.4**	13.4	**59.6**	48.5	**69.3**	23.7	**71.4**	6.3	**75.0**	39.4	**66.1**	3.8	**47.5**	136.1	**62.9**	60.2	**85.3**	443.8	**70.6**
Clear Quartz	1.3	**2.2**	3.9	**4.9**	0.2	**0.9**	4	**5.7**			0.5	**6.0**	2.4	**4.0**	0.5	**6.3**	9.4	**4.3**	0.2	**0.3**	22.4	**3.6**
Obsidian			0.2	**0.3**					0.3	**1.0**											0.5	**0.1**
Quartzite	0.6	**1.0**	1.1	**1.4**									0.1	**0.2**			31.8	**14.7**			33.6	**5.3**
Chert	2.7	**4.5**	0.6	**0.8**	3.8	**16.9**	1.1	**1.6**			1.6	**19.0**					0.7	**0.3**			10.5	**1.7**
Chalcedony	1	**1.7**	0.1	**0.1**													8.2	**3.8**	0.1	**0.1**	9.4	**1.5**
Jasper							2.2	**3.1**													2.2	**0.3**
Other																	0.2	**0.1**			0.2	**0.0**
TOTALS	60.4	**100.1**	79.6	**100.1**	22.5	**100.1**	70	**100.0**	33.2	**100.1**	8.4	**100.0**	59.6	**100.0**	8	**100.1**	216.4	**100.0**	70.6	**100.0**	628.7	**100.0**

*MVp = metavolcanic porphyritic; MVa = metavolcanic aphanitic

Milky quartz and clear quartz were recovered in all quadrants of the site and in nearly all units, except Unit 4 which produced no clear quartz. Metavolcanic aphanitic materials were most common in Units 3-5 (24.2 to 27.8%) in the southwest quadrant and in Units 7 and 8 (about 19%) in the northeast quadrant. Obsidian was recovered only from the southwest quadrant -- from the surface (arrow point fragment) and from Units 1 (a biface fragment), 2 and 5. Almost all of the chert was recovered from the southwest quadrant as well (Units 1-4 and 6) with a small amount in Unit 9 in the southeast quadrant.

In general, the weight data parallel the frequency data. Exceptions for metavolcanic aphanitic, clear quartz, and quartzite reflect the relatively small debitage recovered for the first two and the relatively large (and heavier) nature of the quartzite flakes.

6.5.3 Frequency of Diagnostic Flakes by Lithic Type and Flake Size

About 40.7% of the debitage consisted of diagnostic flakes as opposed to flake fragments and angular shatter (see Table 9). High frequencies of diagnostic flakes were recovered for metavolcanic debitage (well over 60%) as well as for obsidian, quartzite and chalcedony. Milky and clear quartz, on the other hand, yielded relatively low frequencies of diagnostic flakes (34.2% and 22.4%, respectively). This is due to the more crystalline, as opposed to microcrystalline, nature of the quartz materials and the tendency, particularly for milky quartz, to shatter when struck with a hammerstone. The poor quality of some of the angular shatter suggests it resulted from the lithic assay of relatively poor quality quartz nodules that were subsequently not used for making tools.

Flake size is best understood in the context of information on core size, flake type, and overall reduction strategies (see below), but some data stand out in Table 9. Note that 88.7% of all flakes are less than 2 cm in size. As we shall see, this reflects the reduction of relatively small nodules of lithic materials, especially for quartz, which dominates the assemblage. The clear quartz material was apparently derived from very small quartz crystals as all clear quartz flakes are <2 cm in length. The data in Table 10 also suggest that one of the goals of reduction was to produce relatively small, usable flakes and/or relatively small tools, rather than larger bifaces. If the production of relatively large bifaces had been a frequent activity at SDI-9537/H, one would expect to find a higher frequency of flakes >2 cm in length.

6.5.4 Flake Platform Types and Data on Reduction Stages

Tables 11 and 12 summarize data on flake platform type and flake type as it relates to stages in lithic reduction.

Table 9: Distribution of Diagnostic Flakes by Lithic Material at SDI-9537/H

Lithic Type	Diagnostic Flakes	All Debitage	% Diagnostic Flakes
MVp	29	43	67.4
MVa	97	154	63.0
Milky Quartz	210	614	34.2
Clear Quartz	17	76	22.4
Obsidian	3	3	100.0
Quartzite	7	7	100.0
Chert	6	15	40.0
Chalcedony	6	7	85.7
Jasper	0	1	0.0
Other	0	1	0.0
ALL	375	921	40.7

Table 10: Frequencies of Lithic Material by Flake Size at SDI-9537/H

LITHIC TYPE	0-1 cm	%	1-2 cm	%	2-4 cm	%	> 4 cm	%	All	%
MVp	6	14.0	29	67.4	8	18.6	0	0.0	43	100.0
MVa	57	37.0	80	51.9	17	11.0	0	0.0	154	99.9
Milky Quartz	282	46.0	260	42.3	70	11.4	2	0.3	614	100.0
Clear Quartz	39	51.3	37	48.7	0	0.0	0	0.0	76	100.0
Obsidian	2	66.7	1	33.3	0	0.0	0	0.0	3	100.0
Quartzite	1	14.3	3	42.9	2	28.6	1	14.3	7	100.1
Chert	5	33.3	9	60.0	1	6.7	0	0.0	15	100.0
Chalcedony	1	14.3	4	57.1	2	28.6	0	0.0	7	100.0
Jasper	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0
Other	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0
TOTALS	394	42.8	423	45.9	101	11.0	3	0.3	921	100.0

Table 11: Distribution of Diagnostic Flake Platform Types at SDI-9537/H

LITHIC TYPE	C	%	SF	%	MF	%	All
MVp	2	6.9	20	69.0	7	24.1	29
MVa	8	8.2	71	73.2	18	18.6	97
Milky Quartz	34	16.2	134	63.8	42	20.0	210
Clear Quartz	0	0.0	10	58.8	7	41.2	17
Obsidian	0	0.0	2	33.3	1	66.7	3
Quartzite	3	42.9	3	42.9	1	14.3	7
Chert	2	33.3	3	50.0	1	16.7	6
Chalcedony	1	16.7	5	83.3	0	0.0	6
Jasper	0	0.0	0	0.0	0	0.0	0
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	50	13.3	248	66.1	77	20.5	375

*C = cortical; SF = single facet; MF = multiple facet

Table 12: Distribution of Diagnostic Flakes Reflecting Reduction Stages

LITHIC TYPE	P	%	S	%	EI	%	LI	%	EBT	%	LBT	%	ALL
MVp	0	0.0	1	3.4	19	65.6	6	20.7	1	3.4	2	6.9	29
MVa	3	3.1	6	6.2	35	36.1	22	22.7	12	12.4	18	18.6	97
Milky Quartz	18	8.6	28	13.3	64	30.5	33	15.7	16	7.6	51	24.3	210
Clear Quartz	1	5.9	0	0.0	5	29.4	9	52.9	1	5.9	1	5.9	17
Obsidian	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0	3
Quartzite	0	0.0	4	57.1	0	0.0	1	14.3	1	14.3	1	14.3	7
Chert	1	16.7	1	16.7	3	50.0	0	0.0	0	0.0	1	16.7	6
Chalcedony	1	16.7	2	33.3	2	33.3	0	0.0	0	0.0	1	16.7	6
Jasper	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
TOTALS	24	6.4	42	11.2	128	34.1	71	18.9	31	8.3	78	20.8	375

*P = primary flake; S = secondary flake; EI = early interior flake; LI = late interior flake; EBT = early bifacial thinning flake; LBT = late bifacial thinning flake

Distribution of Flake Platform Types

The presence of cortex on flake platforms may indicate these flakes were produced during the relatively early stages of lithic reduction. However, with the production of flakes from small nodules, it may simply indicate that core platforms were sometimes used without removing their cortex. This is more likely to be the case when nodules are small. With large nodules, cortical platforms are likely to be less common. The data indicate that 13.3% of all flakes had cortex on their platforms, a relatively large number. Note that in the four commonly used materials (of quartz and metavolcanic rock), milky quartz has a much higher frequency of cortical platforms (16.2%). This probably due to the small size of the quartz nodules used in lithic reduction (see section on cores below). The high frequency of cortical platforms for quartzite, chert and chalcedony may suggest that nodules were obtained locally for these materials.

Platforms with a single facet dominate the diagnostic flake assemblage (66.1%). This suggests that a primary goal of lithic reduction was the production of flakes rather than the production of bifaces, which tends to produce higher frequencies of multifacet flake platforms. It may also reflect the relatively small size of the nodules used in reduction. The high frequency of multifacet platforms for clear quartz may reflect the more crystalline nature of this material where knapping produces a multifacet platform due to breakage along crystal planes.

Most of the flakes with multifacet platforms were recovered from Unit 9 (19/42 or 45%) with the bulk of the remainder coming from Units 2 and 4 (13/42 or 31%). This pattern holds for both milky quartz and metavolcanic aphanitic flakes.

Flakes As Indicators of Reduction Stage

Table 12 provides a breakdown of the frequency of different types of flakes based on the reduction stage represented. Primary and secondary flakes have cortex on their dorsal surfaces. Early and late interior flakes (no cortex) represent later steps in reduction for either the purpose of producing usable flakes or as a preliminary step toward biface reduction. Early and late biface thinning flakes indicate reduction for the purpose of creating formal biface tools. It was often difficult to distinguish between late biface thinning flakes (including those produced by pressure as opposed to percussion) and resharpening or rejuvenation flakes resulting from tool maintenance. The following definitions were used to define the flake types noted above (after Flenniken 1981, 2005).

Primary decortification flake: flakes with cortex over their entire dorsal surface.

Secondary decortification flake: flakes with some but <50% cortex on their dorsal surfaces.

Early interior flake: flakes with few parallel arrises [ridges] and no cortex on their dorsal surfaces. Frequency associated with flake blank production from flake cores.

Later interior flake: flakes with numerous parallel arrises and no cortex on their dorsal surfaces. The last flakes removed from an artifact before bifacial thinning begins.

Early bifacial thinning flake: percussion flakes removed from a biface during reduction for the purpose of increasing width-to-thickness ratio while maintaining symmetry. These flakes have few dorsal surface scars, are slightly curved in long-section, and generally have multifaceted, abraded platforms.

Late bifacial thinning flake: flakes produced during the final stages of biface reduction. These flakes have numerous scars on their dorsal surfaces, are almost flat in long-section, usually exhibit feather termination, and have multifaceted platforms. [Note: Flenniken's early and late stage pressure flakes were also included within this category; see Flenniken 1981, 2005].

Primary and Secondary Flakes

Primary and secondary flakes make up 6.4% and 11.2%, respectively, of the diagnostic flakes, for a total of 17.6%. Most of these are made from milky quartz (46/66 or 70%). There are also a total of nine primary and secondary flakes made from metavolcanic aphanitic stone. These data indicate that nodules of milky quartz were probably brought to the site with minimal decortication and reduced on site. This is true to a lesser extent for metavolcanic aphanitic stone. This reflects the fact that quartz nodules are abundant in the local geology (and soils) and that both quartz and metavolcanic aphanitic cobbles could be obtained from the nearby Frey Creek and San Luis Rey drainages. The presence of primary and secondary flakes of chert, quartzite, and chalcedony, making up 33%, 57%, and 50%, respectively, of their total diagnostic flake assemblages suggests local sources for these materials as well. The absence of primary flakes of quartzite may indicate that quartzite nodules were assayed and/or minimally reduced before bringing them back to the site.

Early and Late Interior and Bifacial Thinning Flakes

Early and late interior flakes make up 34.1% and 18.9%, respectively, of the total diagnostic flake assemblage. Early and late bifacial thinning flakes make up 8.3% and 20.8%, respectively. Early and late interior flakes are relatively common for both types of metavolcanic and quartz debitage, especially metavolcanic aphanitic debitage. Early and late bifacial thinning flakes are also common for these same materials, and again, especially for metavolcanic aphanitic debitage. All three obsidian flakes are late bifacial thinning flakes, two of them clearly pressure flakes. This is not surprising as obsidian was a rare, highly valued stone that was almost certainly imported as already-made tools or as biface preforms. Obsidian artifacts were curated and constantly reworked and resharpened until they were completely exhausted. The sample sizes are too small for the remaining materials to say very much; however, the near or total absence of multifacet platforms and late stage bifacial thinning flakes for quartzite, chert, chalcedony, and jasper suggests these materials were not reduced onsite into bifaces. In fact, the few late stage bifacial thinning flakes may represent the rejuvenation or resharpening of existing tools instead and/or the use of nodules of these materials as flake cores; however, no cores of these materials were recovered at SDI-9537/H.

Spatial Distribution of Interior and Bifacial Thinning Flakes

When the distribution of these materials is examined on a unit-by-unit basis, it appears that the primary centers of flake core reduction for usable flakes made from both milky quartz and metavolcanic aphanitic toolstone were in the vicinity of Units 2 & 4 and 9, whereas biface thinning (if not biface production) was centered primarily in the vicinity of Unit 9. A secondary center for lithic reduction was in the vicinity of Unit 7. The distribution of these flakes types are shown in Table 13:

Table 13: Concentrations of Interior and Bifacial Thinning Flakes

Lithic Material	Units	Multifacet Platforms		Early Interior		Late Interior		Early Bifacial Thinning		Late Bifacial Thinning	
milky quartz	2 & 4	13/42	**31%**	20/64	**31%**	6/33	**18%**	3/16	**19%**	3/51	**6%**
	9	19/42	**45%**	16/64	**25%**	18/33	**55%**	11/16	**69%**	35/51	**69%**
	7	4/42	**10%**	11/64	**17%**	4/33	**12%**	2/16	**13%**	10/51	**20%**
Totals	**All**	36/42	**86%**	47/64	**73%**	28/33	**85%**	16/16	**100%**	48/51	**95%**
metavolcanic aphanitic	2 & 4	4/18	**22%**	11/35	**31%**	10/22	**45%**	4/12	**33%**	1/18	**6%**
	9	10/18	**56%**	5/35	**14%**	4/22	**18%**	5/12	**42%**	14/18	**78%**
	7	0/18	**0%**	3/35	**9%**	2/22	**9%**	3/12	**25%**	2/18	**11%**
Totals	**all**	14/18	**78%**	19/35	**54%**	16/22	**72%**	12/12	**100%**	17/18	**95%**

The data in Table 13, which also include multifacet platform frequencies, show that most of the lithic reduction beyond decortification took place primarily in the vicinity of Units 2 and 4 in the southwest quadrant, Unit 7 in the northeast quadrant, and Unit 9 in the southeast quadrant. The most intense area of use was in the vicinity of Unit 9 where the bulk of the early and late stage bifacial thinning flakes were recovered. Some of these latter flakes also include pressure flakes and probably rejuvenation and resharpening flakes, especially for milky quartz.

6.5.5 Flake Cores

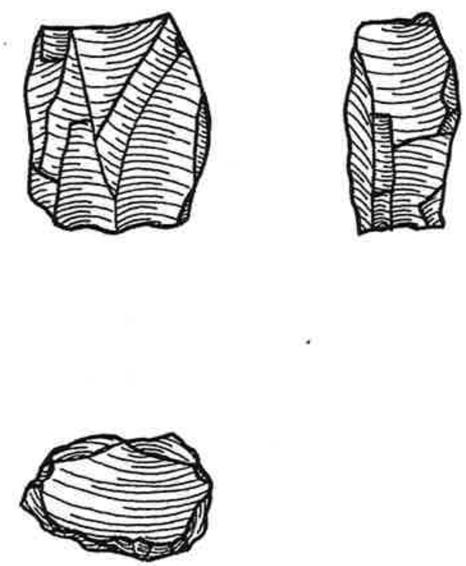
A total of nine cores and one core fragment, including four exhausted cores, were recovered from SDI-9537/H. Eight of the cores are made of white quartz (Cat. Nos. 248, 314, 316-318, 322-323, and 325), but a core fragment and one exhausted core are made of a green metavolcanic aphanitic material (Cat. Nos. 324 and 326) as shown in Table 14 on the next page. One of these cores is illustrated in Figure 17A (Cat. No. 314). Three other multipurpose tools appear to be cores as well, but they are discussed under Section 6.6 below.

All of the cores are flake cores used primarily to obtain usable flakes for various opportunistic tasks. Most of them have two platforms either opposing or at 90 degree angles from each other, including three of the exhausted cores. All of these but one are made of white quartz. Single platforms are present on one core and one exhausted core, both of white quartz. Three platforms are present on a core fragment (or exhausted core?) made of a green metavolcanic aphanitic stone. Some of the cores have only two or three flake scars but typically there are four to six flake scars present (see Table 14). One exhausted white quartz core has a cortical platform (Cat. No. 323). Some quartz cores have cortex on a non-platform face but most (five) have no cortex on their surfaces. The two metavolcanic cores have no cortical surfaces. White quartz core sizes, using the dimension of length, typically range from 4.0 to 1.7 cm with the lower range associated with exhausted cores. There is one core that is 6.0 cm long but the two flake removals on this core (which is broken into two pieces) may actually be the result of excavation and not of prehistoric knapping. The length of the two metavolcanic cores are 3.0 and 1.8 cm, the latter being an exhausted core.

Given that there are significant numbers of early and late stage bifacial thinning flakes at SDI-9537/H, it would appear that some biface reduction was taking place at the site. However, it is interesting that only one biface preform was found (Cat. No. 320; see Table 14) and no knives or arrow points or dart points or other formal bifaces or biface fragments were recovered, except for the enigmatic side-notched, arrow-sized point base fragment made of obsidian discovered on the surface in the southwest quadrant (Cat. No. 71; Table 14 and Figure 17B). A local ranch informant stated they were surprised that we found an arrowhead on the site because they had never found any over the years!

Table 14: Flaked Stone Tools Recovered From SDI-9537/H

Cat. No.	Unit, 10-cm Level & Locus	Artifact Type	Notable Attributes	Color & Material	Dimensions (cm)	Wt. (g)
3	surface SW	adze or chopper	made on a large flake	gray-black MVp?	7.4 x 8.1 x 3.1	212.9
12	surface NE	adze-hammerstone	battering on rounded end opposite adze-like edge	gray-black MVa	7.5 x 5.7 x 4.9	254.6
70	surface SW	hammerstone	on cortical nodule with multiple battered and abraded edges	greenish-brown MVa	6.5 x 6.0 x 4.7	266.2
71	surface SW	arrow-sized point fragment	side-notched with concave base	gray obsidian	1.7 x 1.6 x 0.4	1.1
80	Unit 1 20-30, SW	biface fragment	one worked edge	black obsidian	1.3 x 0.8 x 0.7	0.9
142	Unit 4 20-30, SW	multipurpose tool	adze-scraper plane and hammerstone; was perhaps core initially; bit of cortex present	brown to brownish black MVa	7.0 x 4.8 x 4.3	194.6
198	Unit 7 50-60, NE	core-hammerstone	3 platforms; 7 flake scars; battered end has cortex; some flake removals from hammer use	gray MVp	4.0 x 4.0 x 3.2	75.8
248	Unit 10 30-40, NW	core	2 platforms at 90° angles; 2+ flake scars; 40% cortex; broken into two pieces by excavation	white quartz	6.0 x 4.6 x 2.8	85.4
314	Unit 2 0-10, SW	core	2 opposing platforms one with cortex; 4 flake scars; some cortex on one side	white quartz	3.1 x 2.7 x 1.8	19.9
316	Unit 2 20-30, SW	core	2 platforms at 90° angles; 6 flake scars; no cortex	white quartz	4.0 x 1.9 x 1.7	14.4
317	Unit 2 20-30, SW	core	2 platforms at 90° angles; 4 flake scars; no cortex	white quartz	3.3 x 2.4 x 1.4	8.4
318	Unit 2 30-40, SW	core	2 opposing platforms; 2+ flake scars; poor quality stone; cortex?	white quartz	3.9 x 2.6 x 2.3	16.4
319	Unit 4 0-10, SW	exhausted core	single platform; 4 flake scars; cortex on one side	white quartz	1.7 x 1.6 x 1.6	5.1
320	Unit 4 30-40, SW	biface preform fragment	made on a flake blank; unfinished and broken	beige MVa	1.9 x 0.5 x 0.4	0.7
321	Unit 5 20-30, SW	retouched flake tool	one working edge; multifacet platform; no cortex	black MVp	4.3 x 3.3 x 1.0	13.7
322	Unit 10 20-30, NW	exhausted core	2 platforms at 90° angles; 4 flake scars; no cortex	white quartz	1.8 x 1.1 x 1.0	2.9
323	Unit 10 20-30, NW	exhausted core	2 opposing platforms; one platform has cortex; 5 flake scars	white quartz	2.1 x 1.0 x 0.7	1.8
324	Unit 10 30-40, NW	core fragment	3 platforms; 6+ flake scars; no cortex	green MVa	1.8 x 1.7 x 1.7	4.9
325	Unit 7 10-20, NE	core	single platform; some cortex on one side; none on platform	white quartz	2.9 x 2.6 x 2.2	6.2
326	Unit 7 10-20, NE	exhausted core	2 platforms at 90° angles; 5 flake scars; no cortex	green MVa	3.0 x 1.6 x 1.3	7.0
327	Unit 7 10-20, NE	biface fragment	rejuvenation or resharpening flake from a used biface, probably an adze	green MVa	3.0 x 2.0 x 1.6	5.1
328	Unit 9, SE 10-20	biface fragment	possible resharpening flake off a bifacial tool, possibly an adze	light green MVa	1.7 x 1.2 x 0.7	1.0



ACTUAL SIZE

Figure 17A: White Quartz Core (Cat. #314) from 10-20 cm, Unit 2

TWICE ACTUAL SIZE

Figure 17B: Obsidian Side-Notched Point Base (Cat. #71) from Surface

6.6 FLAKED STONE TOOLS AND HAMMERSTONES

Along with cores and core fragments, the formal flaked stone tools and hammerstones recovered from SDI-9537/H are described in Table 14 above. They include a biface preform fragment, an arrow-sized point base, three biface fragments, a retouched flake tool, a hammerstone, core-hammerstone, and adze-hammerstone, an adze or chopper, and a multipurpose tool – adze or scraper plane-hammerstone-possible core.

6.6.1 Biface Preform Fragment

This biface preform (Cat. No. 320) was made on a flake blank using a beige-colored metavolcanic aphanitic material. It was apparently broken during manufacture. It is a small fragment weighing only 0.7 g and measuring 1.9 x 0.5 x 0.4 cm. This artifact was recovered from the 30-40 cm level of Unit 4 in the southwest quadrant.

6.6.2 Obsidian Arrow Point Base

This side-notched arrow point base (Cat. No. 71) was recovered from the surface between Units 3 and 5 in the southwest quadrant of SDI-9537/H (see Figure 8). The point is rather enigmatic for several reasons: 1) only nine bifacial tools had been formerly recovered from this site (True and Beemer 1982:240) and no points had been spotted by the current property manager and none were recovered during excavation; 2) it is made from obsidian of an unknown source (see Hughes in Appendix C); and, 3) its obsidian hydration band width is 13.5 microns! This suggests considerable antiquity which contradicts its arrow point size. It is almost certainly an ancient piece of obsidian that was collected elsewhere and reworked into an arrow point. What is puzzling, however, is that the hydration band reading was taken from a broken edge, not from the intact base of the point. The point is illustrated in Figure 17B above.

6.6.3 Three Biface Fragments

A small fragment of an obsidian biface fragment (Cat. No. 80) with one worked edge was recovered from the 20-30 cm level of Unit 1 in the southwest quadrant (see Figure 8). It only weighs 1.1 g and measures 1.7 x 1.6 x 0.4 cm. Two other biface fragments made of green metavolcanic aphanitic material were also recovered. One appears to be a rejuvenation or resharpening flake from a worn biface, probably an adze. The wear consists of stacked flake scars and a rounded, abraded edge (Cat. No. 327). It is from the 10-20 cm level of Unit 7. It is 3 cm long and weighs 5.1 g. The third item is a possible resharpening flake from a bifacial tool, possibly an adze as well. However, the tool edge exhibits no abrasion or rounding. It is 1.7 cm long and weighs only 1 g (Cat. No. 328).

6.6.4 Retouched Flake Tool

A large flake (4.3 x 3.3 x 1.0 cm) weighing 13.7 g made of a black metavolcanic porphyritic material was recovered from the 20-30 cm level of Unit 5. It exhibits edge preparation and retouching on a lateral edge of the flake (Cat. No. 321).

6.6.5 Hammerstone, Core-Hammerstone, and Adze-Hammerstone

The hammerstone or battered implement (Cat. No. 70) is made of brownish-gray metavolcanic aphanitic rock. There are multiple battered and abraded edges but most of the original cortex of the nodule is intact. It is particularly battered on opposite ends with the broader end exhibiting some battering, abrasion and flake removals, probably from of its use as a hammerstone. There is no evidence it served as a core. Given the presence of battered angular edges or ridges as well, this tool may have been used for both flintknapping and groundstone tool maintenance. It was recovered on the surface near Test Unit 1 in the southwest quadrant of the site (see Figure 8). It measures 6.5 x 6.0 x 4.7 cm and weighs 266.2 g. It is illustrated in Figure 18.

A small core-hammerstone (Cat. No. 198) was recovered from the 50-60 cm level of Unit 7 in the northeast quadrant of the site. It is made from a gray, apparently metavolcanic porphyritic material and weighs 75.8 g. It is nearly a cube measuring 4.0 x 4.0 x 3.2 cm. It was used primarily as a core with three platforms, one cortical, and seven flake scars. The cortical platform also exhibits signs of battering. Given the small size of the tool, it was probably used for flintknapping rather than groundstone tool maintenance. The tool is illustrated in Figure 19.

The third artifact (Cat. No. 12) appears to be an adze made from a gray-black metavolcanic aphanitic stone. It has a steep, used flaked edge on one end and a rounded somewhat battered end opposite to this, suggesting it was also used as a hammerstone. It was recovered in 2001 from the surface in the northeast quadrant north of what would later be Unit 7 (see Figures 6 and 8). It measures 7.5 x 5.7 x 4.9 cm and weighs 254.6 g. It is illustrated in Figure 20.

6.6.6 Adze or Chopper and Adze-Core

A possible adze or large chopper (Cat. No. 3) was recovered from the surface in 2001 in the southwest quadrant of the site (see Figures 6 and 8). It is made on a large flake of a gray-black metavolcanic material that appears to be porphyritic. It measures 7.3 x 8.1 x 3.1 cm and weighs 212.9 g. It is illustrated in Figure 21. This artifact has probably eroded downslope from its original position.

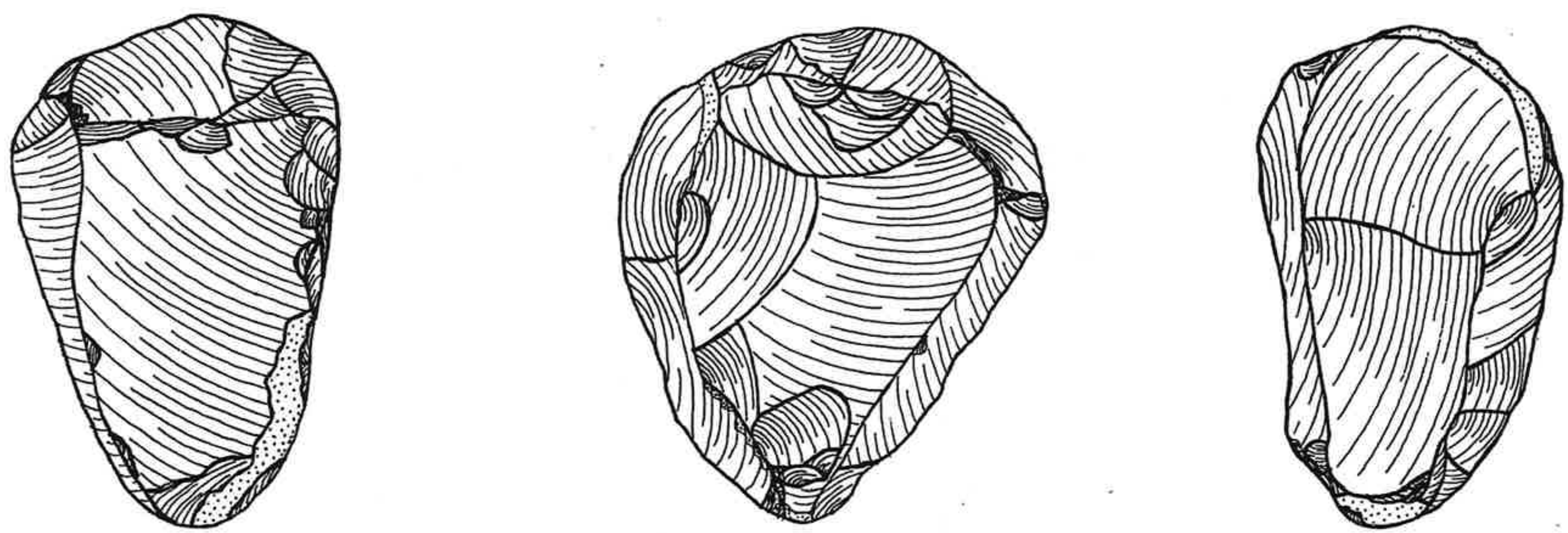
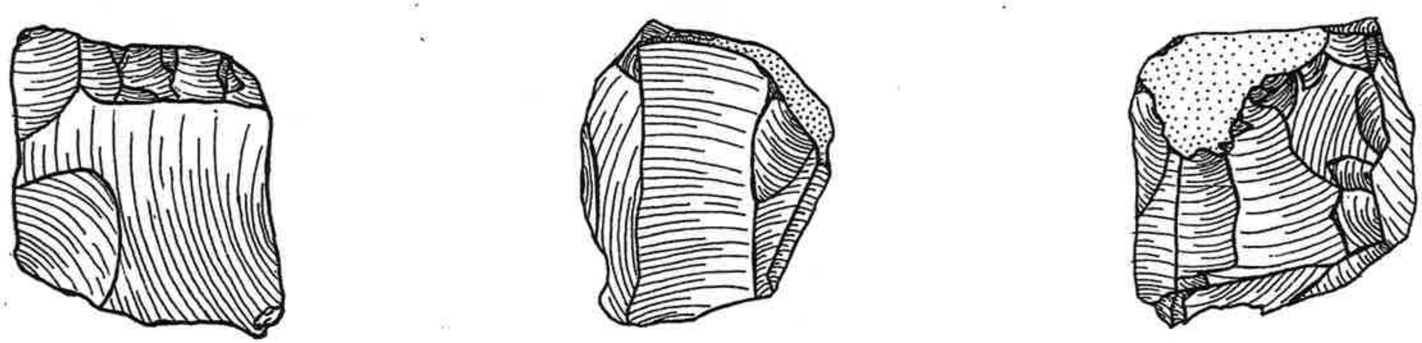


Figure 18: Hammerstone (Cat. #70) from Surface

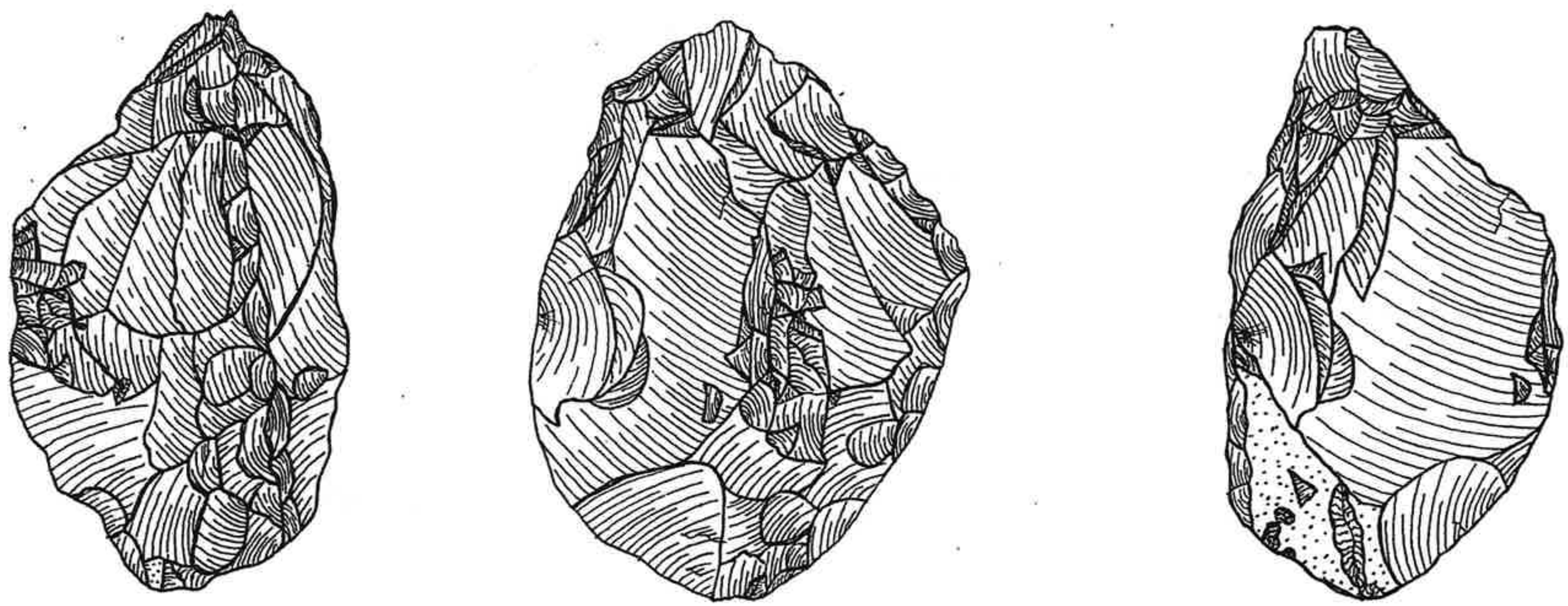
ACTUAL SIZE



stippled areas represents battering

Figure 19: Core/Hammerstone (Cat. #198) from 50-60 cm, Unit 7

ACTUAL SIZE



ACTUAL SIZE

Figure 20: Adze/Hammerstone (Cat. #12) from Surface

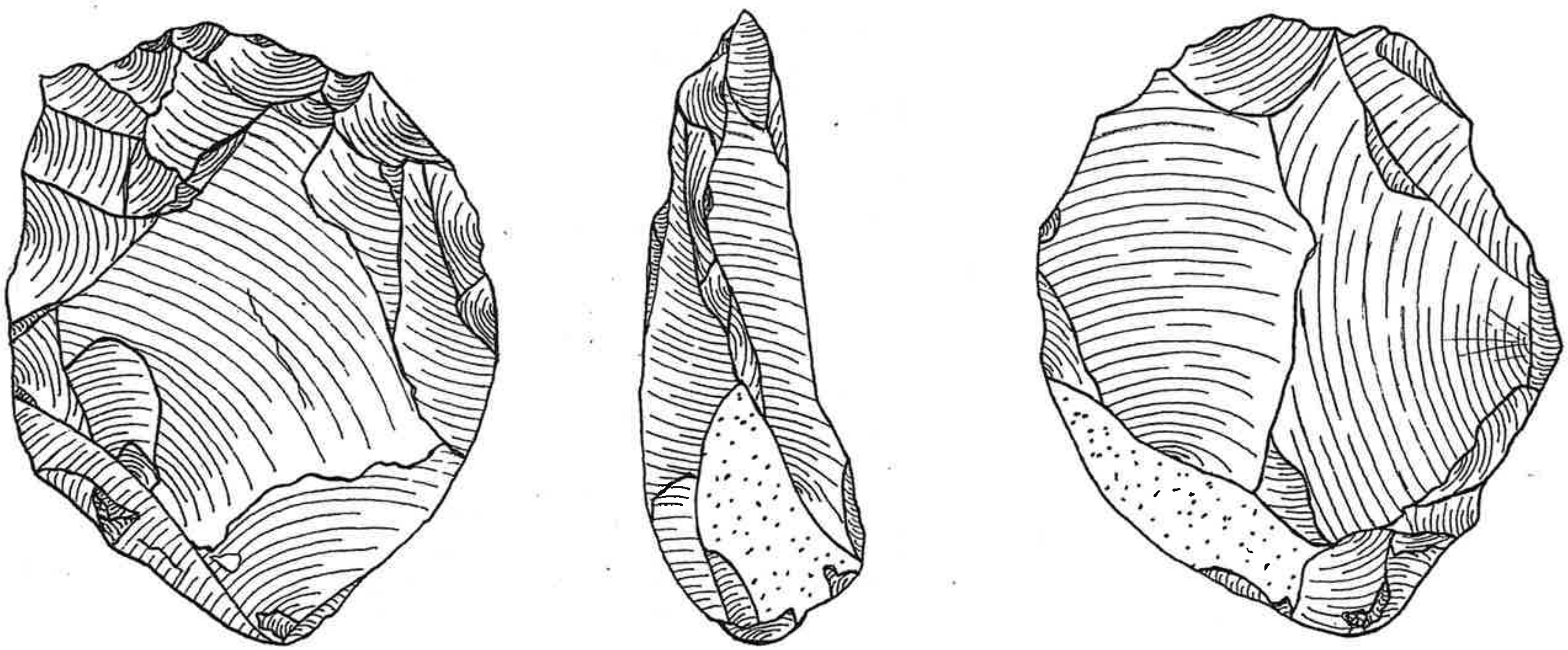


Figure 21: Adze or Chopper (Cat. #3) from Surface

6.6.7 Multipurpose Tool

This tool was apparently used as an adze or scraper plane, as a hammerstone, and may have initially started out as a core (Cat. No. 142). It is made from a brown to brownish-black metavolcanic aphanitic material and was recovered from the 20-30 cm level of Unit 4. It appears to have been exposed to fire as one portion of the tool has a sheen and is blackened. It weighs 194.6 g and measures 7.0 x 4.8 x 4.3 cm. It is illustrated in Figure 22.

6.7 GROUNDSTONE TOOLS

A mano, seven mano fragments, six basin metate fragments, a metate fragment, and a mini-metate fragment were recovered from SDI-9537/H. Four of the basin metate fragments were recovered from Unit 7. Attributes of these groundstone tools are summarized in Table 15 below.

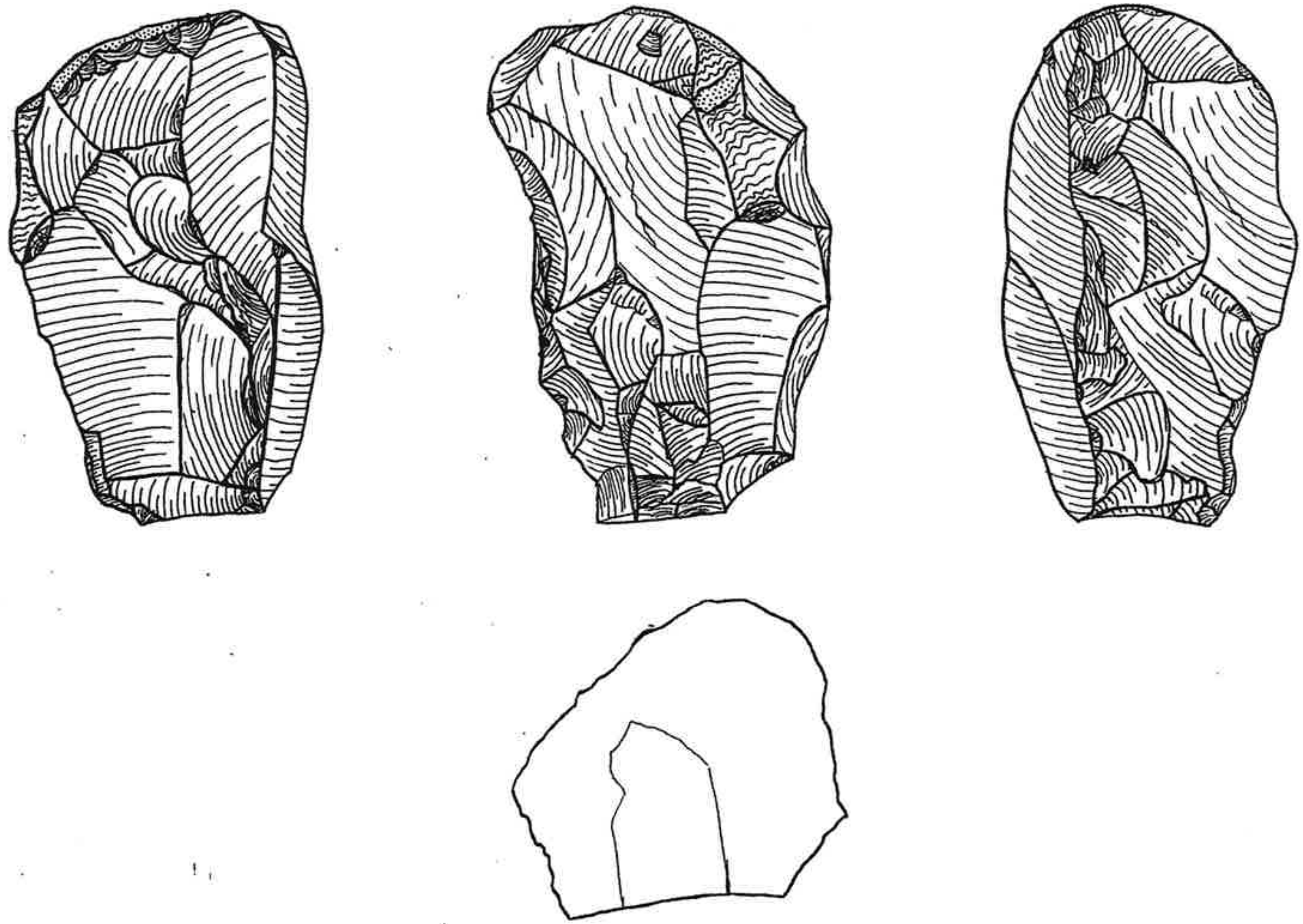
6.7.1 Manos

Only one complete mano was recovered. It was collected from the surface in 2001 south of what is now Unit 1 (Figures 6 and 8). It is a granitic, bifacial mano (Cat. No. 2) that was shaped into an oval form; it has two well-worn, slightly convex ground surfaces. It is not fire-altered and shows no signs of end battering. It measures 11.9 x 9.8 x 5.0 cm and weighs 1.11 kg. This mano is illustrated in Figure 23. The other manos are all fragmentary and virtually all of them are fire-altered. In a majority of instances, the fragment represents only a small part of the end of the mano. The exception is a granitic, bifacial mano fragment that includes portions of each end. It was recovered from the 30-40 cm level of Unit 9 and appears to have been shaped (see Cat. No. 218 in Table 15). It is illustrated in Figure 24.

All of the manos are granitic except for one minimally used cobble mano fragment that is volcanic (Cat. No. 13). Some have convex or slightly convex surfaces, while others have one side that is convex and the other is flat or nearly flat (see Cat. Nos. 218 and 312 in Table 15). Nearly all appear to have once been bifacial manos, except for the volcanic cobble mano fragment mentioned above and another which has one face missing (Cat. No. 113). End battering is only clearly present on one specimen (Cat. No. 103).

The spatial distribution of the mano fragments is interesting in that they were recovered from Units 2, 3, 8, 9 and 10, in the three of four site quadrants. Excluding Unit 6 which is on an erosional slope and Unit 7 which yielded four large basin metate fragments, only Units 1 and 5 did not yield mano fragments. Unit 10 yielded two mano fragments. The mano fragments were found at depths ranging from 0-40 cm but most commonly from 20-40 cm (see Table 15). Nearly all of these mano fragments had been recycled as hearth stones.

wavy lines represent cortex; stippled areas represents battering



ACTUAL SIZE

Figure 22: Multipurpose Tool (Cat. #142) from 20-30 cm, Unit 4

Table 15: Groundstone Tools Recovered From SDI-9537/H

Cat#	Type	Unit	Depth (cm)	Quad	Material	Shaped	Ground Surfaces	Profile	Fire-Altered	L (cm)	W (cm)	T (cm)	Depth (cm)	Wt. (g)	End Battered	Remarks
1	mini-metate fragment	NA	surface	NE	granitic	yes?	1	Concave	yes	12.1	11.0	4.1	<0.5	750	?	shaped edge
2	mano	NA	surface	SW	granitic	yes	2	slightly convex	no	11.9	9.8	5.0	NA	1110	no	oval shaped
13	mano fragment	NA	surface	NW	volcanic	no	1	slightly convex	yes	9.0	7.0	6.0	NA	427.1	?	only slight wear, found on slope
14	basin metate fragment	NA	surface	SW	granitic	yes?	1	Concave	no	17	14	9.5	1.5+	360	NA	found on slope
103	mano fragment	2	30-40	SW	granitic	no	2	Convex	yes	4.7	7.2	4.1	NA	200.7	yes	
113	mano fragment	3	0-10	SW	granitic	yes?	1	Convex	yes	11.2	8.7	5.0	NA	604.3	no?	one face missing
195	basin metate fragment	7	50-60	NE	granitic	no?	1	Concave	no	40	27	10.7	4.8	1762	NA	west wall of Unit 7
196	basin metate fragment	7	50-60	NE	granitic	no?	1	Concave	no	45	25	12.8	1.3	1962	NA	south wall of Unit 7
197	basin metate fragment	7	40-50	NE	granitic	no?	1	Concave	no	31	36	11.2	5.5	1723	NA	
201	basin metate fragment	7	50-60	NE	granitic	no?	1	Concave	no	22	18	11.8	2.5+	617	NA	
206	mano fragment	8	10-20	NE	granitic	?	1	slightly convex	?	5.9	6.5	3.8	NA	75.8	no	one face missing
214	mano fragment	9	30-40	SE	granitic	yes	2	convex & nearly flat	yes	11.8	6.2	5.7	NA	557.0	no	
242	mano fragment	10	20-30	NW	granitic	?	2	convex & ?	yes	5.8	5.9	4.8	NA	161.2	?	
310	metate fragment	4	20-30	SW	granitic	?	1	Concave	yes	14.6	10.0	8.4	<0.5	1490	NA	2 frags; cracked
311	basin metate fragment	4	30-40	SW	granitic	yes?	1	Concave	yes	12.1	12.2	6.0	2.0+	940	NA	concave bottom not worn
312	mano fragment	10	20-30	NW	granitic	?	2	convex & flat	yes	5.5	4.4	4.8	NA	138.6	no?	cracked and reddened

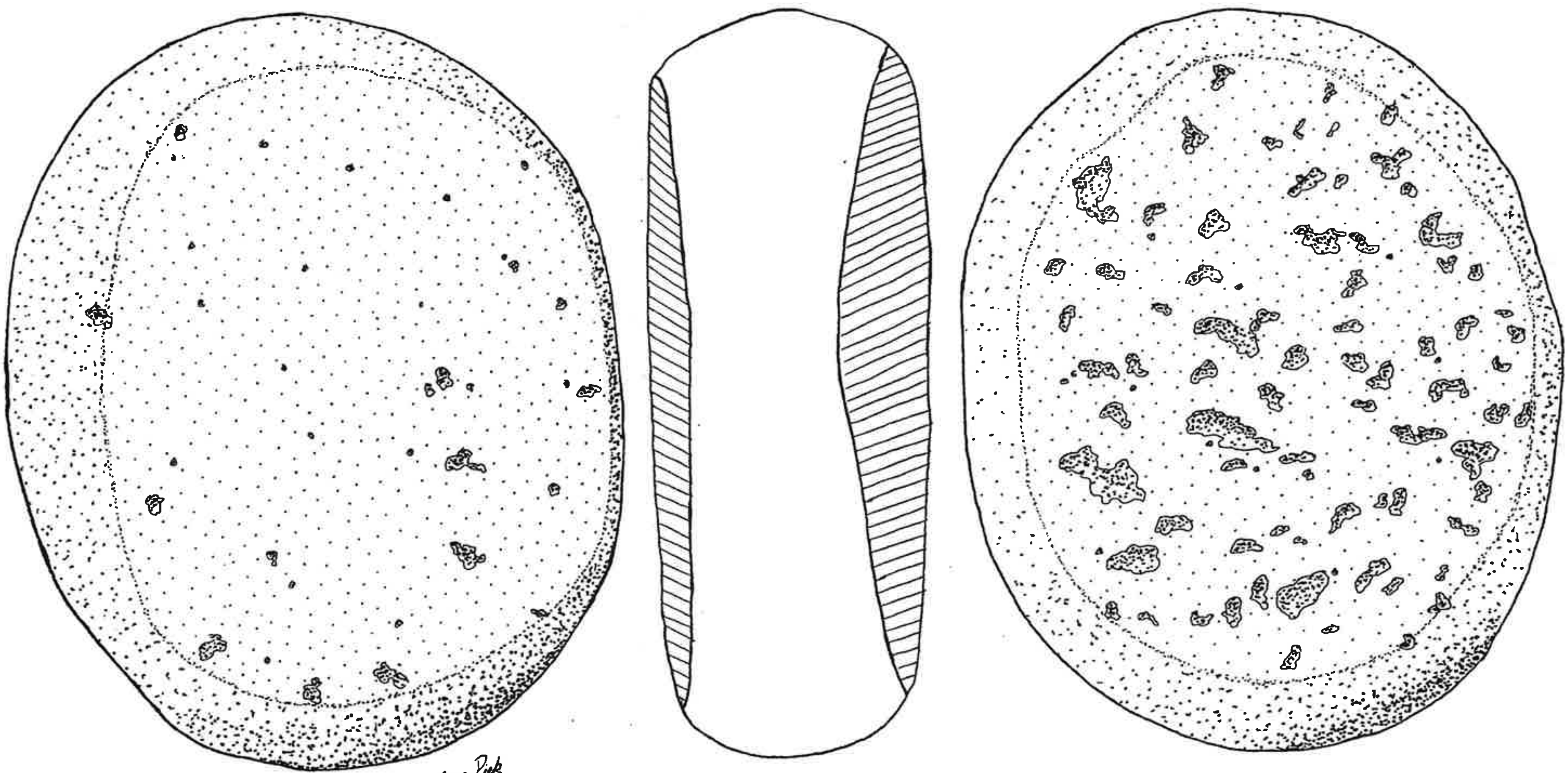
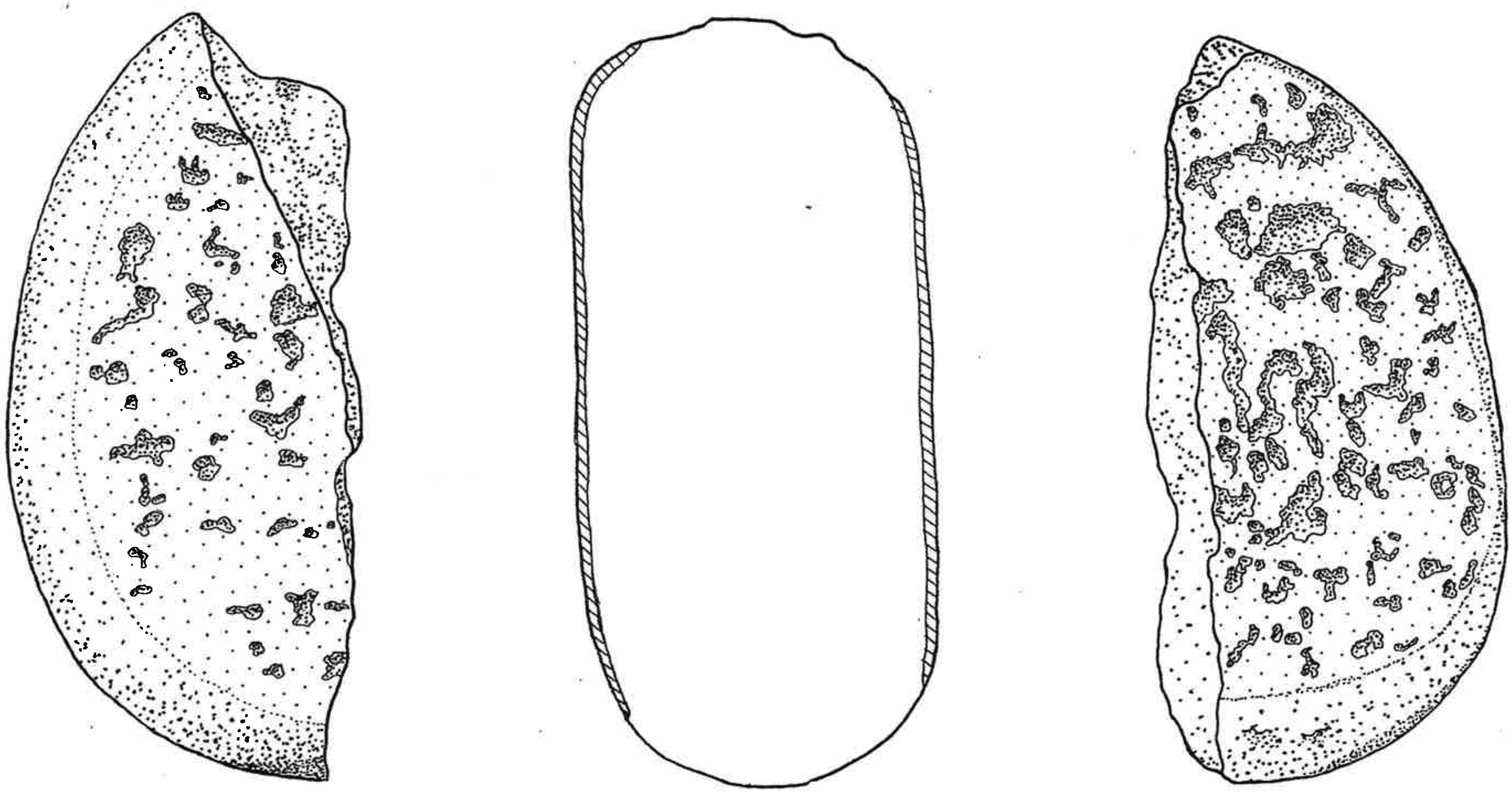


Figure 23: Bifacial Mano (Cat. #2) from Surface



ACTUAL SIZE

Figure 24: Bifacial Mano Fragment from 10-20 cm in Unit 9 (Cat. #214)

6.7.2 Metates

Mini-Metate

This groundstone tool was initially thought to be a unifacial, granitic mano with the opposing side missing. Upon closer examination, however, the ground surface is slightly concave and it appears to be a large fragment of a small or mini-metate. It was recovered from the surface in 2001 south of Unit 8 in the northeast quadrant (see Figures 6 and 8). It has one formed edge suggesting it may have been shaped. It measures 12.1 x 11.0 x 4.1 cm and weighs 750 g. It is illustrated in Figure 25.

Five Large Basin Metate Fragments

Four large, thick and heavy granitic basin metate fragments were recovered from 40-60 cm in Unit 7 in the northeast quadrant of the site (Cat. Nos. 195-197 and 201)(see Figures 15 and 16 above). Three of four are deep basin metates with depths ranging from 2.5+ to 5.5 cm. The fourth has a depth of only 1.3 cm (Table 15). In principle these metates are portable but barely so. Their weights range from 617 g for the smallest fragment to 1.96 kg for the largest. The other two each weigh over 1.7 kg (see Table 15). These metates were heavily worn, but none of them show evidence of fire-alteration. The manos that would have been used in these metates would have had relatively convex surfaces. It is interesting that only one complete mano was recovered from SDI-9537/H and it has only slightly convex surfaces. Where have all the manos gone? Perhaps the answer lies in the total of 48 manos previously collected from the surface, many of which are convex in profile (True and Beemer 1982:239, 242-243). The metates recovered from the test excavations are illustrated in Figures 26-29.

The fifth large basin metate fragment (Cat. No. 14) was recovered from the surface on a slope in the southwest quadrant (see Figures 6 and 8). It is granitic, appears to have been shaped, and is not fire-altered. It weighs 360 g and measures 17 x 14 x 9.5 cm. It has a depth of 1.5+ cm. It is shown in Figure 30.

Two Metate Fragments from Hearth Feature in Units 2 and 4

Finally, two granitic metate fragments were recovered from just above and within the hearth feature in Unit 4 (see Figures 12 and 13 above). Both have been fire-altered. One is very thick and falling apart due to fire alteration (Cat. No. 310). It measures 14.6 x 10.0 x 8.4 cm and weighs 1.49 kg. It is only slightly concave. The second found within the hearth feature is more deeply concave with a depth of 2.0+ cm (see Table 15). It weighs 950 g and measures 12.1 x 12.2 x 6.0 cm. The base of this metate fragment is also concave but shows no sign of wear. It is illustrated in Figure 31.

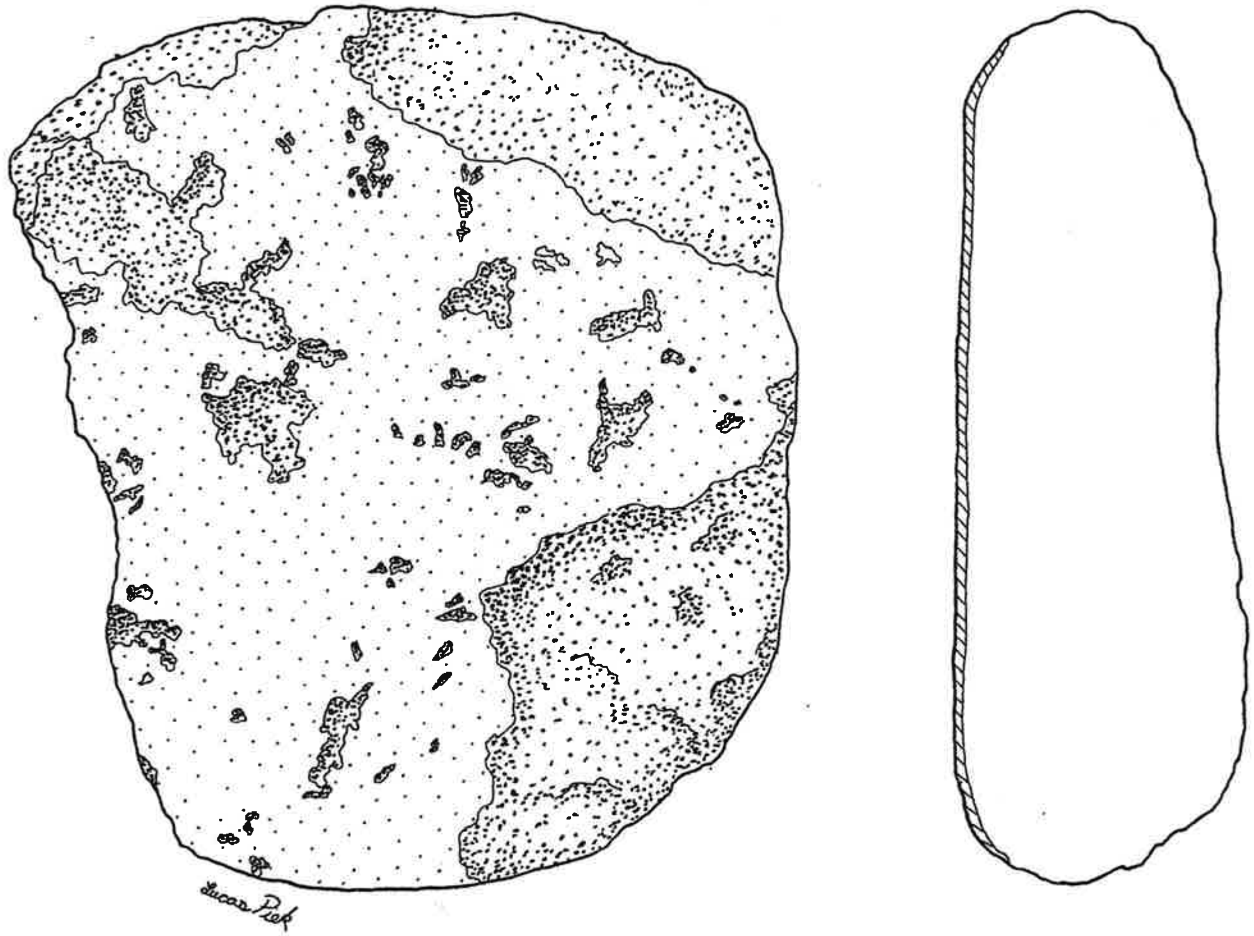
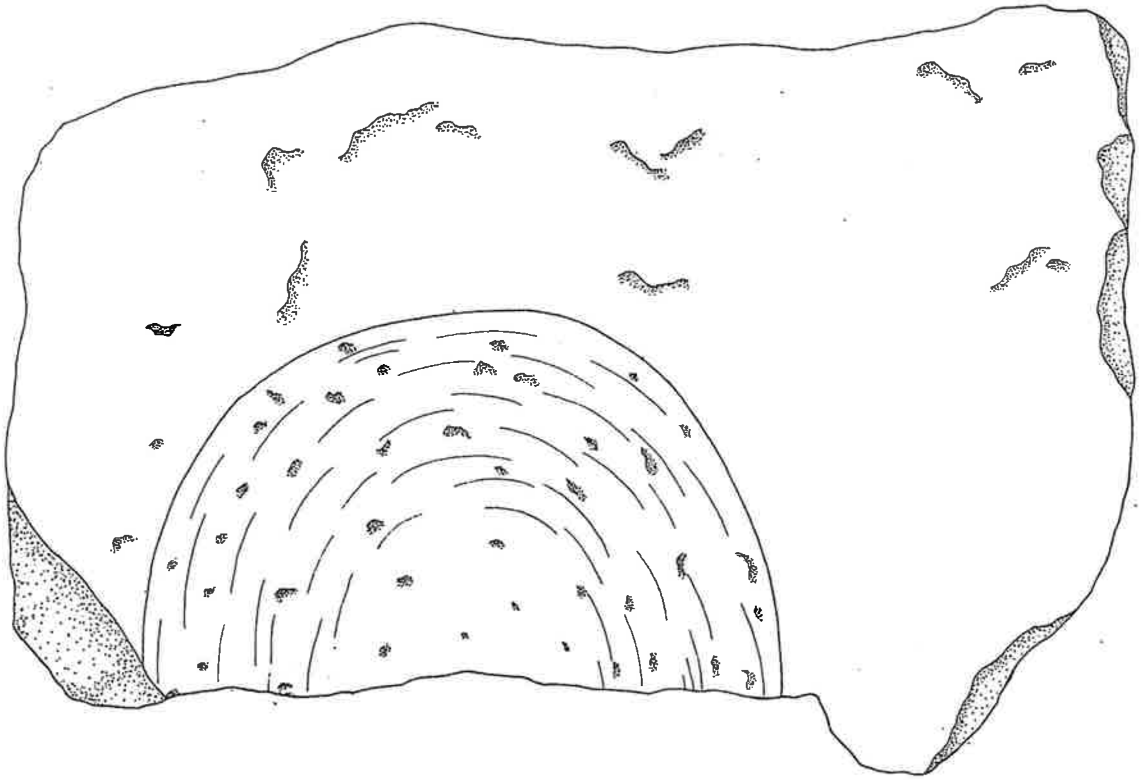


Figure 25: Mini-Metate Fragment (Cat. #1) from Surface



40% OF ACTUAL SIZE

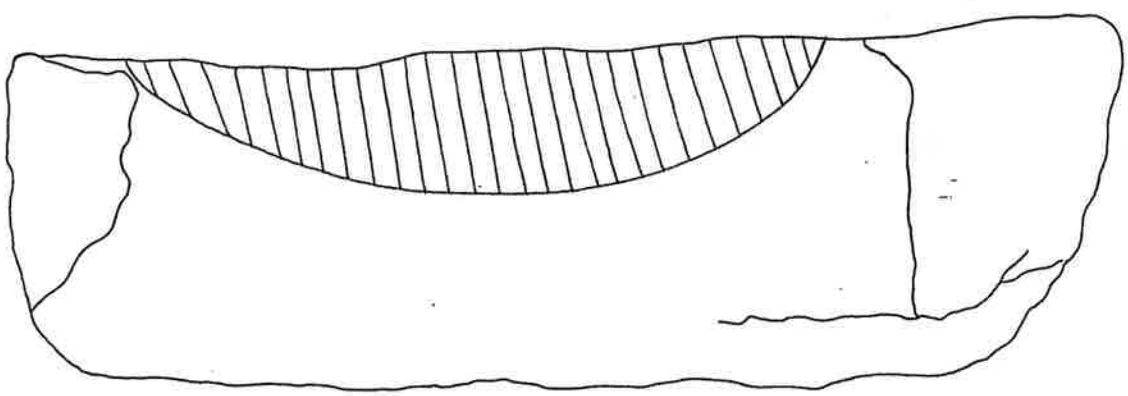
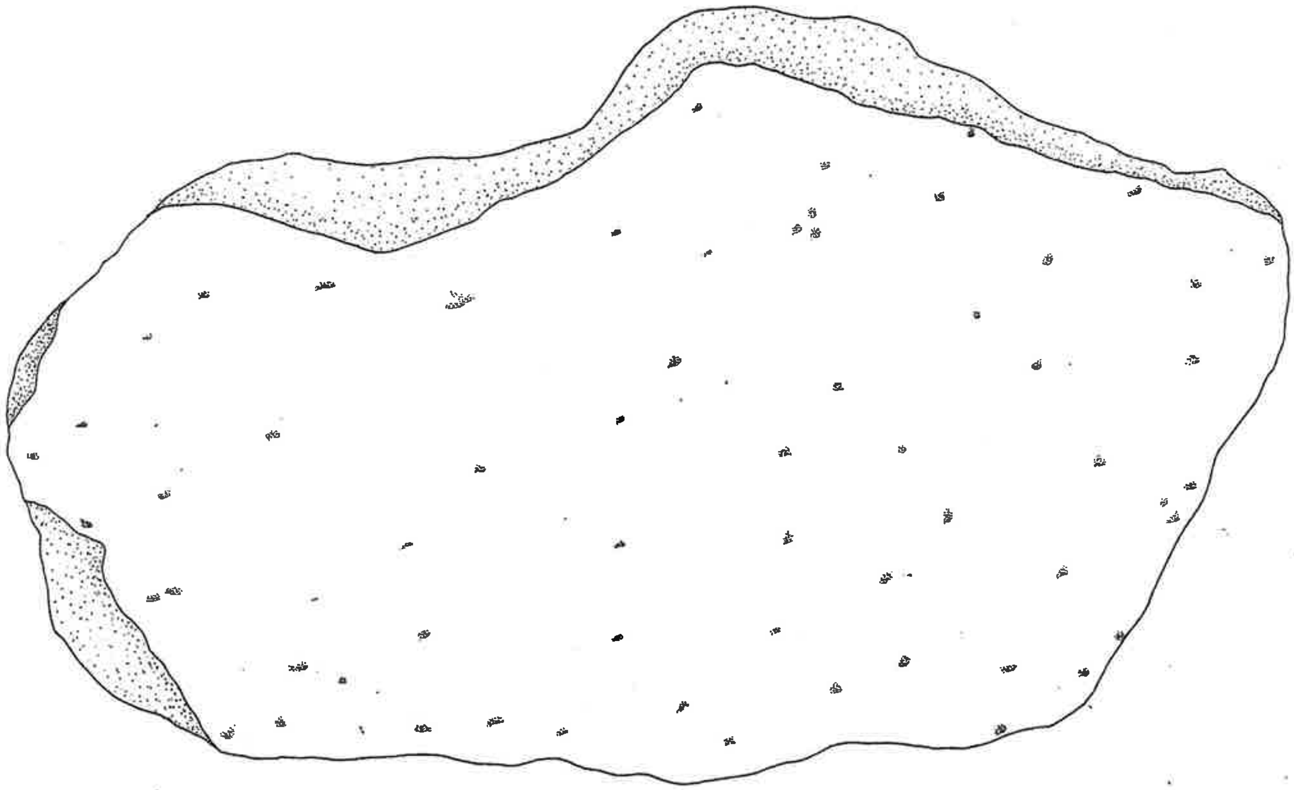


Figure 26: Basin Metate Fragment (Cat. #195) from West Wall, Unit 7



40% OF ACTUAL SIZE

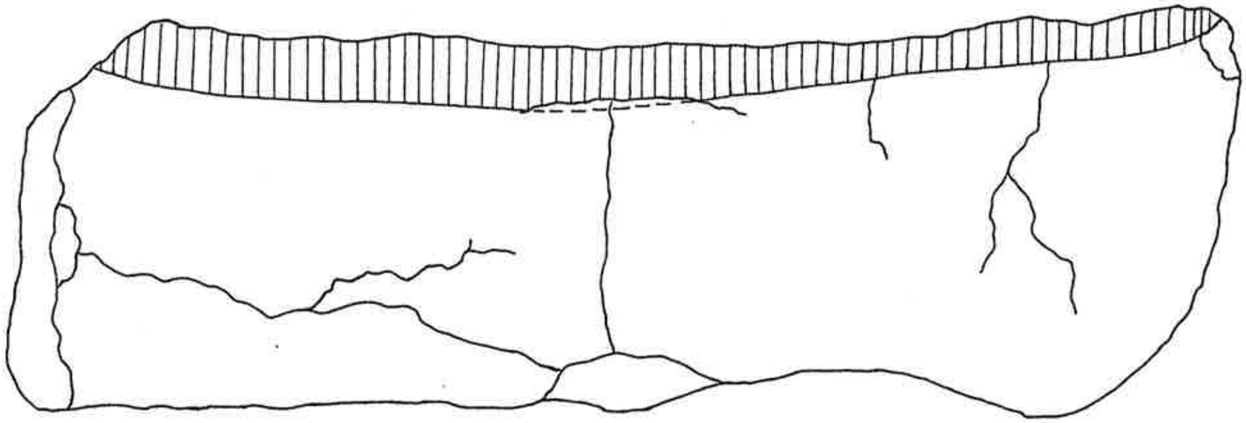
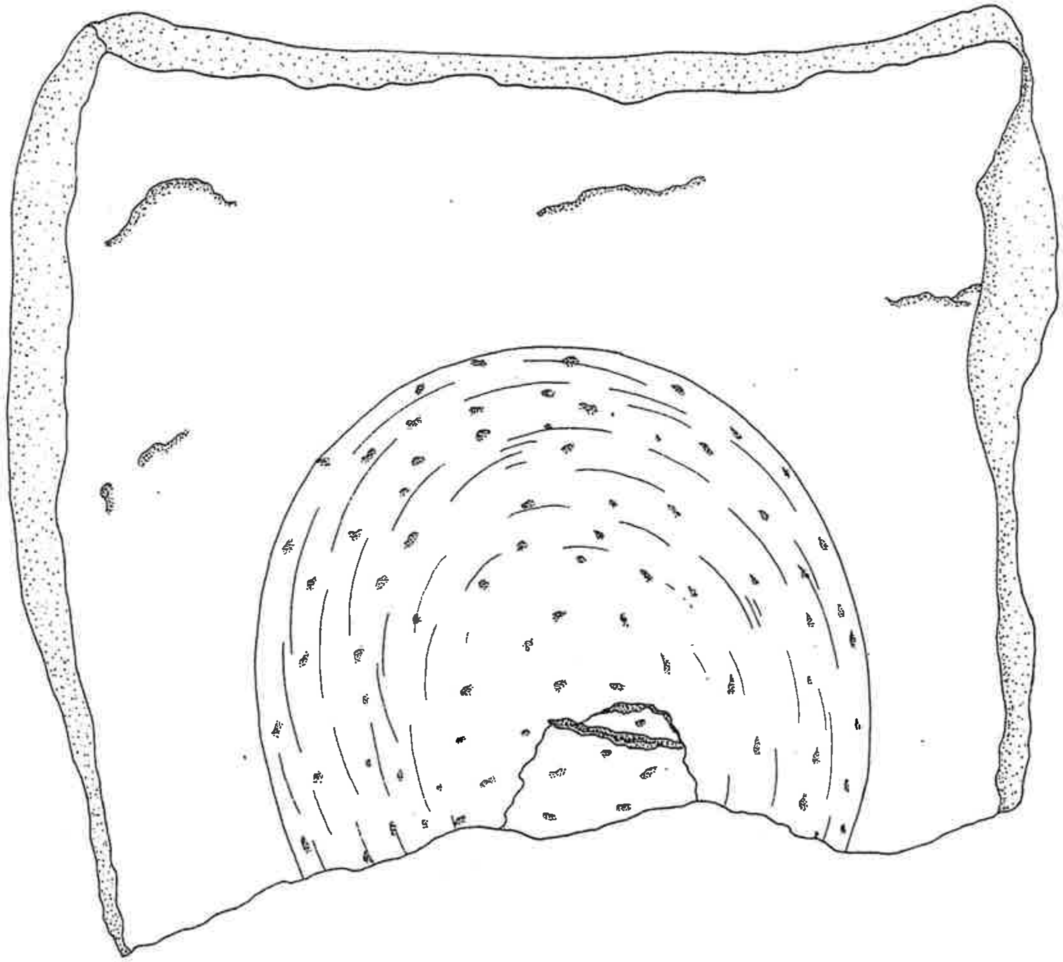


Figure 27: Basin Metate Fragment (Cat. #196) from South Wall, Unit 7



40% OF ACTUAL SIZE

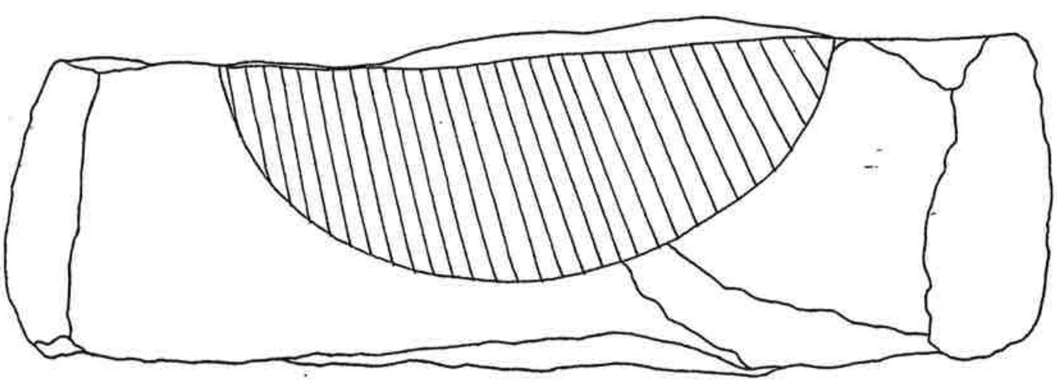


Figure 28: Basin Metate Fragment (Cat. #197) from 40-50 cm, Unit 7

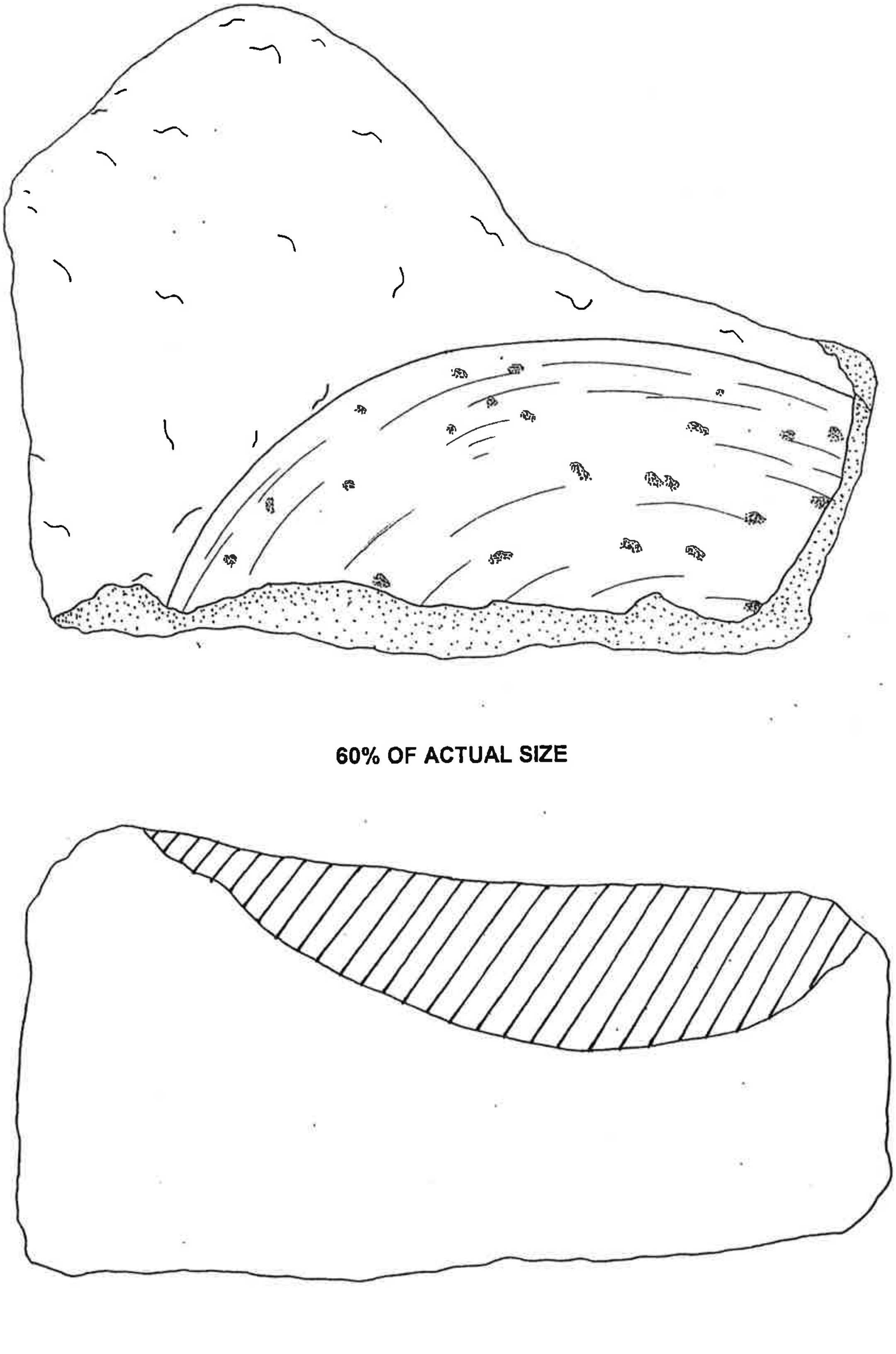


Figure 29: Basin Metate Fragment (Cat. #201) from 50-60 cm, Unit 7

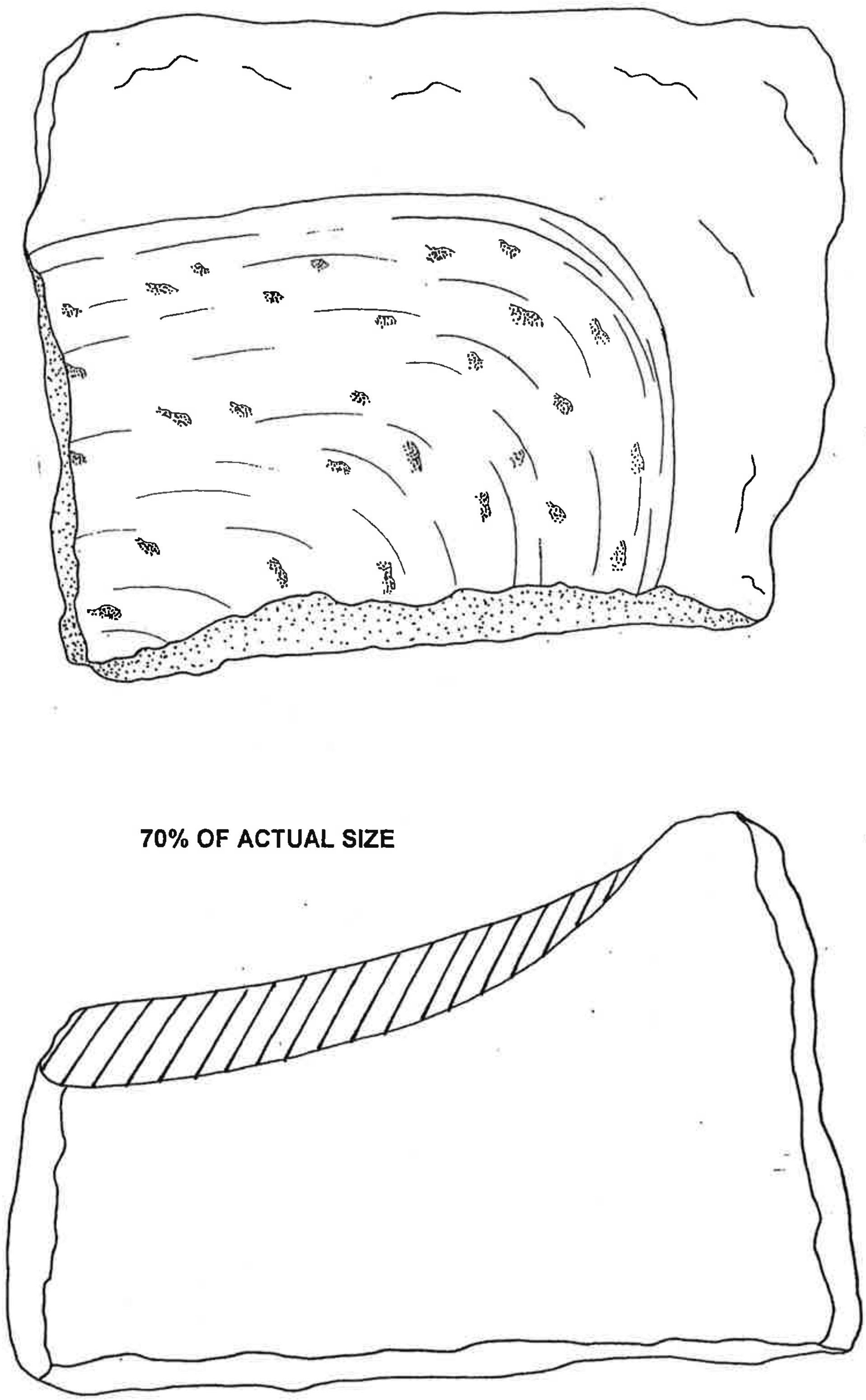


Figure 30: Basin Metate Fragment (Cat. #14) from Surface

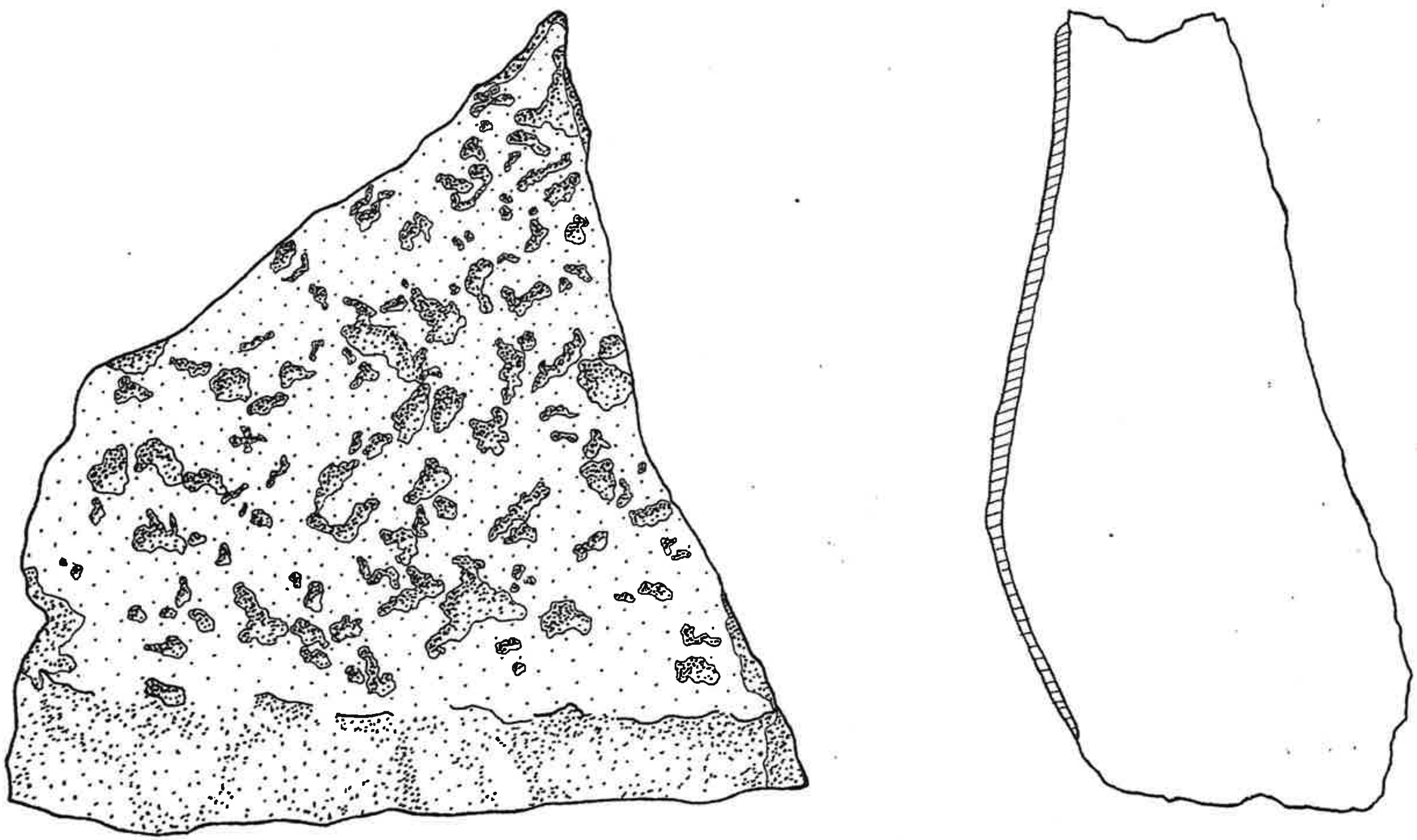


Figure 31: Basin Metate Fragment (Cat. #311) in Hearth, 30-40 cm, Unit 4

6.8 OBSIDIAN SOURCING AND HYDRATION STUDIES

Five artifacts made from obsidian were recovered from SDI-9537/H. They include three late stage biface thinning pressure flakes, a small biface fragment, and the base of a side-notched arrow-sized point recovered from the surface between Units 3 and 5. The others came from the excavation of Units 1, 2 and 5, all in the southwest quadrant of the site. All of these were sent to Dr. Richard Hughes for geochemical sourcing, except for the flake from Unit 5 which was discovered after the samples had been sent. The samples were then sent to Tom Origer for measurement of the hydration band in microns. The results of these sourcing and hydration studies are summarized in Table 16 below:

Table 16: Obsidian Sources and Hydration Values for SDI-9537/H

Cat. No.	Provenience	Artifact Type	Source	Hydration Value
71	Surface	base of side-notched arrow point	unknown	13.5 microns
80	Unit 1, 20-30 cm	biface fragment	Coso, West Sugarloaf	7.3 microns
97	Unit 2, 10-20 cm	pressure flake	Coso	7.8 microns
109	Unit 2, 40-50 cm	pressure flake	Coso	7.2 microns
313	Unit 5, 30-40 cm	biface thinning flake	not sourced	unknown

All of the sourceable obsidian comes from the Coso Volcanic Field, with one specimen sourced to the Sugarloaf locality. The hydration readings all indicate an Archaic Period occupation. This will be discussed in more detail under site temporal placement in Section 6.13 below.

6.9 FIRE-ALTERED ROCK

A total of 62.22 kg of fire-altered rock (FAR) was recovered from nine of 10 excavation units and one STP at SDI-9537/H as shown in Table 17 below:

Table 17: Distribution of Fire-Altered Rock (FAR) at SDI-9537/H

	Excavation Units and FAR Weight in Kilograms											
10-cm Level	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**STP1**	**Level Totals**
0-10	1.70		**0.60**	0.91				0.07		0.30		**3.58**
10-20	0.70	0.11	0.20	0.49				0.24		1.89		**3.63**
20-30		0.17		**9.97**		0.08	0.58			**2.90**		**13.70**
30-40		**7.65**		**20.89**			1.50		**0.56**	0.74	3.95	**35.29**
40-50		1.46		0.70			2.15		0.19			**4.50**
50-60		0.91					0.61					**1.52**
ALL	**2.40**	**10.30**	**0.80**	**32.96**	**0.00**	**0.08**	**4.84**	**0.31**	**0.75**	**5.83**	**3.95**	**62.22**

Bolded 10-cm level weights include recycled mano or metate fragments (see Table 15).

Excluding Unit 6 excavated on a slope, and Unit 8 which was in an area recently disturbed by the construction of small horse corral, these figures show that FAR is widespread at SDI-9537/H in all four quadrants of the site. This suggests widespread cooking activities and tends to confirm this site was a relatively intensively used occupation site. However, it is important to note that 70% of the FAR comes from Units 2 and 4 and its associated hearth feature. Nonetheless, there are significant amounts of FAR in Units 7 and 10 as well. Lesser amounts are present in Units 1 and 9. The low level in Unit 9 is interesting as it was extremely rich in discarded animal bone remains (see Section 6.11 below).

6.10 CERAMICS

6.10.1 <u>General Descriptive Data</u>

A total of 24 sherds of Brownware ceramics were recovered from SDI-9537H (see Table 18). All of these ceramics were recovered from the northwest and southwest quadrants (western half) of the site. Eight sherds were noted on the surface and collected in 2001 and a ninth was found near Units 2 and 4 in 2005. Another 15 sherds were recovered from test units 2, 3, 5 and 10. As can be seen in Table 16, all of the subsurface sherds come from the upper 20 cm of the deposit, except for one sherd from the 20-30 cm level in Unit 5. These data tentatively suggest that the later Late Prehistoric occupation of SDI-9537/H was limited to the west side of the site.

Most of the sherds are body sherds with three neck sherds (Cat. Nos. 6, 230a and 237a; see Table 18). No rim sherds were recovered that might provide data on vessel form. Sherd thickness is typically 5-6 cm but there is one sherd that is 10 cm thick (Cat. No. 85a), suggesting a fairly robust vessel of unknown function. The interior and exterior colors are most often various shades of brown, including gray brown, light brown, brown, tan brown, orange tan brown, dark brown, and reddish brown. Carbon cores, seen in cross-section in the paste, are common. As for surface treatment, typically the exterior of vessels are semi-smoothed to smoothed, but two sherds have burnished exteriors (Cat. Nos. 85a and 85b) and a third (Cat. No. 230b) is smooth to burnished on the interior and burnished on the exterior. One sherd had an unsmoothed interior and another an unsmoothed exterior (Cat. Nos. 72 and 230a). Fire clouds occur on three sherds (Cat. Nos. 9, 116, and 230a). Soot is present on the exterior of one sherd (Cat. No. 7) suggesting it was a cooking vessel. Three sherds have black exteriors and at least two may have been smudged (Cat. Nos. 10, 85d and 230b). Only two sherds clearly fit together (Cat. Nos. 160b&c). The mean vessel wall thickness is 6 mm (n = 23; the two conjoined sherds were counted once). Thickness ranges between 4.5-10 mm with most sherds ranging between 5-6 mm.

Table 18: Ceramic Attributes of Sherds Recovered from SDI-9537/H

Cat. #	Unit	Level (cm)	Length (cm)	Thickness (mm)	Vessel Portion	Surface Color		Paste Color	Core Type	Surface Treatment		Conjoins	Thin Section
						Int	Ext			Int	Ext		
4	NA	surface	2.4	5	body	TB	B	TB-GB	sand.	S	S	no	no
5	NA	surface	2.3	6	body	DG	B	Bl	full	S	S	no	no
6	NA	surface	2.0	6	neck	DTB	TB-LB	TB-GB	sand.	SS	S	no	no
7	NA	surface	2.5	5	body	GB	Bl w/ soot	DB	?	SS	S	no	no
8	NA	surface	2.9	5	body	OT	B	GB-TB	ExtE	SS	S	no	no
9	NA	surface	3.8	6-7	body	TB	B & FC	B-GB	ExtE	SS	S	no	no
10	NA	surface	2.0	5	body	LB	very Bl	B-Bl	ExtE	S	SS	no	no
11	NA	surface	3.3	4-5	body	GB	LB*	GB-LB	ExtE	SS	S	no	no
72	NA	surface	3.4	6	body	DB	B	Bl-DB	ExtE	US	SS	no	no
85a	2	0-10	4.0	10	body	RB	B	GB	full?	SS	SS	no	yes
85b	2	0-10	2.7	6	body	B	Bl	DB-Bl	ExtE	SS	B	no	yes
85c	2	0-10	1.4	8	body	TB	LB	GB-TB	ExtE	SS	B	no	no
85d	2	0-10	1.4	5-6	body	GB	Bl, Sm	TB	none	SS	S	no	no
116	3	0-10	3.6	7	body	GB	B-Bl, FC	DB	none	SS	S	no	yes

Table 18: Ceramic Attributes of Sherds Recovered from SDI-9537/H (cont'd)

Cat. #	Unit	Level (cm)	Length (cm)	Thickness (mm)	Vessel Portion	Surface Color		Paste Color	Core Type	Surface Treatment		Conjoins	Thin Section
						Int	Ext			Int	Ext		
160a	5	2	2.8	8	body	GB	B	BL-DB	ExtE	SS	S	no	no
160b	5	2	3.8	6	body	Bl	B	TB-GB to Black	IntE	SS	SS	yes with 160c	no
160c	5	2	3.8	6	body	Bl	B		IntE	SS	SS	yes with 160b	no
160d	5	2	0.8	5	body	TB	B	TB-B	none	SS	S	no	no
163	5	3	1.7	5	body	OTB	TB	TB-B	none	SS	S	no	yes
230a	10	1	2.5	7	neck	G-LB	B & FC	GB-B	sand.	SS	US	no	yes
230b	10	1	3.3	5	body	Bl	Bl, Sm	Bl	full	S-B	B	no	no
230c	10	1	1.1	6	body	GB	GB	GB-TB	sand?	S	S	no	no
230d	10	1	1.0	5	body	G-TB	GB	TB	none	S	S	no	no
237a	10	2	2.4	6	neck	Bl	B	Bl-B	ExtE	SS	SS	no	no

Interior = Int; Ext = exterior
Surface & Paste Colors: B = Brown; TB = Tan Brown; OTB – Orange Tan Brown; LB = Light Brown; DB = Dark Brown; Bg = Beige; G = Gray; G-Bl = Gray-Black; Bl = Black; GB = Gray Brown; RB = reddish brown; FC = fire cloud
Core type: sand. = sandwich core (located in the middle of the sherd); side = core on interior or exterior edge; full =– solid core throughout
Surface Treatment: US = Unsmoothed; S = Smoothed; SS = Semi-Smoothed; B = Burnished; Sm = smudged

6.10.2 Petrographic Thin Sections

The sherds were sent for petrographic thin section analysis by Monica Guerrero of Gallegos and Associates (see Appendix E). The goal was to determine whether the clays used for the making of the ceramic vessels were from the San Diego coastal plains, the Peninsular Range or the Salton Trough in the desert. As Guerrero notes, the coast and desert regions contain alluvial clays that are derived from marine and lacustrine sedimentary rock, whereas the mountains of the Peninsular Range have residual clays derived from gabbroic-granitic rocks. Once the type of clay is determined through petrographic thin sections, it is then possible to determine the basic ceramic ware: Tizon Brown, Salton Brown, or Lower Colorado Buff (see Appendix E).

The 24 ceramic sherds recovered from SDI-9537/H were placed into different sample groups based upon mica (biotite and muscovite) concentration, sherd thickness, surface color, and core color. Sherds with recent broken edges were checked to see if they mended with other sherds in the sample group. These procedures reduce the possibility of studying sherds from the same ceramic vessel. Five sherds were selected from the 15 sherds obtained from subsurface contexts: Cat. Nos. 85a, 85b, 116, 163. and 230a. The results of the mineral counts within the petrographic thin sections are presented in Table 19 below:

Table 19: Results of Petrographic Analysis of Sherds from SDI-9537/H

Cat. No.	Amphibole	Plagioclase	Biotite	Muscovite	Quartz	Clay/Matrix
85a	13%	18%	7%	6%	48%	8%
85b	25%	12%	1%	1%	58%	3%
116	17%	7%	2%	0%	55%	19%
163	21%	11%	6%	4%	53%	5%
230a	16%	23%	1%	3%	50%	7%

The high frequency of amphibole indicates that these sherds are all Tizon Brownware. There appears to be no Salton Brown from the desert. There is no evidence of transport of clay resources or pottery from the desert westward or from the coast eastward (see Guerrero in Appendix E). The inhabitants of SDI-9537/H appear to have used local clays to make their pottery or obtained their pottery from other peoples (locales) in the mountains.

6.10.3 Could the Tizon Brownware Be From the Historic Period?

This is a hypothesis that cannot be ruled out. As will be shown in Section 7, the attributes of the Tizon Brownware ceramics from SDI-9537/H tend to be somewhat similar to historic period Tizon Brownwares (see de Barros 1997), though not definitively so. Moreover, their distribution corresponds to the historic artifact scatter associated with the homestead, and not with the prehistoric site boundaries. However, it is also possible that the later Late Prehistoric occupation of SDI-9537/H was smaller in area and just happened to be on the west side of the paved road.

6.11 FAUNAL REMAINS

6.11.1 Species and Mammal Size Representation

Faunal remains were sent to Patricia Mitchell for analysis (see Appendix F). A total of 2,123 fragments weighing 278.1 g were recovered from the 0-80 cm levels of nine excavation units (all but Unit 8) and four STPs (1-3 and 9) (see Figure 8).

Eight animal species were identified from 47 (2.2%) of the 2,123 bones. The distribution of these species by Number of Individual Specimens (NISP) and Minimum Number of Individuals represented (MNI) is presented in Table 20 below:

Table 20: Classification of Faunal Remains at SDI-9537/H

Species or Mammal Size	NISP	%	MNI
black-tailed jackrabbit (*Lepus californicus*)	5	0.2	1
California ground squirrel (*Spermophilus beecheyi*)	1	<0.1	1
desert cottontail rabbit (*Sylvilagus audubonii*)	17	0.8	4
Botta's pocket gopher (*Thomomys bottae*)	1	<0.1	1
other small mammal	696	32.8	NA
coyote (*Canis latrans*)	1	<0.1	1
other medium mammal	158	7.4	NA
mule deer (*Odocoileus hemionus*)	15	0.7	1
other large mammal (includes Artiodactyla)	1222	57.5	NA
southwestern pond turtle (*Clemmys marmorata*)	6	0.3	1
bat ray (*Myliobatos californica*)	1	<0.1	1
All Faunal Remains	**2,123**	**100.1**	**11**

Throughout the site the greatest animal food resource was identified as large-sized mammal, specifically mule deer. If you combine the unidentified large mammal and mule deer totals, deer represents 58.2% of the total faunal assemblage. It is possible that pronghorn antelope may also be included, but it is very difficult to distinguish its bone from those of mule deer. It is unlikely that elk or mountain sheep would be part of the faunal assemblage as their past native habitats did not include this region (see Moratto 1984:Figure 1.12). Future protein residue analyses from flaked and groundstone tools may shed more light on this. This dominance of deer as a major food source, as opposed to rabbit, is somewhat unusual in this part of San Diego County (Mitchell, personal communication, 2005). It likely this is due to the site's location in hilly terrain above the narrow canyon cut by the San Luis Rey River, which was probably a migration corridor for deer.

The presence of an occasional coyote bone is not unusual at California Indian sites. The bone is burned indicating it was probably cooked and eaten and is not intrusive to the site. The relative paucity of gopher bones is interesting as they are often found in large numbers at some sites due to burrow deaths and the like.

The presence of southwestern pond turtle is interesting as it is not found at many prehistoric Indian sites in southern California. Its presence clearly depends upon the existence of stable water pools which were likely present in certain areas of the San Luis Rey River during certain periods of the past. The fact that six bones were recovered indicates it was complementary to the local diet.

Finally, the presence of bat ray is somewhat enigmatic but interesting. This is a marine species. Only one bone was recovered but it suggests contact with coast at the very least.

6.11.2 Spatial Distribution of Animal Bone at SDI-9537/H

The majority of the bone recovered was from Unit 9 (64.4%), with smaller amounts coming from Units 2 and 4 (5.7% and 16.6%, respectively), and Unit 10 (2.3%). The remaining four units (1, 3, 5-7) and STPs (1-3, 9) contributed 1% or less each. Most of the bone was recovered from the upper 60 cm. Only two units were excavated below these depths (Units 7 and 9) and relatively little bone was recovered at these depths. In general, it is striking how Unit 9 represents far higher densities of faunal remains and debitage than any other unit at SDI-9537/H. Given that this was the only unit excavated in the southeast quadrant of the site, who knows what other riches this portion of the site may contain. The concentration of burned animal bone with relatively little fire-altered rock and the high debitage densities makes one wonder whether it represented both a refuse area and an area where flintknapping occurred at the site.

6.11.3 Burned Bone and Food Processing

According to Mitchell (see Appendix F), nearly all of the bone recovered from the site showed evidence of burning – an astounding 92.2%! It is rare that such high percentages of burnt bone are recovered. Of the 1,957 burnt bones, 72.2 % were burned brown in color which indicates exposure to heat but not to direct flame. This suggests that these animals were cooked in some type of container (e.g., pottery, stone, basketry). Bones burned brown include those of coyote, southwestern pond turtle, black-tailed jackrabbit, mule deer, California ground squirrel, desert cottontail rabbit, bat ray, and pocket gopher as well as small, medium and large mammal bone (see Mitchell in Appendix F:Table 5).

Bones burned black in color represent 3.8% (n=75). This coloring suggests these bones were burned during roasting or that they were discarded in a fire hearth. Mitchell notes that Wing and Brown (1979:109) indicate that roasting tends to char only the exposed ends of bone, whereas the bones at SDI-9537/H tended to be blackened in their entirety. This suggests that they were discarded in a hearth rather than being roasted. Burned black bones were identified in the small, medium and large mammal categories.

Calcined specimens represented 19.0% (n=372) of the bones. These were exposed to a direct flame at extremely high temperatures (above 800° Celsius). Of the 372 calcined bones, six large mammal bones exhibited signs of shrinking or warping, which indicates there was soft tissue on the bone at the time the bones were exposed to an open flame (see Mitchell in Appendix F). These six calcined bones showing warping and shrinking were recovered from the 40-50 cm level of Unit 9, which also had mule deer remains. It is possible that these six calcined bones represent deer meat that was accidentally burned. The rest of the black bones probably represent discarded waste in a fire hearth. Other animal species aside from mule deer included in this blackened bone category are southwestern pond turtle, black-tailed jackrabbit, and desert cottontail rabbit.

Mitchell identified 32 bones which exhibit cut marks showing they were butchered. All of these bones are large mammal and probably represent the butchering of mule deer. All of them but one were burned and all of these but two were burned brown, suggesting cooking in a container. The cut marks were wide, deep marks showing evidence of chipping of the cortical bone that surrounds the impact point (see Mitchell in Appendix F).

6.11.4 Non-Food Uses of Animals Exploited

As noted in Mitchell's report, deer was an important food resource but also useful for preparing hides for clothing and hooves for rattles. Southwestern pond turtle was used for food, ceremonial rattles, medicines, and its shell was sometimes carved into ladles, scoops, bowls, and containers. It was often symbolically represented in Indian artwork and spoken of in oral traditions (see Mitchell in Appendix F).

6.12 BONE ARTIFACTS

Three bone artifacts were recovered from SDI-9537/H. One (Cat. No. 329) was recovered from the 50-56 cm level of Unit 2. It is a modified tip fragment that has been burned brown, shaped, and polished. It was manufactured from a long bone splinter of a medium-sized mammal. No striations or usewear other than polish is present, and therefore no functional category could be assigned to this artifact.

The other two artifacts (Cat. No. 330) were both recovered from the 0-10 cm level of Unit 9. They are both antler fragments. The larger one is calcined and the smaller one is burned brown. No usewear is evident on either specimen, but they are probably fragments of antler tines used in flintknapping. Gifford (1940:186) describes them as "flint flakers," and notes that such a specimen is present in the Luiseño ethnological collection (Gifford 1940:237, Figure 19).

6.13 FLORAL REMAINS

6.13.1 Analytical Samples

Two-liter per level soil column samples were collected from Units 2 and 9 for flotation and eventual analysis of charred plant, wood and seed remains by Dr. Virginia Popper at the Cotsen Institute of Archaeology at U.C.L.A. (Appendix G). These two units were chosen because they contained charcoal and were associated with a hearth feature on the one hand (Units 2 and 4) and with abundant animal bone (Unit 9) on the other. Unit 2 was also located within the boundaries of the prehistoric and historic components of SDI-9537/H and Unit 9 was located solely within the prehistoric component. In addition, charcoal samples from almost all of the units (except Unit 1) were sent for analysis, along with canisters of a similar black seed recovered from a wide variety of proveniences at the site. The latter are treated as an addendum to Popper's report at the end of Appendix G.

6.13.2 Identified Seeds , Fruits and Wood

According to Popper's study (Appendix G), the samples contained very few carbonized seeds and most of those came from the historic occupation of the site which is discussed further in Section 7 of this report. Filaree (*Erodium* sp. cf.) and mallow (*Malva* sp.) seeds were identified in the sample along with probably corn and olive seeds (see Section 7). In addition, burned wood samples were recovered and included wood from the sunflower family (Asteraceae), western sycamore (*Platanus racemosa*), poplar/willow (*Populus/Salix* sp.), oak (*Quercus*, sp.), sage (*Salvia* sp. cf.), and California Bay (*Umbellularia californica* cf.). What Popper identified as "Type A" wood may be from *Olea* sp. (olive), but the Institute does not have a comparative sample to confirm this identification. Type A wood is relatively common in the samples throughout the site.

6.13.3 Poor Preservation

The preservation of plant remains at SDI-9537/H is "extremely poor" according to Popper, for it is rare to find archaeological deposits in California with no trace of charcoal, even in the smaller fractions, yet four of the flotation samples contained no charcoal and the rest had low densities. Important here is that most of the samples are non-native species and show there was significant mixing of prehistoric and historic remains down to 30+ cm. The historic seeds are primarily maize and olive. In addition, burclover/alfalfa grows in disturbed and agricultural areas and filaree and mallow grow on disturbed soils, indicating these are remains of weeds growing in fields or around an occupation area. The rarity of seeds in the samples could indicate that plant processing and use were not important at this site, but Popper feels it is prudent to attribute the scarcity to poor preservation since most of the samples contained little or no charcoal (Popper in Appendix G).

6.13.4 Habitats Represented by Wood for Fuel and Other Purposes

Separating prehistoric and historic wood fuel specimens is somewhat difficult given that, aside from Type A which may be olive tree wood, the same wood types could have been used during both periods. Two or three different habitats were exploited for firewood. Most of the charcoal is Type A but also oak which grows near the site today. The oak wood may have been procured within either sage or chaparral vegetation. Sage and sunflower plants also commonly grow in these habitats. The rest of the identified charcoal probably came from riparian forests along Frey Creek or the San Luis Rey River. California Bay, western sycamore, and poplar/willow all do very well along streams and in other moist habitats. Since olive trees are not native to the area, charcoal from this species may be the result of a fire which destroyed olive trees planted on the property as it seems unlikely that the trees would have been planted for use as fire wood.

Popper (Appendix G) notes the following about the use of wood for other purposes than as fuel:

> Native California groups use these trees and shrubs for fuel and other purposes (Ebeling 1986; Strike 1994). Willow and poplar were used for fuel, construction material, baskets, and tools, among other items.

Sycamore was considered an excellent fuel source, and was commonly used in construction, for tools, and as a medicine. Oak bark and wood were used for medicines, fuel, building material, and for making utensils, and acorns were an important food source. Sage stalks, leaves and seeds were important resources for California Indians as food and medicine. California Bay fruit flesh was eaten raw or boiled; the seed kernels or cakes made from pounded kernels could be stored for later consumption. Although we have no evidence of uses other than fuel, these resources were available to the site inhabitants (Popper in Appendix G:5-6).

6.14 SITE TEMPORAL PLACEMENT

The period during which SDI-9537/H was occupied prehistorically can be examined using temporally sensitive artifacts, obsidian hydration measurements, and radiocarbon dates.

6.14.1 Temporally Sensitive Artifacts

These include primarily the presence of Tizon Brownware ceramics, the base of an obsidian side-notched projectile arrow point found on the surface, and the absence of deep bedrock mortars and pestles and the presence of deep basin metates and manos.

The presence of Tizon Brownware on the surface and in the upper 20+ cm of the deposit of the western half of the site suggests it was occupied during the late Late Prehistoric Period. The Luiseño began to use pottery rather late, perhaps the 17th or 18th century. However, it is possible that they could have traded for pottery from the Kumeyaay to the south where pottery is known from many centuries earlier. However, no Salton Brown ceramics, which would have confirmed this, were detected in the sample studied by Guerrero (see Section 6.10 and Appendix E). Finally, as noted in Section 6.10 above, it is also possible that the Tizon Brownware ceramics are from the Historic Period instead of the Late Prehistoric (see a more extended discussion in Section 7 below).

The base of an obsidian side-notched arrow-sized point again suggests the Late Prehistoric Period. However, there are two constraining factors. First, the point was found on the surface and could be from activities associated with other nearby sites, such as SDI-714, which contains Late Prehistoric Cottonwood Triangular points (see Section 5). This is perhaps supported by the fact that the ranch personnel, who have been associated with the ranch for a long time, have never found projectile points at this site before. Second, the hydration band reading from a broken edge of the point produced an astounding 13.5 micron value, a reading that is unfortunately cannot be converted to a time period because the obsidian is from an unknown source (Hughes and Origer in Appendices C and D).

The absence of stone bowls, deep conical mortars, and pestles at SDI-9537/H suggests it was not occupied significantly during the Late Prehistoric, but rather during the Archaic. However, it should be emphasized that the preparation of land for orchards on the property clearly involved the moving of large numbers of boulders from flatter surfaces into nearby ravines, and it is possible that there are bedrock mortars that are buried or are upside down in the piles of boulders located in a nearby drainage to the east.

No trade beads were recovered from the site either, which suggests that the site was not occupied by Indians through the Historic Period; however, the excavation sample is not large and 1/8" screens were used for wet screening which could have resulted in the loss of any beads present.

6.14.2 Radiocarbon Dates

Three charcoal samples were sent for radiocarbon dating to Beta Analytic, Inc.: two samples from Unit 2, a unit containing a hearth feature -- a sample from the sidewall at the 10-20 cm level and another sample recovered in the screen from the 40-50 cm level; and, a third sample from the 10-20 cm level of Unit 9, which contained abundant animal bone. The latter sample was the only charcoal sample of any size available from this unit. The other excavation units either contained little charcoal or its associations were questionable. The results (see Appendix H) were somewhat disappointing as shown in Table 21 below:

Table 21: Radiocarbon Dates from SDI-9537/H

Beta #	Provenience	RCYBP	Calibrated Age at 2 Sigma
205071	Unit 2, 10-20 cm	80 ± 40 BP	AD 1680 to 1740 AD 1800 to 1930 AD 1950 to 1960
205072	Unit 2, 40-50 cm	120 ± 40 BP	AD 1670 to 1950
205073	Unit 9, 10-20 cm	120 ± 40 BP	AD 1670 to 1950

In short, these radiocarbon dates could reflect modern disturbance or indicate at best a post-A.D. 1670 occupation. Given that the Tizon Brownware could be either from the historic or prehistoric periods, these dates do not provide any useful information; indeed, they tell us nothing about the Archaic Period occupation. It is strongly suggested that additional radiocarbon samples be dated using the bone from Unit 9, instead of charcoal. This can be economically done with AMS (Accelerator Mass Spectrometry) dating.

6.14.3 Obsidian Hydration Readings

Finally, there are the 7.2, 7.3 and 7.8 micron readings for three obsidian artifacts from Units 1 and 2 made from Coso obsidian that strongly indicate occupation during the Archaic (see Table 16 above).

Much work has been done on the Coso Volcanic Field and its calibrated obsidian hydration rate (see Gilreath and Hildebrandt 1996; Gilreath 1999). The first data set is for the Coso Volcanic Field and the second is said to be for Coso Lowland hydration rims. They are slightly different as shown in Table 22 below:

Table 22: Calibrated Hydration Data for Coso Obsidian

PERIODS (Bettinger and Taylor 1974; Gilreath and Hildebrandt 1996)	DATE RANGE (B.P.)	HYDRATION RANGES in Microns (Gilreath and Hildebrandt 1996) *Coso Volcanic Field*	HYDRATION RANGES in Microns (Gilreath 1999) *Coso Lowland*
Marana	650 - 200	2.5 – 4.2	<3.7
Haiwee	1275 - 650	4.2 – 5.6	3.7 – 4.9
Newberry	3500 - 1275	NA	4.9 – 7.6
Early Newberry	2300 – 1275	5.6 – 7.3	NA
Late Newberry	3500 – 2300	7.3 – 8.7	NA
Little Lake	5500 - 3500	8.7 – 10.6	7.6 – 9.2
Early	pre-5500	>10.6	>9.2

Using the Gilreath and Hildebrandt (1996) date ranges with and without correcting for ambient air temperature differences between San Diego County and the Coso Volcanic Field area, we see the following range of dates for SDI-9537/H presented in Table 23 below:

Table 23: Calibration of Coso Obsidian Hydration Readings

Unit	10-cm Level	Hydration Reading (microns)	Estimated Age Using Gilreath and Hildebrandt 1996	Age Calibrated for Effective Hydration Temperature [EHT for Cajon Pass] (Basgall 1990)
1	20-30	7.3	about 2300 B.P.	about 2788 B.P.
2	10-20	7.8	about 2730 B.P.	about 3252 B.P.
2	40-50	7.2	about 2235 B.P.	about 2700 B.P.

Basgall (1990) does not provide an Effective Hydration Temperature (EHT) for western San Diego County. A value for coastal Orange County is available, but SDI-9537/H is perhaps 30 miles inland from the coast. It was thought that the Cajon Pass EHT was the closest available estimate for the project region. Using the Cajon Pass EHT, the data presented in Table 23 indicate a later Archaic occupation between ca. 3252 to 2700 B.P. (or about 1247 – 695 B.C.).

The absence of Obsidian Butte obsidian may also suggest that any Late Prehistoric occupation at this site was not intensive.

In summary, SDI-9537/H appears to have been occupied during the later Archaic from about 1250 to 700 B.C. (based on the obsidian hydration readings). It may also have been occupied during the later Late Prehistoric (based on the Tizon Brownware sherds and perhaps the radiocarbon dates). However, if the Tizon Brownware ceramics are indeed associated with the Historic Period homestead occupation, then there is little solid evidence for a Late Prehistoric occupation other than a single projectile point fragment and radiocarbon dates which do not permit us to distinguish between an historic vs. a prehistoric occupation.

6.15 TRADE

The artifact and ecofact assemblage from SDI-9537/H suggest primarily the use of local materials. The bulk of the flaked stone assemblage is made from quartz and metavolcanic materials that were locally available. The presence of primary flakes and flakes with cortical platforms for the other materials suggest that chert, chalcedony, and quartzite were perhaps locally available as well. The groundstone assemblage is almost entirely granitic and such materials abound in the local drainages. The thin section analysis suggests the pottery assemblage is all Tizon Brownware and that trade with the desert and coastal regions are not indicated.

There are three exceptions to this: 1) the presence of five obsidian artifacts, at least three of which are from the Coso Volcanic Field near Ridgecrest about 300 miles to the north; 2) the presence of several flakes in Unit 1 which appear to be Piedra del Lumbre chert, though the color is not always what is typical of this material; and, 3) the presence of one burned bat ray bone which indicates at least minimal some contact with the coast.

Coso obsidian is present in small quantities in San Diego County during the Archaic Period, so its presence is not surprising here. It represents almost certainly the presence of a down-the-line trade system from its source, the Coso Volcanic Field near Ridgecrest about 300 miles away. The unknown obsidian source for the base of a side-notched arrow point is intriguing. Obsidian from unknown sources is not a common occurrence in San Diego County.

Piedra del Lumbre chert is characterized by clear crystal inclusions which tend to shimmer in the twilight and its color is usually yellowish to yellow orange. One flake of this type was recovered in the 10-20 cm level of Unit 1. However, at least seven other flakes made of chert with such clear crystals were also recovered: three others from the 10-20 cm level of Unit 1; and one each from the 0-10 cm level of Unit 2, the 10-20 cm level of Unit 3, the 0-10 cm level of Unit 6, and the 0-10 cm level of Unit 9. The colors of these flakes include gray, olive-yellow, red and lavender gray, greenish lavender to grayish buff, and one that has three distinct bands – yellow/cream/orange and lavender. On a side note, the presence of the crystal inclusions is somewhat enigmatic since chert is a sedimentary rock and such inclusions usually are present in volcanic or metavolcanic stone. In any case, Piedra del Lumbre chert is found at a source within Camp Pendleton much closer to the coast, indicating either movement to and/or trade with coastal groups. Finally, it is interesting that all of the chert of this type was recovered from the upper 20 cm of the deposit, suggesting it may be associated with its Late Prehistoric occupation (if it actually occurred).

Finally, the burned bone of a bat ray again suggests contact with coastal peoples. Why a bat ray was transported 30 miles from the coast is not clear.

6.16 SITE FUNCTION

SDI-9537/H is a somewhat enigmatic site when it comes to determining its function, other than it was a relatively intensively used habitation site.

First of it all, it is clear there was abundant cooking and consumption of deer and rabbit at the site, as evidenced by the hearth feature in Units 2 and 4, a probable hearth feature in STP 1, abundant fire-altered rock across the site, and abundant burned animal bone, especially in Unit 9. However, there is little or no evidence for the tools to hunt deer, i.e., projectile points. Only the base of a single side-notched arrow point and the fragment of a arrow point-sized preform were recovered, and the former was on the surface. It is possible that fire-hardened arrows were used without stone projectile points.

Second, it is clear that flintknapping was common on the site as evidenced by hammerstones, antler tine fragments, flake cores, and abundant debitage indicating the production of flakes and probably bifaces. Yet, almost no bifaces were recovered from the site – only two arrow point fragments and small fragments of three other bifaces (see Table 14). Moreover, all of the cores recovered (mostly of white quartz and a few of metavolcanic aphanitic) were flake cores with little or no evidence of partially finished biface blanks or preforms.

Thirdly, at least five well-used deep basin metates, a well-shaped mano, a bedrock saucer mortar, and numerous fire-altered mano fragments, were recovered from the site, yet the soil column samples produced little charcoal and no charred edible seeds, probably due to poor preservation. It is odd that animal bone is well preserved at the site, but not plant remains.

Finally, evidence for woodworking is suggested by the adzes or scraper plane-like tools (some multipurpose tools) that were recovered. The tip of a probable bone awl suggests possible basketweaving.

In short, SDI-9537/H was an important habitation site dating to the later Archaic which may have been reoccupied during the later Late Prehistoric. It is not known whether it was occupied throughout the entire year, but given the local climate with the lack of a severe winter and the available water in this area, it is certainly possible. There is evidence for a bipolar settlement pattern in the upper San Luis Rey river drainage, with winter-spring settlements at lower elevations and summer-fall acorn-processing camps at higher elevations (True and Waugh 1981,1982; Waugh 1986). The inhabitants of the site engaged in the processing and consumption, and presumably hunting, of deer from the San Luis Rey River Valley, as well rabbit and other animals. They processed seeds and probably acorns though no direct evidence of this was found. Future protein residue studies of manos may detect this. They engaged in flintknapping to produce usable flakes from flake cores and engaged in biface tool manufacture at least to some extent, despite the paucity of such artifacts in the recovered assemblage. They appear to have engaged in woodworking and probably did some basketweaving.

SDI-9537/H does not seem to have evidence of specialized artifacts or features, such as shaman's sucking tubes, steatite arrow straighteners, shell or bone beads, cupules, or burials. This suggests that it probably was not a major or central village site. Perhaps it was a seasonal residential base with a major focus on the procurement and processing of deer.

6.17 SITE SIGNIFICANCE

It was established in Section 5.1 above that the significance of the prehistoric component of SDI-9537/H should be evaluated under Criterion D of the California Register of Historical Resources, i.e., does it have scientific research potential to contribute to our knowledge of the prehistory of the region.

If we look at the possible research questions listed in Section 5.3.1 above on chronology, lithic technology, settlement and subsistence, and trade, SDI-9537/H contains the types and quantitative of artifacts and features to address a significant number of research questions.

For chronology, temporally sensitive artifacts, obsidian hydration measurements, radiocarbon dating material in the form of bone and perhaps charcoal, and the presence of ceramics all have potential to help date the site. A larger sample will most likely produce more temporally sensitive artifacts, such as dart points.

For lithic technology, there are plenty of cores, hammerstones, and debitage indicating the production of flakes and some biface reduction work at the site. There are numerous lithic materials, including milky quartz, clear quartz, metavolcanic porphyritic and aphanitic stone, chert, chalcedony, obsidian, quartzite, and even a flake of jasper. These materials provide plenty of data for assessing strategies of lithic procurement, reduction, and use at SDI-9537/H. There are also a number of flaked stone tools (preform fragment, arrow point fragment, biface fragments, adzes and multipurpose tools) and groundstone tools (manos, basin metates, bedrock milling feature). The southeast quadrant, in particular, where Unit 9 was excavated, offers a wealth of lithic reduction data.

As for subsistence information, there is abundant, well-preserved animal bone to inform about diet, though unfortunately the charred plant remains are thus far not very helpful. The flaked stone tools, as well as groundstone tools, are sources of information about food procurement and other daily activities as well as a source of protein residue analyses to inform us more about diet. The basin metates should be especially good sources for protein residue analyses. The abundance of deer bone and fire-altered rock offers potential insights into why deer procurement and preparation seemed to be such a dominant activity at the site. The very high bone densities found in the southeast quadrant where Unit 9 was excavated are also intriguing. This bone assemblage also offers interesting information about how animals were butchered and cooked.

As for settlement patterns, the site is large with a wealth of data and should be a good site for examining the assumptions and definitions of the Pauma Complex, since the site dates to the Archaic. Data from this site can be integrated with data from SDI-714 and SDI-731 for comparative purposes. In terms of intra-site patterning, the wide distribution of fire-altered rock and mano fragments, the localization of high densities of bone and lithic debitage in Unit 9, the concentration of four large basin metate fragments in Unit 7, and the hearths in Units 2 and 4 (and probably in STP 1) suggest considerable intra-site variability that has the potential to provide insights into the spatial organization of the site.

As for trade, the data from SDI-9537/H indicate the use of Coso obsidian and Piedra del Lumbre chert as well as contact with the coast as suggested by the bat ray bone. The ceramic analyses (thin sections) suggest the pottery was made locally and was not imported from the desert or the coast. A larger sample may show otherwise.

In short, SDI-9537/H is a significant historical resource under Criterion D of the California Register of Historical Resources, and therefore under CEQA, because it has definite research potential for contributing to our knowledge of regional prehistory. However, the site does not contain human remains, cupules, grave goods, obvious ceremonial areas or sacred objects or other unique resources that might make it significant under the County's Resource Protection Ordinance (RPO).

SECTION 7 – FINDINGS FROM HISTORIC COMPONENT OF SDI-9537/H

7.1 SUMMARY OF HISTORIC COMPONENT OF SDI-9537/H

SDI-9537/H is located on a high terrace or hill above Frey Creek situated 150 m to the west. Frey Creek flows into the San Luis Rey River a few hundred meters to the south of the site. Based on surface artifacts, the historic component measures about 85 by 85 m in size; however, the subsurface deposit measures only about 60 by 50 m. The other material has eroded downslope over time. The historic component is on relatively flat terrain ranging from 800-815 ft in elevation. The native vegetation was once sage scrub but has been almost completely replaced by citrus groves, mostly orange and grapefruit. Groves were planted on and in the vicinity of the site as early as the late 1920s.

Site Type:	Turn of the century homestead site.
Time Periods:	late 19th-early 20th century homestead based on a ceramic maker's marks, square nails, bottle types, and 1899 homestead patent by Hugh Magee; may have been occupied until the 1920s
Dimensions/Area:	<u>Surface scatter</u>: 85 m (NE-SW) x 85 m (NW-SE) <u>Subsurface</u>: 60 m (NE-SW) x 50 m (NW-SE)
Depth:	20-30+ cm
Landform:	bajada (confluent alluvial fans along piedmont slope)
Elevation:	775-815 feet (subsurface component 800-815 ft)
Features:	none
Artifact Types:	square nails; largely undecorated whiteware (some molding); aqua, green, brown, purple, and clear bottle glass; 1880s bottle; ceramic maker's mark 1878-1890; window pane glass; shovel fragment; burned wood; a screw; a brad; and Tizon Brownware ceramics that may be historic.
Vertebrate Fauna:	none
Invertebrate Fauna:	none
Floral Remains:	olive seeds and maize

Density of Remains:	moderate, mainly in upper 20-30 cm.
Diversity of Remains:	low to moderate
Degree of Disturbance:	moderate to heavy in tree rows; light to moderate between tree rows

Volume Excavated (m^3) in historic component:			
	Unit 2 --	1x1 m to 56 cm	0.56 m^3
	Unit 3 --	1x1 m to 20 cm	0.23 m^3
	Unit 4 --	1x1 m to 48 cm	0.48 m^3
	Unit 5 --	1x1 m to 50 cm	0.56 m^3
	Unit 6 --	1x1 m to 40 cm	0.40 m^3
	Unit 10 --	1x1 m to 40 cm	0.40 m^3
	ALL UNITS		**2.63 m^3**

7.2 SITE STRATIGRAPHY AND STRUCTURE

The stratigraphy was relatively homogeneous across the site. The upper deposits consisted of a dark yellowish brown (10 YR 4/4) gravelly silt, sometimes underlain by a brown (7.5 YR 5/4) less gravelly silt with some clay, with the deepest layer consisting of granitic rocks and/or decayed granite bedrock soil whose color ranges between 7.5 4/6 (strong brown) to yellowish red (5 YR 4.5/6). This general scheme is represented by the soil profile from Unit 5 in Figure 11 in Section 6 above. There was no clear pattern of soil disturbance (e.g., truncated or mixed soil layers) within the units which were excavated between the rows of orange trees. However, the presence of mixed historic and prehistoric artifacts and ecofacts to a depth of 20-30+ cm suggests some disturbance. In general, however, the depositional integrity of the site is relatively good between the rows of orange and grapefruit trees.

7.3 ARCHIVAL RESEARCH

As noted earlier in this report (see Section 2.2.3 above), a 160-acre tract was homesteaded in 1899 by Hugh Magee that includes the location of SDI-9537/H. It is not known how long he occupied the property as it became embroiled in water district holdings soon thereafter. However, data from the Bureau of Land Management indicate his land patent was only authorized until 1924 (Scott Crull, personal communication, 2005). As noted earlier, the property was already planted in orchards by the late 1920s based on a 1928-29 aerial photo, but this was probably not associated with Hugh Magee. It is not known what kinds of trees were planted at this time. A study of relevant historical documents did not produce anything of great interest about Hugh Magee. However, there are people with the Magee surname at both Pechanga and Pala Indian Reservations today, but telephone calls inquiring about this subject in early June 2005 to John Magee at Pechanga and Leroy Miranda (who is interested in family lineages at Pala) were not returned.

7.4 WHITEWARE CERAMICS with Susan Walter

7.4.1 Introduction

This section is the product of a collaboration with Susan Walter who helped identify some of the vessel forms, the source of the sole maker's mark recovered from the site, and other interesting information about the ceramics found.

The ceramics from historic component of SDI-9537/H are virtually all undecorated hotel whiteware china with a few that have some indication of molding. This was the cheapest everyday china available during this time period (Susan Walter, personal communication, 2005; see also Gaston 1996:155-158). Virtually all of the material came from the site surface (Figures 7 and 10).

7.4.2 Dating the Ceramic Collection

Most of the material could not be directly dated, but a fragment of a maker's mark on the bottom of a plate fragment (Cat. No. 545) was identified in a photograph in Praetzellis et al. (1983:photograph #117). The top of the mark has the words "Thomas Furnival & Sons" in a festooned ribbon; this lies above the Victorian Royal Arms (seated), which lies in turn above the words "Trade Mark" separated by the Furnival Crest; below this is the word "England" in a festooned ribbon at the base of the mark (see the photograph from Praetzellis et al. below).

117

The crest was registered in 1878. According to Gaston (1996:155-158), pottery of this type with this mark was made between 1878 and 1890. The mark is also shown in Golden (1991:263 (cf. mark 1649).

7.4.3 Function and Other Characteristics of Whiteware

The basic descriptive data for the 18 whiteware sherds recovered from the historic component of SDI-9537/H are presented in Table 24 below:

Table 24: Hotelware China Sherds from SDI-9537/H

Cat. No.	Location	Vessel Type	Remarks
545	surface	plate	partial maker's mark – Thomas Furnival & Sons, 1878-1890 (Praetzellis et al. 1983; Gaston 1996)
546	surface	cup	early paneled molding; base very worn
547	surface	plate or saucer	ghost of decoration on rim
548	surface	plate	possibly molded; well used – no glaze left on surface
549	surface	plate	stilt mark (from firing process) present
550	surface	saucer	portion of well visible
551	surface	cup	3 conjoined rim sherds; different from those below
552	surface	plate	edge of plate is sharp somewhat like Pearlware
553	surface	plate	7-7.5" in diameter
554	surface	saucer	about 6" in diameter
555	surface	small plate	about 7" in diameter
556	surface	cup	
557	surface	cup or bowl	
558	surface	cup or bowl	
559	surface	cup or bowl	small rim sherd
560	Unit 10 0-10 cm	plate or platter	base; well used; brown residue present
561	Unit 10 10-20 cm	unidentified	small sherd; crazed surface
562	surface	large plate	9" diameter

Table 24 shows that sherds from eight plates (one possibly a platter), two saucers, one plate or saucer, three cups, and three cups or bowls are present in the assemblage. No specialized containers or vessels were identified. These data suggest simple tableware for someone without great financial means.

7.5 TIZON BROWNWARE – HISTORIC INSTEAD OF PREHISTORIC?

An interesting question is whether the Tizon Brownware sherds described in Section 6.10 above are from the later Late Prehistoric or from the Historic Period (see de Barros 1997). This question is pertinent since all of the Tizon Brownware was found in the western portion of the site where the homestead site was located; no Tizon Brownware was found east of the paved road. In fact, the distribution of Tizon Brownware tracks fairly closely the historic artifact scatter (see Figures 6-8 and 10). An interesting hypothesis is whether the Tizon Brownware ceramics identified for the prehistoric component were in fact used by an Indian woman who lived with and/or cooked for Hugh Magee at the turn of the century. Or perhaps Mr. Magee purchased Indian ceramics as part of his kitchen inventory, since they would have been relatively inexpensive. Griset (1990) and Schaefer (1994) have noted that Anglo-Americans and Hispanics purchased important quantities of earthenware vessels from Native Americans during the later 19th century, including from the Luiseño, for both water storage and cooking. Some Anglo-American and Hispanic households also used Luiseño women as domestic help. Historic Tizon Brownware pottery could have easily made their way into domestic settings through such persons (Jerry Schaefer, personal communication, 1996; see also de Barros 1997:5-110).

A study by de Barros (1997) of a late 19th century trash deposit in Temecula, near the intersection of State Route 79 and Pala Road, examined the differences between prehistoric and historic Tizon Brownware at site CA-RIV-4707/H. This site contained three components: 1) a Millingstone component dating to ca. 5000 B.P.; 2) a later Late Prehistoric component with Tizon Brownware; and, 3) an historic trash deposit with abundant cattle bones and historic Tizon Brownware. A detailed comparison of the two ceramic groups (see de Barros 1997:5-57 thru 5-110), using a sample size of 108 prehistoric sherds, and 179 historic sherds, noted the following differences:

- Vessel Function: the historic Brownwares were more frequently fire-blackened on their exteriors (including the presence of soot) than were the prehistoric wares, suggesting more of a focus on vessels used for cooking (de Barros 1997:5-107);
- Vessel Wall Thickness: The prehistoric sherds ranged between 3-10 mm in thickness, with most between 5-6 mm and the mean thickness was 5.7mm (n=108). The Historic Period Brownwares were somewhat thicker, ranging between 4 and 10 mm, but most sherds were between 5-7 mm and the mean thickness was 6.4 mm (n=179). Sherds only 4 mm in thickness were rare among the historic group (3%), but were relatively common in the prehistoric group (17%) (de Barros 1997:5-107).
- Vessel Surface and Paste Colors: The surface colors are generally similar, however, tan brown colors are more common in the prehistoric sherds (31.8% vs. 19.8%), whereas black surfaces are less common among the prehistoric sherds (6.8% vs. 15.3%). As for paste color, they again were relatively similar, but orange tan paste appears to be more common among the historic period vessels and gray is more common among the prehistoric vessels, but the percentage differences are probably not statistically significant (de Barros 1997:5-107 and 5-108).
- Carbon Cores: The frequency of carbon cores was similar between the two assemblages (61.4% for prehistoric vs. 65.7% for historic). However, the

frequency of sandwich cores (where the core is in the center of the paste) was much higher for the historic sherds (43.4%) when compared to the prehistoric sherds (22.7%). Conversely, side cores (adjacent to one side of the vessel wall) are more common (29.5%) among prehistoric sherds than they are among the historic sherds (17.1%). Finally, full paste cores represented 9.1% of the prehistoric sherds and only 5.1% of the historic sherds. These differences may reflect differences in the setting of the open firing of the pots and/or differences in vessel use (extent of cooking) (see de Barros 1997:5-108).

- Surface Treatment: The study of the prehistoric and historic Brownwares at RIV-4707/H showed substantial differences in the surface treatment of the two groups. For vessel interiors, 50% of the prehistoric sherds had fully smoothed interiors, whereas only 25% of the historic sherds were fully smoothed. Likewise, 25% of the prehistoric sherds showed some evidence of burnishing, whereas only 3% of the historic sherds do. For vessel exteriors, the total number of prehistoric sherds that were smoothed or burnished was 97%, but only 80% for the historic sherds, i.e., semi-smoothed and unsmoothed surfaces were more common in the historic material. However, burnished exteriors are more common in the historic sherds (8%) than in the prehistoric (2%).

So how do these differences inform us about the collection of 24 sherds from SDI-9537/H? First, it should be noted that the sample size (n=23; excluding one of the conjoined sherds) is small, which precludes any definitive statements because of issues of sampling error. Second, the de Barros (1997) study involved material from only one site. These cautions given, here are the relevant frequencies for the various attributes cited above at SDI-9537/H:

- Frequency of fire blackened exteriors, including those with soot: 5-6 sherds (Cat. Nos. 7 (with soot), 10, 85b, 85d, possibly 116, and 230b) or 21.7 to 26.1%.
  CONCLUSION: Sherds could be historic or prehistoric as frequency data lacking for de Barros (1997) study.

- Vessel wall thickness: mean of 6.0 mm; range 4.5-10 mm; most 5-6 mm.
  CONCLUSION: The mean thickness is mid-way between historic and prehistoric mean; however, typical sherds (5-6 mm) are more like the prehistoric material, though sherds of 4 mm thickness are rare.

- Vessel Surface (n=46 (both sides of vessel) and Paste Colors (n=23):
  - Surface Color: tan brown color: 4-5 sherds (one is gray to tan brown) or 8.7 to 10.9%
  - Surface Color: black color: 9 sherds or 19.6%
  - Paste Color: not compared due to differences in color recording methods.

CONCLUSION: tan brown and black surface color frequencies are more like the historic material.

- Carbon Cores
  - overall core frequency: 17 or 73.9%
  - full cores 3 or 13.0%
  - side cores 10 or 43.5%
  - sandwich cores 4 or 17.4%

CONCLUSION: the full, side and sandwich cores values are definitely closer to prehistoric values.

- Surface Treatment
  - Vessel Interior smoothed: 5 or 21.7%
    semi-smoothed: 16 or 69.6%
    burnished: 1 or 4.3%
    unsmoothed: 1 or 4.3%
    smoothed + burnished: 26.0%
  - Vessel Exterior smoothed: 14 or 60.9%
    semi-smoothed: 5 or 21.7%
    burnished: 3 or 13.0%
    unsmoothed: 1 or 4.3%
    smoothed + burnished: 73.9%

CONCLUSION: the smoothed and burnished interior figures are more similar to historic values; the smoothed and burnished exterior figures are more similar to historic values.

Overall the data are somewhat equivocal. The ceramics from SDI-9537/H are more like prehistoric Tizon Brownware ceramics in their vessel wall thickness and in the frequency of full, side and sandwich type carbon cores, whereas they are more like historic Tizon Brownware in their frequency of tan and black surface colors, and the degree of surface treatment on vessel interiors and exteriors. Given that the makers of historic Tizon Brownwares at RIV-4707/H seemed to have invested less labor in vessel surface treatment, which is a significant issue in a market economy, one could give the nod to the historic period. In addition, it may not be a coincidence that the ceramics are found only in association with the homestead artifact scatter, not the entire prehistoric site of SDI-9537/H. In short, there is a strong possibility that the Tizon Brownware ceramics are associated with the homestead occupation rather than a Late Prehistoric occupation.

7.6 HISTORIC GLASS AND METAL ARTIFACTS by Scott Crull with a minor contribution from Philip de Barros

Most of the historic artifacts from SDI-9537/H are made of glass and metal. They come from both surface and subsurface contexts. Surface-collected artifacts are from both the southwest and northwest quadrants. Subsurface material came from Units 2-6 and 10. Units 2-6 are in the southwest quadrant and Unit 10 in the northwest quadrant (see Figures 7 and 10).

7.6.1 Description and Analysis of Surface Artifacts

The collected surface artifacts (see Table 25) include fragments of clear glass and colors of brown, green, olive, aqua-tint, green-tint, purple-tint, and amethyst-colored glass; a few diagnostic glass bottle pieces; and a metal fragment.

Legend for Table 25 Below

BGF(s) – Bottle Glass Fragment(s)
Cat. # -- Catalog Number
GBBF – Glass Bottle Base Fragment
GBTF – Glass Bottle Top Fragment
GF – Glass Fragment
GJF – Glass Jar Fragment
GWPF – Glass Window Pane Frag.
OP – Opaque
RSN – Rusted Square Nail
RSNF – Rusted Square Nail Fragment
SABM – Semi-Automatic Bottle Machine
SN – Square Nail (F/C – Fragment/Complete)
TSL – Translucent
TSP – Transparent

Table 25: Surface Collected Glass and Metal Artifacts

Cat #	Count	Description and Remarks
500	2	Clear glass fragments with CH...CO-LA
501	1	TSP green BGF
502	1	Amethyst-tint GB top with crudely applied lip. Probably SABM 1893-1903
503	4	Clear GBFs - Pepsi bottle. 3 embossed; other has ACL logo; post-1942
504	1	Amethyst-colored GJF
505	1	TSP brown GB Lip fragment
506	1	TSL olive; possible wine GBBF; embossed with "CV" (fits with # 518)
507	15	Clear GBF with a possible paper logo on 2 of the fragments (in green) & embossed letters "O" & "A" & a scallop design. Appears to be post-1920. Possibly parts of 2 bottles.
508	2 1 1	TSL weathered, thick green GBF TSP thin green GBF TSL weathered, brown GBF
509	3 1	TSP green GBF TSL purple embossed GBF
510	1	TSL amethyst-colored GF
511	1	Green-tint GBBF
512	1	Green-tint GBF w/ wording hot-stamped: "...FLAVOR/CARMEL COLOR/ PROPERTY OF/NEHI BOTTLING CO.../...O CALIFORNIA" (post-1930s)
513	1 1	TSL green GBF Clear GF
514	1	TSL brown GBF
515	1 1	TSL green GBF TSL green GBBF
516	1	TSL brown GBF

Table 25: Surface Collected Glass and Metal Artifacts (cont'd)

Cat. #	Count	Description and Remarks
517	1	Aqua-tint GBF with an embossed line
518	1	TSL olive GBBF
519	1	Thick TSL brown GBF
520	1	TSL green GBF
	1	TSP green GBF
521	1	TSL brown GBF with Anheuser logo & eagle design
522	1	TSL brown GBF
	1	TSL green GBF
523	1	TSL aqua GBF
	1	TSP brown GBF
	2	TSL brown GBF
524	1	TSL green GBF
525	1	Large rusted piece of metal
	2	Green-tint GFs
526	2	TSL brown GBF
527	1	TSL green GBBF
528	1	TSL brown GBF
529	1	Aqua-tint GBF
530	1	Clear, think GBBF
531	2	TSL brown GBF
532	1	TSL brown GBF
533	1	Green-tint GWP (post-1930s)
534	1	TSP green GBF
535	1	Thick TSL brown GBBF
536	1	Aqua-tint GBF
537	1	TSL brown GBF
538	1	OP brown GBBF
539	1	TSL green GBF
	1	TSL brown GBF
540	2	TSP brown GBF with "LITTER" – Post-1960
541	1	TSL brown GBF
542	1	TSL brown GBF
	1	1880s GBTF

The surface collection involved a total of 83 individual artifacts. Aside from one metal item and two whiteware ceramics (the latter not presented here; see Section 7.4 above), all of the artifacts are made of glass. Only twelve specimens (15%) were diagnostic. Of those found to be diagnostic, three were found to be post-1960 (Catalog numbers 521 and 540). These were deemed to be from modern beer bottles. One was a post-1930s window pane (Cat. No. 533); one was from a 1880's bottle (Cat. No. 542); one was from a post-1893 Semi-Automatic Bottle Machine (Cat. No. 502); one was from a post-1920's soda bottle (Cat. No. 507); one was from a post-1930's soda bottle (Cat. No. 512); and four were from a 1942-era Pepsi bottle (Cat. No. 503).

The glass artifacts depicted the following color schemes – 30.3% [n=24] were brown; 29.1% [n=23] were non-colored, or clear; 21.5% [n=17] were green; 6.3%

[n=5] were green-tinted; 5.1% [n=4] were aqua-tinted; 3.7% [n=3] were amethyst-colored; 2.5% [n=2] were olive; and 1.2% [n=1] was purple-tinted. The diaphaneity of the 42 colored glass artifacts indicated that 78.5% [n=33] were translucent (TSL); 19% [n=8] were transparent (TSP); and 2.5% [n=1] was opaque (OP). Tinted varieties are not included. Depending on the amount of the tint, the glass is usually transparent, rarely translucent, and never opaque.

7.6.2 Summary Description of Subsurface Artifacts

The 399 sub-surface artifacts (two whiteware sherds are not analyzed here; see Section 7.4) from the excavation units included fragments of clear glass, as well as colors of brown, green, amber, aqua-tint, green-tint, purple-tint, and amethyst-colored; rusted metal fragments; rusted complete and fragmentary square nails; burned wood; and some diagnostic glass bottle fragments (see Table 26).

Table 26: Subsurface Glass and Metal Artifacts

Cat. No.	Unit	Level	Count	Square Nail Length	Description
600	2	0-10	26 8 1 1 2		Clear GWPF Green-tint GWPF Aqua-tint GBF with ...AYE... TSL brown GBF TSP brown GBF
601	2	0-10	1 1 1 1 1 1 1 5	29.5mm 32.1mm 39.3mm 43.3mm 45.2mm 50.0mm 54.0mm	RSN-F RSN-F RSN-F RSN-C RSN-F RSN-C RSN-C Rusted metal pieces
602	2	10-20	3 1 1 1 1 1 1	 23.4mm 23.5mm 24.1mm 33.5mm 33.8mm 39.4mm	Rusted metal pieces RSN-F RSN-F RSN-F RSN-F RSN-F RSN-C
603	2	10-20	7 5 1 1		Green-tint GWPF Clear GWPF TSL brown GBF Purple-tint GF
604	2	20-30	1	33.3mm	RSN-F
605	2	40-50	1		Clear GWP
606	3	0-10	12 1 1 2 1 1		Clear GWPF Green-tint GWPF TSL green GBF TSP green BGF TSL brown GBF TSP brown GBF
607	3	0-10	9		Rusted metal fragments

607 cont'd			1	11.9mm	RSN-F
			1	24.1mm	RSN-F (bent)
			1	26.0mm	RSN-F
			1	51.1mm	RSN-C
608	3	0-10	20		Burned wood
609	3	10-20	4		Green-tint GWPF
610	3	10-20	1		Rusted metal fragment
			1	10.3mm	RSN-F
			1	27.9mm	RSN-F
611	3	20-30	1		Burned wood
612	4	0-10	26		Clear GWPF
			7		Green-tint GWPF
			5		Aqua-tint GWPF
			2		TSL brown GBF
			1		TSP brown GBF
			1		Green-tint GBF
			1		Green-tint GB lip rim
613	4	0-10	14		Rusted metal fragments
			1	6.6mm	RSN-F
			1	14.9mm	RSN-F
			1	19.8mm	RSN-F
			1	22.0mm	RSN-F
			1	22.7mm	RSN-F
			1	25.5mm	RSN-F
			1	26.1mm	RSN-F
			1	27.9mm	RSN-F
			1	28.4mm	RSN-F
			1	42.8mm	RSN-F
614	4	10-20	4		Green-tint GWPF
			3		Aqua-tint GWPF
			1		Clear GWPF
615	4	10-20	4		Rusted metal fragments
			1	13.2mm	RSN-F
			1	14.0mm	RSN-F
			1	14.0mm	RSN-F
			1	25.8mm	RSN-F
			1	26.5mm	RSN-F (bent)
616	5	0-10	3		Clear GWPF
			3		Green-tint GWPF
			2		TSL green GBF
			2		Amethyst-colored GBF
			1		TSL thin, brown GBF
			1		TSL thick, brown GBF
			1		Purple-tint GBF
617	5	0-10	4		Rusted metal fragments
			1	15.4mm	RSN-F
			1	15.5mm	RSN-F
			1	18.0mm	RSN-F
			1	18.2mm	RSN-F (bent)
			1	19.6mm	RSN-F
			1	24.8mm	RSN-F
			1	30.5mm	RSN-F
			1	36.0mm	RSN-F
			1	42.2mm	Complete rusted screw
618	5	10-20	1		Green-tint GBF

618 cont'd			1		Aqua-tint GWPF
			1		TSL green GBF
619	5	10-20	3		Rusted metal fragments
			1	21.5mm	RSN-F
			1	23.8mm	RSN-F
			1	26.3mm	RSN-F
620	5	20-30	2		Green-tint GWPF
			1		Thick TSL amber GBF
			1		Thick TSL/milky GF with an orange discoloration within the fractures
621	5	20-30	1		Rusted metal fragments
			1	15.7mm	RSN-F
			1	17.2mm	RSN-F
			1	27.8mm	RSN-C (bent)
			1	35.0mm	RSN-C
			1	38.7mm	RSN-C
			1	43.0mm	RSN-C
			1	43.0mm	RSN-C
			1	50.2mm	RSN-near C
			1	65.5mm	RSN-C (slightly bent)
622	6	0-10	2		Aqua-tint GWPF
			1		Clear GWPF
			1		Green-tint GBF
623	6	0-10	27		Rusted metal fragments
			1	16.1mm	RSN-F
			1	32.1mm	RSN-C
624	6	10-20	4		Rusted metal fragments
625	10	0-10	7		TSP brown GBF
			4		TSL green GBF
			4		Aqua-tint GWPF
			3		Green-tint GWPF
			2		Clear GWPF
			1		Amethyst-colored GBF
			1		Green-tint GBF
			1		TSL slightly milky GF
626	10	0-10	12		Rusted metal fragments
			1	10.3mm	Complete, though curled brad
			1	12.7mm	RSN-F
			1	14.9mm	RSN-F
			1	14.9mm	RSN-F
			1	15.0mm	RSN-F
			1	17.7mm	RSN-F
			1	17.7mm	RSN-F
			1	18.8mm	RSN-F
			1	20.6mm	RSN-F
			1	21.3mm	RSN-C
			1	21.8mm	RSN-F
			1	25.8mm	RSN-F
			1	28.3mm	RSN-F
			1	41.2mm	RSN-near C
627	10	10-20	11		TSL brown GBF
			2		Clear GBF
628	10	10-20	4		Rusted metal fragments
			1	12.6mm	RSN-F
			1	15.2mm	RSN-F

628 cont'd			1	17.3mm	RSN-F
			1	17.5mm	RSN-F
			1	18.3mm	RSN-F
			1	26.5mm	RSN-near C (bent)
			1	31.2mm	RSN-F
			1	39.6mm	RSN-F
			1	49.2mm	RSN-F
			1	61.0mm	RSN-C (bent)
			1	65.5mm	RSN-C
629	10	20-30	1		Green-tint GWPF
			1		TSL brown GF
630	10	20-30	1	41.0mm	RSN-F

The subsurface assemblage can be broken down by category into window glass fragments, nondiagnostic metal fragments, rusted square nails, bottle glass fragments, burned wood, unknown glass, screws and brads (Table 27 below).

TABLE 27: Subsurface Artifact Assemblage Categories

ARTIFACT			QUANTITY	PERCENTAGE
Window Glass Fragments			132	33.0
Clear	77	58.3%		
Green-tint	40	30.3%		
Aqua-tint	15	11.4%		
Non-Diagnostic Rusted Metal Fragments			94	23.5
Rusted Square Nails			82	20.5
Fragments	64	78%		
Complete	18	22%		
Bottle Glass Fragments			42	10.5
Brown	23	54.7%		
Green	6	1.5%		
Green-tint	5	1.2%		
Amethyst-colored	3	0.8%		
Clear	2	0.5%		
Aqua-tint	1	0.2%		
Purple-tint	1	0.2%		
Amber	1	0.2%		
Burned Wood			21	5.3
Unknown Glass			4	1.0
Milky	2	50%		
Brown	1	25%		
Purple-tint	1	25%		

Screws	1	0.2
Brads	1	0.2

Thirty-four glass fragments were noted by their diaphaneity – 27 (79.4%) are translucent (TSL) and seven (20.6%) are transparent (TSP). There are no opaque (OP) fragments. Tinted glass was omitted from these totals.

7.6.3 Product Identification

Certain products or types of manufacturing styles were seen during the course of the artifact analyses. These products or styles are listed below.

Amethyst-Colored Glass

This glass was produced by a weakened glass melt formula. The reaction stems from the glass being chemically altered while it remained in direct sunlight. The amount of the tint or discoloration is in direct proportion to the amount of time it was sun-drenched. This process also occurs for **purple-tinted glass** (where manganese was used) and the rare **yellow** (or straw) **tinted glass** (where sulfides were used). This glass was made between 1877 to early-to-mid 1920s.

Anheuser Beer

The Anheuser beer company started in the 1860's and continues under numerous brands today.

Nehi Soda and Pepsi Cola

Nehi soda was created by the Chero-Cola Company in 1924. It is currently owned by Royal Crown Cola. Pepsi Cola was created by Caleb Bradham, of New Bern, North Carolina, in 1893. Originally, it was called *Brad's Drink*, but was renamed *Pepsi* in 1898, after the pepsin in the recipe. Bradham lost the company in a bankruptcy brought on by the 1923 collapse in sugar prices. The Loft Candy Company bought the name in 1931 and reformulated the recipe.

Semi-Automatic Bottle Machine (SABM)

This machine was invented in 1893 (or 1898, according to various accounts) to eliminate much of the practice of molding glass bottles in casts. The operation was short-lived, ending in 1903 (or 1906), when Owens perfected the Automatic Rotating Machine (ARM) in 1903 (or 1905). This, too, was replaced when Owens developed the Automatic Bottle Machine (ABM) in 1917.

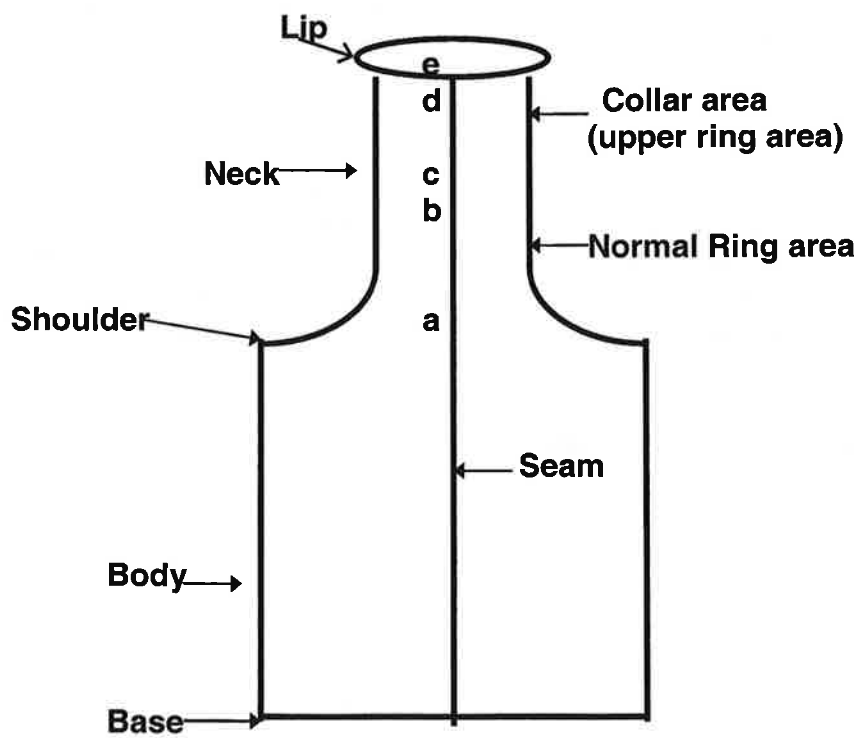
Square Nails

These started being used in the 1860's and were made through 1945. They were replaced by wire nails, as early as 1895.

7.6.4 Bottle Date Ranges And Description

The range of dates used for this report are taken from the changes in bottle seam design, as noted by Mike Polak (1994) and personal research on the 1890-1900 seam horizon (see also Crull 2001). Generally speaking, bottles without seams may be either handmade (blown) or machine-made. Handmade bottles generally have a nipple on the base, where the bottle has been removed from the blowing tool. Usually, this nipple has been melted away, leaving a rounded area, or scar. Machine-made bottles generally have a round or square dimple where they have been removed from the machine. For the purpose of this report, the following seam descriptions were used to determine the age of the glass bottle artifacts:

(a) Pre-1860 - seams extend just over the shoulder
(b) 1860-1880 - seams extend up the neck to the ring
(c) 1880-1890 - seams extend over the neck ring, but below the collar
(d) 1890-1900 - seams extend over the collar, but just below the lip
(e) Post-1900 - seams extend over and through the lip



7.6.5 Discussion

This collection of artifacts is temporally associated with Hugh Magee's homestead for the length of time that his land patent was authorized – namely 1899 to 1924.

Of the 482 artifacts presented, only 96 (19.9%) were truly diagnostic. An additional 133 (27.6%) items were considered to be window glass, while 90 (18.7%) other items were indicative of bottle glass.

The majority of the diagnostic items are the 82 square nails, amounting to 17% of the artifacts. Square nails were made between the 1860s and approximately 1945. Although they are no longer made, there are many still available through numerous outlets, mainly in the upper Mid-West and in the Northeast. The Yankee Workshop and the Vermont Country Store still sell them through their catalogs. Rurik Kallis (1955) states that square nails were used in San Diego as late as 1899. This was because wire nails had grown in popularity since first being introduced in 1895. Kallis states that many San Diego county homes employed both square and wire nails between 1895 and 1899.

As noted by Susan Walter, at least some of the whiteware dates from the 1880s, based on the Thomas Furnival & Sons maker's mark on one plate, and was brought to the site by Hugh Magee.

Of the two intact bottle tops found on the surface survey, both were probably brought to the area by the homesteader. The oldest is a 1880's bottle, whose date was determined by the seam (see illustration above). The other bottle is a post-1893 to 1903 Semi-Automatic Bottle Machine (SABM) made item. It has a crudely applied lip, which was applied in a secondary bottle manufacturing phase. The contents of these two bottles are unknown.

Artifacts catalogued as #506 and #518 probably are from the same bottle. What is interesting with this bottle base fragment (#506) is the rather heavy embossing of "CV." By itself, "CV" does not give enough of a clue as to either the bottle maker or the brand. However, the "pushed-up" base indicates that it was probably used for a good quality wine or ale. Because the base has been embossed, the technique in making it was done by only two methods – either it was completely molded, or else it was blown-molded. In the first case, the molten glass was poured into a mold; allowed to cool; then the mold was removed from around the glass, creating both the bottle and the embossing. This practice was done from the 1870s through the 1940s. It is also done today, but the means used are injection-molding and the glass is thin. This bottle was thick and heavy. The second way to make this type of bottle would be to blow the glass into a mold, forming the bottle body and capturing the embossment at the base. I believe this bottle was molded, rather than blown-molded. The "CV" is a heavy embossment. It would have been too labor-intensive to blow-mold a bottle with the thickness that the base indicates the bottle to have been.

The majority of the named soda and beer bottles appear to be of modern origin. The Pepsi bottle fragments date to 1942 (Ayers 2001). This design employs an applied color label (ACL), making it look like the logo was painted on. These ACL bottles existed during the 1940s and 1950s. This particular bottle also has the Pepsi logo embossed in a stippling fashion, which dates it to 1942. The Nehi soda bottle is probably not older than 1950, due to the hot-stamping of the information noted on the rear of the bottle. The CH...Co-La probably is the Chero-Cola Company, which produced Nehi. The beer bottles are modern, probably post-1960.

In short, the glass and metal artifacts indicate occupation between 1899 (homestead date) up through the 1920s which corresponds to the end of the land patent authorization for Hugh Magee in 1924. The square nails indicate a structure was present but there is no trace of such a structure today, though some burned wood was encountered in Unit 3 (see Figure 10). Some of the bottle glass that dates to after the 1920's is presumably the result of orchard workers discarding soda and beer bottles and the like.

7.7 CORN AND OLIVES

Dr. Popper analyzed floated soil column samples from Units 2 and 9 as well as seeds and charcoal from other units at the site (see Appendix G and Section 6.13 above). Her study revealed the presence of probable maize (*Zea mays*) cupules from the 10-20 cm level of Unit 2 and also from the 10-20 cm level of Unit 6; both of these units are within the boundaries of the historic artifact scatter (see Figure 10)(see Popper in Appendix G:Table 8 and Addendum). The corn was probably food grown and consumed by Hugh Magee. In addition, abundant quantities of what are probably olive seeds (*Olea* sp.) are present throughout the site in Units 2-4 and 6 within the historic component, but also in Units 7 and 9 on the east side of the road. This suggests that olive trees were once planted on the property. While the seeds are numerous, it is not clear whether they are sufficiently abundant to speak of an olive tree orchard. We also do not know whether they date to the time of Hugh Magee or afterwards.

7.8 CONCLUSIONS

The historic component of SDI-9537/H represents the homestead site of Hugh Magee from 1899 to no later than 1924. The square nails indicate a wooden structure was present, but its precise location is not known, though some burned wood fragments were recovered in Unit 3. Given that Units 2-6 and 10 all produced historic artifacts, including square nails, with the most abundant quantities of square nails coming from Units 4, 5 and 10, the structure was probably situated between Units 4, 5 and 10 (see Figure 10). The artifact assemblage, specifically the undecorated hotelware china, suggests Magee was not a man of means. Most of the diagnostic artifacts were bottles, window glass, whiteware tableware, and square nails. A shovel fragment recovered from the surface may relate to garden work or to farming, but it may also post-date his occupation of the site. The assemblage does not suggest the presence of children and, if a woman was present, her clothes were modest with none of the trappings of European-type outfits. Based on the possible presence of Historic Period Tizon Brownware ceramics, Magee may have had an Indian (Luiseño) cook or perhaps an Indian wife. Some of the artifacts were brought to the site in 1899 by Hugh Magee based on the presence of at least one bottle top and a ceramic maker's mark that date to the 1880s. The diet of Mr. Magee probably included corn, but the olives may or may not date to his occupation of the site.

7.9 SITE SIGNIFICANCE

It was determined earlier (Section 5.1) that the significance of the historic component of SDI-9537/H should be evaluated primarily under Criterion D of the California Register of Historical Resources, i.e., does it have the potential to contribute to our knowledge of history in the region, particularly in terms of information not available in the archival record. In addition, although there is no structure present, it is also important to examine whether the site was associated with an important event or person in prehistory or history (Criteria A and B).

The archival research did not suggest Hugh Magee was a major historical figure in the region and no significant event is known to have taken place at this site. It should be noted, however, that if Hugh Magee is related to Magees on the Pechanga and/or Pala Indian Reservations, this point may be significant or at least a point of interest for his descendants.

In terms of the site's research potential, if we examine the research questions suggested in Section 5.3.2, it appears that the test excavations and archival research have contributed some important baseline data about homesteading in the region and some specific information about the Magee homestead at this location. However, in terms of future research potential, it would be safe to say that the research potential of this site has been exhausted with the test excavations. The artifact assemblage contained some chronologically diagnostic indicators, but the diversity of artifact types and their associated functions is relatively limited. It is unlikely that more excavations would contribute significantly more to our knowledge of this homestead site. In short, the historic component of SDI-9537/H is not viewed as a significant historical resource under CEQA. It is also not significant under the County's Resource Protection Ordinance (RPO).

SECTION 8 – SITE SIGNIFICANCE AND MANAGEMENT RECOMMENDATIONS

8.1 SITE SIGNIFICANCE

8.1.1 Significant Sites

SDI-9537/H

As noted in Section 6.17 above, the text excavation program has determined that the prehistoric component of site SDI-9537/H is a significant historical resource under Criterion D of the California Register of Historical Resources, and therefore under CEQA. It does not qualify, however, for RPO status.

Sites Placed In Open Space

The following sites will be placed in open space and are therefore assumed to be significant archaeological sites: SDI-246, -266, -714, -731, and -9906.

If the cultural resources alternative to the project is adopted, site SDI-9537/H will also be placed in open space.

8.1.2 Sites That Are Not Significant

Historic Component of SDI-9537/H

The archival research and test excavations have determined that the historic component of SDI-9537/H is not a significant historical resource under Criteria A, B or D of the California Register of Historical Resources, and therefore under CEQA. It is also not a significant historical resource under the County's RPO.

Small Bedrock Milling Sites SDI-17501, -17502, -17503, and -18368

The shovel test pits at the small bedrock milling sites, SDI-17501, -17502, and -17503, determined that they have no subsurface deposit and are therefore not significant under Criterion D of the California Register of Historical Resources, and therefore under CEQA. They are also not significant resources under the County's RPO. In addition, recent project redesign now places SDI-17501 and -17503 just outside of the proposed development area.

SDI-18368 is a small isolated bedrock milling feature situated well away from the known sites on the property, and given that no artifacts are present despite good ground visibility, and given that it has been disturbed by vehicular traffic, and given that its useful information has already been recorded (location, milling outcrop size, milling feature dimensions), it has been determined that SDI-18368 is not a significant historical resource under CEQA or the County's RPO.

Sites Not Relocated: SDI-715, -722, -723, -5675, and -5676

Sites SDI-715, -722, and -723 have apparently been destroyed by the expansion of orchards on the property back in the late 1960s. If there ever were portions of the two historic trails SDI-5675 (Gomez Trail) and -5676 (Mission Trail) on the property, there are no indications of them now.

Therefore, SDI-715, -722, and -723 are not significant sites because they have been destroyed. If buried remnants of these sites remain, they will not be impacted by the project as the site locations are within proposed project open space. SDI-5675 and -5676 may exist outside the subject property but they cannot be evaluated for this project because they are not present.

Eight Isolates

Six prehistoric and two historic isolates were recorded in the 2001 survey. Isolates, which have no subsurface component, are not considered significant historical resources under CEQA or the County's RPO. They are listed below by their primary numbers, P-37-

030488: one sherd of a thin-walled blue transfer ware.
030489: two metavolcanic aphanitic flakes, one secondary, one interior.
030490: one gray-black secondary metavolcanic aphanitic flake & one green metavolcanic aphanitic flake with 4-5 dorsal flake scars.
030491: one greenish metavolcanic flake, 2 x 4 cm in size.
030492: one shard of blue glass, 1-cm in diameter.
030493: one blue-gray secondary metavolcanic flake, 1 x 2 cm in size.
030494: one quartz flake and one metavolcanic flake.
030495: one piece of quartz shatter, 2 x 4 cm in size.

8.2 MANAGEMENT RECOMMENDATIONS

8.2.1 SDI-9537/H – Prehistoric Component

Introduction

Impacts to the prehistoric component of SDI-9537/H will be mitigated through data recovery excavations that implement a written research design. Any site destruction during construction grading will be monitored by both a County certified archaeologist and a Native American Observer to check for the presence of unusual features and/or human remains. All artifacts recovered from data recovery will be analyzed and reported on and the artifacts will be curated at the San Diego Archaeological Center. These steps are discussed in more detail below.

If the cultural resources alternative to the project is adopted, site SDI-9537/H will be placed in open space and will not be impacted. Therefore, no mitigation through data recovery excavations will be necessary.

Mitigation of Impacts Through Data Recovery

While the surface scatter of this site extends across most or parts of six proposed development lots, the subsurface component covers portions of only four lots of the development project (see maps showing site locations within the site plan in Part I of the Confidential Site Records Appendix). If development is to proceed under the proposed plan, data recovery excavations will be required to mitigate the impacts of such development in those four lots.

A research design for implementation of the data recovery excavations at SDI-9537/H entitled, *Data Recovery Research Design for Mitigation of Prehistoric Archaeological Site SDI-9537/*H, has been written by Dr. Philip de Barros; it is provided as a separate attachment to this report. After this research design has been approved by the County Archaeologist, the data recovery excavations may be implemented by a County certified archaeologist.

If the cultural resources alternative is adopted, site SDI-9537/H will be placed in open space and will not be impacted. Therefore, no mitigation through data recovery excavations will be necessary.

Grading Monitoring the Destruction of SDI-9537/H

It is recommended that the site area be monitored during construction grading to check for the presence of human remains and/or unique archaeological features by both a County certified archaeologist and a Native American Observer. The site areas to be monitored include the area of the ranch manager's house and auxiliary structures located along the eastern edge of the site, because it is possible that the site extends underneath these structures. The grading in the area of SDI-9537/H shall be controlled grading, i.e., the site will be graded in 10-15 cm layers at a time to avoid the destruction of any human remains and/or unique archaeological features that may be present.

If human remains are encountered, California State law will be followed as specified in Section 8.2.3 below. If unique archaeological features are encountered, the monitoring archaeologist will stop construction in that area so this feature can be exposed, mapped, photographed, and any unusual artifacts removed for analysis. Radiocarbon dating samples will also be taken, if appropriate. The documentation and analysis of such features will be included as part of the monitoring report for the project as a whole and all recovered artifacts will be curated, as specified in Section 8.2.3 below.

If the cultural resources alternative is adopted, site SDI-9537/H will be placed in open space and will not be impacted. Therefore, no grading monitoring will be necessary.

Curation

All artifacts recovered during data recovery excavations, along with a copy of the data recovery report and associated field notes and other records, will be curated at the San Diego Archaeological Center (SDAC) (see Section 8.2.3 below).

If the cultural resources alternative is adopted, no curation of artifacts from data recovery excavations at SDI-9537/H will be necessary

8.2.2 Sites Placed In Open Space: SDI-246, -266, -714, -731, and -9906

As noted in Section 8.1.1 above, these sites will not be impacted by the project because they will be placed in open space and they are assumed to be significant. No further work will be required at these sites unless the proposed boundaries of open space were to be changed and one or more of these sites might be potentially impacted by development.

If the cultural resources alternative is adopted, SDI-9537/H will also be placed within open space.

8.2.3 Mitigation Measures Applying to the Entire Project

The following are requirements set forth by the Department of Planning and Development Services (DPDS) for this project.

Grading Monitoring

The developer will contract with a County certified archaeologist to implement a grading monitoring program to the satisfaction of the Director of Planning and Land Use (DirPDS). Verification of the contract shall be presented in a letter from the Project Archaeologist to the DirPDS. This program shall include, but not be limited to, the following action:

1) The County certified archaeologist and Native American Observer shall attend the pre-grading meeting with the contractors to explain and coordinate the requirements of the monitoring program. The DPDS shall approve all persons involved in the monitoring program prior to any pre-construction

meetings. The consulting archaeologist shall contract with a Native American Observer to be involved with the grading monitoring program.

2) During the original cutting of previously undisturbed deposits, the archaeological monitor(s) and Native American Observer shall be onsite full-time to perform periodic inspections of the excavations. The frequency of the inspections will depend on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features.

3) Isolates and clearly non-significant deposits will be minimally documented in the field and the monitored grading can proceed.

4) In the event that previously unidentified potentially significant cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operations in the area of discovery to allow evaluation of potentially significant cultural resources. The archaeologist shall contact the County Archaeologist at the time of discovery. The archaeologist, in consultation with County staff archaeologists, shall determine the significance of the discovered resources. The County Archaeologist must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the County Archaeologist, then carried out using professional archaeological methods. If any human bones are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

5) Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The archaeological monitor(s) and Native American Observer shall determine the amount of material to be recovered for an adequate artifact sample for analysis.

6) In the event that previously unidentified cultural resources are discovered, all cultural material collected during the grading monitoring shall be processed and curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation.

7) In the event that previously unidentified cultural resources are discovered, a report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and

submitted to the satisfaction of the DirPDS prior to the issuance of any building permits. The report will include Department of Parks and Recreation (DPR 523) Primary and Archaeological site forms.

8) In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the DirPDS by the consulting archaeologist that the grading monitoring activities have been completed.

9) Prior to rough grading inspection sign-off, the archaeological monitor shall provide evidence that the grading monitoring activities have been completed to the satisfaction of the DirPDS.

Temporary Fencing for Archaeological Sites within Open Space

Prior to and during any construction grading, a temporary fencing plan for any grading activities for the protection of archaeological sites shall be prepared and implemented for sites CA-SDI-246, -266, -714, -731, and -9906. Said fencing will be implemented for any grading activities within one hundred (100') feet of said sites. The fencing plan shall be prepared in consultation with a qualified archaeologist to the satisfaction of the DirPDS. The fenced area should include a buffer sufficient to protect the archaeological site(s). The fence shall be installed under the supervision of the qualified archaeologist prior to commencement of grading or brushing and be removed after grading operations have been completed.

If the cultural resources alternative is adopted, temporary fencing will also be necessary for SDI-9537/H during any grading activities.

Curation of Archaeological Collections

The consulting archaeologist shall provide evidence to the satisfaction of the DirPDS that all archaeological remains recovered during the archaeological investigations of the property, including all significance testing, data recovery, and grading monitoring activities, have been curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation.

SECTION 9 - REFERENCES

Ayers, J.

2001 *Pepsi: Cola Bottles & More*. RJM Enterprises: Claudeville, Virginia.

Barrows, David P.

1900 *The Ethnobotany of the Cahuilla Indians of Southern California*. Chicago Press (Reprinted in 1876 by the Malki Museum, Banning).

Basgall, Mark

1990 Hydration Dating of Coso Obsidian: Problems and Prospects. Paper presented at the 24th Annual Meeting of the Society for California Archaeology, Foster City.

Bean, Lowell

1972 *Mukat's People: The Cahuilla Indians of Southern California*. Berkeley: University of California Press.

1978 Cahuilla. In *Handbook of North American Indians, California, Volume 8.* (R. F. Heizer, ed.), pp. 575-587. William Sturtevant, General Editor, Smithsonian Institution, Washington, D.C.

Bean, Lowell and Florence Shipek

1978 Luiseño. In *Handbook of North American Indians, California, Volume 8.* R. F. Heizer, ed.), pp. 550-563. William Sturtevant, General Editor, Smithsonian Institution, Washington, D.C.

Byrd, Brian F. and Carol Serr

1993 *Multi-Component Archaic and Late Prehistoric Residential Camps Along the Sweetwater River, Rancho San Diego, California*. Brian F. Mooney Associates, San Diego. Anthropological Technical Series 1.

Carrico, Richard

1986 Before the Strangers: American Indians in San Diego at the Dawn of Contact. In *The Impact of Exploration and Settlement on Local Native Americans.* Cabrillo Historical Association, San Diego.

Crull, Scott

2001 Bottle Date Ranges and Description. In *Historical Archaeological Assessment of CA-ORA-1582H, Huntington Beach, California.* Report on file with Professional Archaeological Services, San Diego, CA.

Davis, E.L., C.W. Brott, and D.L. Weide
1969 The Western Lithic Co-tradition. *San Diego Museum Papers 6.* San Diego Museum of Man, San Diego, California.

de Barros, Philip
1991 *Archaeological Date Recovery Excavations at CA-ORA-225, Zone 4 and Zone D Booster Pumping Stations Project, Irvine Ranch Water District, Irvine, California.* Chambers Group, Irvine, CA. Submitted to the Irvine Ranch Water District, Irvine, CA.

1993 *Specific Date Recovery Plan, Prehistoric Archaeological Sites CA-ORA-125, -225, -689, -736, -1029, and –1295 within the Area of Potential Effects of the Proposed San Joaquin Hills Transportation Corridor, 12-ORA-73, 12-102540.* Chambers Group, Irvine, CA. Submitted to the Federal Highway Administration, Sacramento, CA.

1996 *Test Excavations at CA-SDI-47, 4934-4936 West Point Loma Blvd., San Diego, San Diego County, California, LDR #95-0563.* Professional Archaeological Services, San Diego, California. Prepared for the Mr. David Barham, Los Angeles, California.

1997 *Phase II Evaluation of Archaeological Site CA-RIV-4707/H for Determination of Eligibility, Temecula Creek (Pala Road) Bridge Project, City of Temecula, Riverside County, California, 08-Riv-CR-Pala Road.* Professional Archaeological Services, San Diego, California. Prepared for the County of Riverside Transportation Department.

Ebeling, Walter
1986 *Handbook of Indian Foods and Fibers in Arid America.* University of California Press, Berkeley.

Flenniken, Jeff J.
1981 *Replicative Systems Analysis: A Model Applied to Vein Quartz Artifacts from Hoko River Site.* Laboratory of Anthropology Reports of Investigation No. 59. Washington State University, Pullman.

2005 Appendix A: Glossary of Terms to Technological Analysis of Flaked Stone Artifacts from CA-SDI-5581. Appendix D of *Results of Data Recovery Excavations at CA-SDI-5581 on the Palomar College Campus, San Marcos, San Diego County, California*, by P. de Barros. Prepared for Palomar College, San Marcos, California.

Fulmer, Scott, Ruth F. Almstead, Ann Noah, and Albert C. Oetting
1979 *Archaeological Reconnaissance, Laguna Mountain Recreation Area.* Report prepared for the U.S. Forest Service. Ms. on file at the South Coastal Information Center, San Diego State University.

Gallegos, Dennis R.
1986 A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In *San Dieguito-La Jolla: Chronology and Controversy*, edited by D.R. Gallegos, pp. 23-24. San Diego County Archaeological Society Research Paper No. 1.

Gallegos, Dennis R. and Richard Carrico
1984 *Windsong Shores Data Recovery Program for Site W-131, Carlsbad, California.* Ms. on file, South Coast Information Center, San Diego State University, San Diego.

Gaston, Mary Frank
1996 *Collector's Encyclopedia of Knowles, Taylor & Knowles China.* Collector's Books, Paducah, KY.

Gifford, Edward Winslow
1940 California Bone Artifacts. *Anthropological Records* 3(2). University of California Press, Berkeley.

Gilreath, Amy
1999 Chronological Assessment of the Coso Rock Art Landmark – An Obsidian Hydration Analysis. Ms. on file at the Naval Air Weapons Station, China Lake, California.

Gilreath, Amy J. and W. R. Hildebrandt
1996 Archaeological Investigations within the Coso Volcanic Field. *Society for California Archaeology Newsletter* 30(3):1, 3-5.

Golden, Geoffrey A.
1991 *Encyclopedia of British Pottery and Porcelain Marks.* Barrie & Jenkins, London.

Grace, Ted and Al Reeves
2005 The History of Pauma Valley website: http://www.paumavalley.net/page2.htm

Griset, Suzanne
1990 Transformations of Tizon Brownware. *Nevada Historic State Museum Anthropological Papers* 23: 180-200.

Higgins, Howard C.
1995 Cultural Setting. In *Archaeological Testing of Three Sites for the International Wastewater Treatment Plant Project, San Diego County, California* (C.A. Turnbow, K.A. Adams, J.A. Evaskovich, and H.C. Higgins), pp. 9-18. Mariah Associates, Albuquerque. Submitted to the International Boundary and Water Commission, U.S. Section, El Paso. Contract IBM 91-5, Delivery Order 8.

Jones, Terry L.
1991 Marine-Resource Value and the Priority of Coastal Settlement: A California Perspective. *American Antiquity* 56(3):419-443.

Kaldenberg, Russell L.
1982 *Rancho Park North, A San Dieguito-La Jolla Shellfish Processing Site in Coastal Southern California.* Occasional Paper 6. Imperial College Museum Society, El Centro, California.

Kallis, R.
1955 "How Old is That House?" *Journal of San Diego History* 1(2), April 1955.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California.* Bulletin 78 of the Bureau of American Ethnology. Washington, D.C.: Smithsonian Institute.

Kyle, Carolyn, Adella Schroth, and Dennis Gallegos
1990 *Early Period Occupation at the Kuebler Ranch Site SDI-8654, Otay Mesa, San Diego County, California.* ERC Environmental and Energy Services, San Diego. Submitted to the County of San Diego.

Laylander, Don, Ken Moslak, and Michael Garnsey
2008 Cultural Resources Study for the Proposed Northern Route Pipeline Project, San Diego County, California. For PBS&J, San Diego, California. Ms. on file at the South Coastal Information Center, San Diego State, California.

Luomala, Katherine
1978 Tipai-Ipai. In *Handbook of North American Indians, California, Volume 8.* (R. F. Heizer, ed.), pp. 592-609. William Sturtevant, General Editor, Smithsonian Institution, Washington, D.C.

Mason, Roger and Mark Petersen
1994 *Newport Coast Archaeological Project: Newport Coast Settlement Systems: Analysis and Discussion, Volumes I.* The Keith Companies, Arch. Div., Costa Mesa. Submitted to Coastal Community Builders, Newport Beach. Ms. at South Central Coastal Information Center.

Meighan, C.W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10(2):215-227.

Moratto, Michael J.
1982 *California Archaeology.* Academic Press, New York.

Moratto, Michael J., A. Schroth, J.M. Foster, D. Gallegos, R.S. Greenwood, G.R. Romani, M.C. Romano, L.H. Shoup, M.T. Swanson, and E.C. Gibson
1994 *Archaeological Investigations at Five Sites on the Lower San Luis Rey River, San Diego County, California: Final Report, Volumes 1-3.* Infotec Research, Fresno and Greenwood and Associates, Pacific Palisades, CA. Submitted to the U.S. Army Corps of Engineers, Los Angeles District, Contract DACW09-90-D-0004.

Moriarty, James R., III
1967 Transitional Pre-Desert Phase in San Diego County. *Science* 155 (3762):553-556.

Pala History
2005 Pala Band of Mission Indians Website at http://www.palaindians.com/history.htm

Polak, M.
1994 *Bottles.* HarperCollins, New York.

Praetzellis, Mary, Betty Rivers and Jeanette K. Schulz
1983 Ceramic Marks from Old Sacramento. California Archaeological Reports No 22. Department of Parks and Recreation, Cultural Resource Management Unit, Sacramento, CA.

Richards, Elizabeth W.
1974 *Del Mar Decades: A History of Del Mar, California.* Santa Fe Federal Savings, Del Mar, California.

Rogers, Malcolm J.
1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(2):157-198.

1966 *Ancient Hunters of the Far West.* Union-Tribune, San Diego.

Schaefer, Jerry

1994 The Stuff of Creation: Recent Approaches to Ceramic Analysis in the Colorado Desert. In *Recent Research Along the Lower Colorado River* (J.A. Ezzo, ed), pp. 81-100. Statistical Research Technical Series 51, Tucson.

Schwaderer, Rae

1986 *Archaeological Test Excavations at CA-SDI-4281, Border Field State Park, San Diego County.* Cultural Heritage Section, California Department of Parks and Recreation, Sacramento.

Shipek, Florence

1986 The Impact of Europeans on Kumeyaay Culture. In *The Impact of European Exploration and Settlement on Local Native Americans.* Cabrillo Historical Association, San Diego.

Sparkman, Philip Stedman

1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

Strike, Sandra S.

1994 *Ethnobotany of the California Indians.* Koeltz Scientific Books, Champaign, Illinois.

True, D.L.

1966 *Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California.* Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Los Angeles.

1980 The Pauma Complex in Northern San Diego County. *Journal of New World Archaeology* III(4):1-39.

n.d. Archaeological site form for SDI-570, recorded in ca. the 1950s.

True, D.L. and Eleanor Beemer

1982 Two Milling Stone Inventories from Northern San Diego County, California. *Journal of California and Great Basin Anthropology* 4:233-261.

True, D.L. and Georgie Waugh

1981 Archaeological Investigations in Northern San Diego County, California: Frey Creek. *Journal of California and Great Basin Anthropology* 3(1):84-115.

1982 Proposed Settlement Shifts During San Luis Rey Times, Northern San Diego County. *Journal of California and Great Basin Anthropology* 4(1):34-54.

1983 Radiocarbon Determinations from the Frey Creek Drainage in Northern San Diego County. *Journal of California and Great Basin Anthropology* 5(1&2):253-255.

Turnbow, Christopher A., Kathleen A. Adams, John A. Evaskovich, and Howard C. Higgins

1995 *Archaeological Testing of Three Sites for the International Wastewater Treatment Plant Project, San Diego County, California.* Mariah Associates, Albuquerque. Submitted to the International Boundary and Water Commission, U.S. Section, El Paso. Contract IBM 91-5, Delivery Order 8.

Waugh, Mary Georgie

1986 Intensification and Land-Use: Archaeological Indication of Transition and Transformation in a Late Prehistoric Complex in Southern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California at Davis.

Wallace, William J.

1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11:214-230.

Warren, Claude

1966 *The San Dieguito Type Site; M.J. Rogers' 1938 Excavation Site on the San Dieguito River.* San Diego Museum Papers No. 5. San Diego Museum of Man, San Diego.

1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. *Eastern New Mexico University Contribution in Anthropology* 1(3):1-14.

Warren, Claude and D.L. True

1961 The San Dieguito Complex and its Place in California Prehistory. *Archaeology Survey Annual Report, 1960-1961*, pp. 246-291. University of California, Los Angeles.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer

1993 Paleoindian and Early Archaic Periods. In *Historic Properties Background Study*, pp. III-1 through III-74. Brian F. Mooney Associates, San Diego. Prepared for the Clean Water Program for Greater San Diego, San Diego.

White, Raymond C.
1963 Luiseño Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2):91-194.

Wing, Elizabeth S. and Antoinette B. Brown
1979 *Paleo-Nutrition: Method and Theory in Prehistoric Foodways.* Studies in Archaeology. Academic Press, Orlando, Florida.

Yohe, R., M.E. Newman, and J.S. Schneider
1990 Immunological Identification of Small-Mammal Proteins on Aboriginal Milling Equipment. *American Antiquity* 56(4):659-666.

APPENDIX A

RESUME OF PRINCIPAL INVESTIGATOR
Dr. Philip de Barros, R.P.A.

PROFESSIONAL ARCHAEOLOGICAL SERVICES

PHILIP DE BARROS, Ph.D, SOPA/RPA
13730 Via Cima Bella
San Diego, CA 92129
858-484-3478 (phone/FAX)(eve.)
760-761-3516 FAX (alt. day FAX)
760-807-9489 cell phone
atavikodjo@hotmail.com
2/09

Education

M.A., Ph.D.	Anthropology (Archaeology), UCLA, 1979, 1985
M.A.	Education, Stanford University, 1966
B.A.	History, Stanford University, 1965 (cum laude)

Certifications and Secretary of the Interior Standards

- SOPA Certified in Field Research, Collections Research, and Teaching. Certifiable in Historic Archaeology and Archaeological Research Management since 1987.
- Meet Secretary of the Interior Standards for both Prehistoric and Historic Archaeology.
- Member of the Register of Professional Archaeologists (RPA) since inception.
- Certified to work in San Diego, Imperial, Orange, Riverside, San Bernardino, Santa Barbara, Kern, Inyo, and Los Angeles Counties.

Recent and Current Positions

Professor, Anthropology, Palomar College, San Marcos, 1994-present
Coordinator, A.A. Archaeology Degree Program, Palomar College, 1996-present
Research Associate, Cotsen Institute of Archaeology at UCLA, 1986-present
Director of Cultural Resources/Sr. P.I., Chambers Group, Irvine, 1985-1994
Adjunct Instructor, Golden West College, Huntington Beach, 1985-1994
Instructor, Ceramic Analysis, UCLA, 1987-1991, 1999
Chairperson, Native American Programs Committee, Society for California Archaeology, 1992-1999
Chairperson, Multicultural Committee, Palomar College, 1995-2001
Member, San Diego Archaeological Center Board of Trustees, 1996-1999
Member, Poway U.S.D. and Mt. Carmel High School Human Relations Committees, 1998-2000
Ombudsman, Poway Unified School District, 2001
Principal, now President, Professional Archaeological Services, 1996-present

Cultural Resources Seminars

- Sensitivity Training Workshop, Morongo IR, Riverside County 3/30/07
- As Chair of the Native American Programs Committee of the Society for California Archaeology: taught workshop on CRM laws and archaeology for Salinan Nation, May 1996 (3-days); Pomo Indian groups, March 1998 (3 days; Southern California Indian groups, April 1998 (1 day workshop). Put together CRM and Cultural Heritage Sourcebook for California Native American Communities.
- Preparing Agreement Documents (Tom King), 1991 - 2 days.
- Introduction to Federal Projects and Historic Preservation Law (Tom King and Rob Jackson, instructors, 1989 - 3 days.
- Conservation in Field Archaeology (Getty Institute), 1988 - 5 days.

Experience with GPS and GIS (Geographic Information Systems)

- Teach Introductory GPS and differential correction at Palomar College
- Use GPS in archaeological fieldwork, including setting up own base station
- Introduced GIS to Palomar's Archaeology Program Curriculum
- 160 hours of Training in ArcView GIS through ESRI and other institutions:
  - ✓ Seminar on Working with ArcGIS 9.3 and ArcGIS Server
  - ✓ Migrating to ArcGIS 8.3; ArcGIS 8.3 Part II, 1 week May and July 2004
  - ✓ GIS Access Workshop, San Diego, 1 week, July 2001
  - ✓ GIS Access Workshop, Pierce College (NSF funded),2 weeks, July 2000
  - ✓ 1.5 hr classes in ArcView 3.2, ArcView Internet Map Server (IMS), and Producing Quality Maps in ArcView, July 1999
  - ✓ Working w/ ArcView Image Analysis, July 1999, 16 hrs, ESRI (Redlands) Spatial Analysis in GIS, July 1999, 8 hrs, Michael Goodchild, ESRI User's Conference, Preconference Seminar, San Diego
  - ✓ Working with ArcView 3-D Analyst, June 1999, 6 hrs, ESRI (Palomar CC)
  - ✓ Working w/ ArcView Spatial Analyst, May 1999, 24 hrs, ESRI (Redlands)
  - ✓ Advanced ArcView GIS, April 1999, 24 hrs, ESRI (Redlands)
  - ✓ Intermediate ArcView Training, June 1999, 8 hrs, North Orange County CCD (Glendora College)
  - ✓ Introduction to ArcView GIS, February 1999, 16 hrs, ESRI (Riverside CC)
  - ✓ ESRI User's Conference Instructor's Workshop, January 1998, 40 hrs, North Orange County CCD (San Bernardino Valley College)
- Field experience in California and Africa using integrated GPS-GIS technologies, first with Trimble and now with Ashtech ProMark2.

Experience in Cultural Resource Management

- Over 30 years experience in the field of archaeology and cultural resource management in California and the Western U.S.
- Principal, now President, Professional Archaeological Services, 1996-present

- Director of Cultural Resources/Senior Principal Investigator at Chambers Group in Irvine, California, from 1985-1994.
- Served as Principal Investigator and/or Project Manager on over 150 cultural resources projects since 1985, involving archival research, reconnaissance and intensive surveys, research designs, test excavations, data recovery excavations, cultural resource management plans, HABS/HAER documentation, the preparation of agreement documents (MOAs, PAs, Effects documents), Native American concerns, and Section 106 coordination.
- Experience in Southwestern archaeology under Professor James N. Hill of UCLA (ceramic typology, seriation, and M.A. thesis) and African archaeology (ethnoarchaeology, ethnography, Ph.D. on archaeology of traditional iron smelting in Togo, West Africa).

Section 106 (Federal) Experience

Section 106 experience as P.I. and/or Project Manager in inventory, evaluation, data recovery, historical archaeology, HABS/HAER documentation, the development of historic preservation plans, and agreement documents.

Major Inventory Work Includes:

- Evaluation plan for cultural resources in Villages 6 and 7 of the Rancho Las Flores Project, Hesperia, San Bernardino County, California, Including the results of a 995-acre resurvey of Villages 6 and 7, 2007-2008
- Small surveys for the San Diego City Water Department Associated with Barrett Lake and El Capitan Reservoir, 2004-2006
- Over 40 surveys of cellular telephone tower locations in southern California, 2000-2001
- 3,250-acre survey for the Trust for Public Lands, Rancho Jamul, San Diego County in Spring of 1998.
- 24 mile linear survey for the Lucerne Valley to Big Bear 115 kV Transmission Line Project In California for S.C.E. in 1992.
- 1500-acre survey for the BLM Ridgecrest Resource Area, 1989.
- Literature search for 3,000 miles of proposed gas pipelines in the Western U.S. for the Mojave/Kern River Gas Pipeline Project for the Federal Energy Regulatory Commission and California State Lands Commission, 1986-1987.
- Extended Phase I inventory and shovel test pit program for prehistoric sites, evaluation of historic structures, and determination of Native American concerns for ARCO's proposed Coal Oil Point Project in Santa Barbara County which ran from Goleta to Gaviota, 1985-1987.

Evaluation Experience Includes:

- Test excavation analyses and report on Guapiabit (SBR-93, -1675/H, -1913) and Archaic site SBR-1886, Rancho Las Flores Project, 2008-09 (ongoing).

- Testing of prehistoric archaeological site, INY-5887, 2001.
- Testing of historical archaeological site in Desert Center, RIV-6513H, 2000.
- Testing of two sites in the Imperial Valley, IMP-7804 and –7813H, near Westmorland and Coyote Wells, 2000.
- Testing and evaluation of RIV-4707/H in Temecula, Riverside County, for Caltrans District 8, 1996-1997.
- Testing and evaluation of nine sites in the Crowder Canyon Archaeological District, San Bernardino County, for Caltrans District 12, 1990-1997.
- Testing & evaluation of prehistoric/historic sites associated with the Lucerne Valley to Big Bear 115 kV Transmission Line Project for S.C.E. in 1992.
- Testing and evaluation of the Purisima Point sites, the Honda Beach Site, the Barka Slough Site, the Olivera Adobe Site, as well as 7 rock art sites at Vandenberg AFB for the National Park Service, 1992-1996.
- Inventory and evaluation of historic archaeological sites and structures along the San Joaquin Hills Transportation Corridor in Orange County, 1993, for Caltrans District 12.
- Testing and evaluation of SBR-5096 along Hwy 71 for Caltrans District 8, 1991-1992.
- Testing and evaluation of 23 prehistoric sites along the San Joaquin Hills Transportation Corridor in Orange County, Caltrans District 12, 1988-1990.

Data Recovery Experience Includes:

- Data recovery excavations at SBR-3803H in Crowder Canyon Archaeological District, 2005; report out 2007 by Applied Earthworks.
- Data recovery excavations at ORA-1357 in the Aliso Creek drainage, 1993-1994, San Joaquin Hills Transportation Corridor, for Caltrans District 12.
- Data recovery excavations at 5 sites for the San Joaquin Hills Transportation in Orange County for Caltrans District 12, 1993-1994.
- Data recovery excavations at FRE-64, -632, -633, -1154, and -1155, for Caltrans District 6 and the U.S. Army Corps of Engineers, Sacramento District, 1987-1989.

Historical Archaeology Experience Includes:

- Testing/evaluation of SDI-9537/H in Pauma Valley, 2005
- Data recovery ORA-1582H (now 1654H) in Huntington Beach, 2004-05
- Teach course in Historical Archaeology at Palomar College since 2004
- Testing/evaluation of ORA-1582H, an historic dump (1900-1930), 2001.
- Testing of historical archaeological site in Desert Center, RIV-6513H, 2000.
- Testing historical archaeological site, IMP-7928H, near Westmorland, 2001
- Inventory and evaluation of Brown's Toll Road and a residence/way station associated with Crowder Canyon, for Caltrans District 8, 1997.
- Testing and evaluation of RIV-4707/H in Temecula, a late 19th century trash deposit with a domestic residence, Pala Bridge Improvement Project, Riverside County Transportation Department with Caltrans District 12 review.

- Inventory and evaluation/testing of historic homestead sites and historic transmission lines associated with the Rancho Las Flores Project, San Bernardino County for U.S. Army Corps of Engineers, 1990, 1994-1995.
- Inventory and evaluation/testing of historic sites associated with the San Joaquin Hills Transportation Corridor for Caltrans District 12, 1992-1993.
- Evaluation and testing of mid-to-late 19th century winery and homestead, lime and brick kilns, roads, and early 20th century cement and cobble building in Fontana, for U.S. Army Corps of Engineers, 1991-1992.
- Evaluation (archival research and testing), data recovery, and preservation/interpretive efforts associated with the Franciscan Plaza Project, Phases I and II, San Juan Capistrano, 1988-1990 (2 volumes reprinted by Coyote Press, Salinas).

as well as the following selected projects done under CEQA:

- Surveys Borrego Springs (3), Fallbrook (7), Valley Center, Rosamond, Wildomar, and North Palm Springs (2006-08)
- Testing of 7943/H near Perris, Riverside County, California.
- Architectural evaluations in Vista and Fallbrook (with Ken Swift)(2006-07)
- Burial excavations at ORA-149 in 2006
- Data recovery ORA-149 & -1582H (now 1654H), Huntington Beach, 2004-06
- Surveys at Cuyamaca Rancho State Park by Palomar College for California State Parks, 1996 (Arroyo Seco); 1998, 2000 & 2002 (Green Valley; 2004 (Horse Camp and Green Valley Campgrounds); 2006 (Arroyo Seco Primitive Camp and vicinity).
- Testing/evaluation of SDI-9537/H (prehistoric and historic components, 2005
- Mitigation monitoring (SDI-195 and SDI-195/H), Gevanthor Residence, City of San Diego, 2004
- Data recovery at ORA-149 and ORA-1582/H, June-July 2004
- Mitigation monitoring (SDI-15,093), City of San Diego, 2003
- Survey of 1,416 acres west of Julian, County of San Diego, 2003
- Testing at SDI-297 in Valley Center, County of San Diego, 2003
- Testing at SDI-16951 in Valley Center, County of San Diego, 2003
- Two 300 acre surveys in Menifee area of Riverside County, 2002-2003
- Data recovery at SDI-5581, Palomar College, 2000-2002
- Testing at prehistoric shell midden site, ORA-149, 2001
- Testing of historical archaeological site, ORA-1582H, 2001
- Evaluation DiAmbrogio Winery, Cucamonga, San Bernardino County, 2001
- Evaluation (testing) of SDI-15,093, Del Mar Terrace, City of San Diego, 1999
- Evaluation (testing) of SDI-5745 and SDI-15,120 in Pine Valley, County of San Diego, 1999
- Evaluation of historic structures in Pt. Loma and Del Mar, City of San Diego, 1998-1999, including designation of historic Portuguese fishing family residence the Historic Sites Board
- Evaluation (testing) of SDI-47, Ocean Beach, City of San Diego, 1996

- Evaluation (archival research and testing) of historic kiln site near Mission San Juan Capistrano, 1988-89 (project manager).
- Evaluation (archival research and testing) and data recovery excavations of the foundations of the wall around the Mission gardens in San Juan Capistrano (Sizzler and Plaza del Obispo Projects), 1988-1989.
- Evaluation (testing/archival research), data recovery, & interpretive efforts for the late-19th century Mile Square Park Site, Fountain Valley,1987-89.

HABS/HAER Experience Includes:

- Served as P.I. for a HABS documentation of late 19th century-early 20th century structures in Fontana, San Bernardino County, 1990.
- Served as Project Manager for a major HAER documentation of a Ford Motor Assembly Plant at the Port of Long Beach, 1990-1991.

Cultural Resource Management Plans/Historic Preservation Plans:

- Historic Property Management Plan for the Lake Elsinore Advanced Storage Project (LEAPS) and associated 30 miles of transmission lines and substations. For Federal Energy Regulatory Commission (FERC) and Chambers Group, Inc. Submitted to SHPO, FERC, Cleveland National Forest (CNF), interested Indian Tribes (Federal and unrecognized). February 2005
- Cultural Resources Overview and Management Plan – for 120 sites within the Rancho Las Flores Project, San Bernardino County, 2004. Major revision and expansion of 1990 document. 400 pages.
- Cultural Resource Overview and Management Plan -- cultural resources overview, research design, and long-term cultural resource management plan for the 10,000-acre Rancho Las Flores Project, San Bernardino County. Covers 120 sites (lithic scatters, roasting pits, prehistoric camp sites, historic ranch and homestead sites, and large prehistoric/ethnohistoric housepit village sites). Several sites will be preserved in Serrano Heritage Preserve. 1990, revised 2004.
- Work on Historic Preservation Plan for Vandenberg AFB, National Park Service, 1994.

Experience in Preparing Agreement Documents Includes:

- Programmatic Agreement (PA) for the 10,000-acre Rancho Las Flores Project, San Bernardino County, 1994-97, approved by SHPO & ACHP.
- PA for the Playa Vista Project near Marina del Rey, approved, 1991.
- Memorandum of Agreement (MOA), Hunter's Ridge Project, Fontana, 1993.
- All but historic building section of MOA for New Ford Road Project linked to San Joaquin Hills Transportation Corridor Project, Orange County, 1993-94.
- Contributions to the development of an MOA for ARCO's proposed Coal Oil Point Project in Santa Barbara County, 1986-1987.

- Finding of Effect (FOE) for the San Joaquin Hills Transportation Corridor Project, 1992; also, for Phase I, Rancho Las Flores Project, 1994.

Experience in Assessing Damage to Archaeological Sites:

- Provided independent assessment of damage to archaeological sites within the Cleveland National Forest under the Archaeological Resource Protection Act (ARPA). This data was for a court case involving the looters.

<u>Experience Working with Native Americans</u>

- Chairperson of the SCA's Native American Programs Committee (NAPC) from 1992-1999:
  - ✓ symposia at Asilomar, 1993; Eureka, 1995; Rohnert Park 1997.
  - ✓ workshops for Salinan Nation, 1996; Pomo groups, 1998.
  - ✓ development of MiniSourcebook on CRM for California Indian groups, 1998; revised Sourcebook 1999
  - ✓ CRM workshop at annual SCA meeting, San Diego, 1998
  - ✓ Nov. 2004 – NAPC won the Governor's Heritage Conservation Award.
- Featured archaeologist at conference sponsored by the Governor's Office on Community Relations and the California Native American Heritage Commission, July 1992; plus additional conferences.
- Articles on Indian issues for Society for California Archaeology (SCA) Newsletter, Society for American Archaeology (SAA) Newsletter, Native American Heritage Commission Newsletter, News from Native California.
- Worked with the Juaneño and Gabrielino of Los Angeles, Orange, and San Bernardino Counties; the Serrano and Cahuilla of Riverside and San Bernardino Counties; the Chumash of Santa Barbara and Ventura Counties, the Luiseño of Riverside and San Diego Counties, the Northfork Mono and Choinumne Yokuts of Fresno County, the Kumeyaay of San Diego County, 1985-1997, and the Salinans of Monterey County, 1985-1997.
- Worked with Fort Mojave Indian Reservation, the Moapa Reservation of Nevada, and other Native American groups in Arizona, New Mexico, Wyoming, and Colorado, working on the Mojave/Kern River EIR/EIS, Cultural Resources Technical Report, 1986.
- Work closely with Native American representatives from southern California on all phases of archaeological research, including research design, and have negotiated several complex burial agreements.

<u>Summary of Work Under CEQA</u>

In addition to above, served as PM and/or PI on over 120 projects since 1985, including inventory, evaluation, and mitigation phases for both prehistoric and historic archaeological sites as well as historic buildings. Wrote guide booklet for cultural resources under CEQA entitled, ***A Guide to Cultural Resource Management for Planners, Developers, Contractors, and Property Owners*** (with Carmen Weber), March 1993, revised 1999. Chambers Group, Irvine. Over 2,000 distributed statewide.

Selected Refereed Publications

2009a The Bassar Chiefdom in the Context of Theories of Political Economy. **In *State and Society in Atlantic West Africa: Archaeologies of Landscape and Region,*** ed. by J.C. Monroe and A. Ogundiran (in prep for Cambridge University Press).

2009b A Comparative Study of Early and Later Iron Age Societies in the Bassar Region of Northern Togo. To appear in the Proceedings of the World Iron Conference, February 2009.

2009c Steatite Sourcing and Steatite Production and Exchange in the Southern Sierra Foothills. To be resubmitted to the ***Journal of California and Great Basin Anthropology*** (with R.O. Allen and M. Lockhart) (to be submitted)

2006 ***Final Report on the Huntington Beach Dump Site, CA-ORA-1654H (formerly – 1582H), Including the Results of Excavations at Newly Discovered Loci B and C, Pacific City Project, Huntington Beach, Orange County, California.*** Professional Archaeological Services, San Diego. For Makar Properties, Newport Beach, CA. (with S. Crull, Co-P.I. & S. Walter).

2005 Surprising Results at the Early Iron Site of Dekpassanware, Togo, West Africa. ***Backdirt.*** Spring/Summer. Cotsen Institute of Archaeology at UCLA .

2004a ***Cultural Resources Overview and Management Plan, Rancho Las Flores Project, Hesperia, San Bernardino, California.*** For Rancho Las Flores, LLC. Ms on file at the San Bernardino County Museum Archaeological Information Center, Redlands, California.

2004b ***Cultural Resources Survey and Assessment of 1,415.6 Acres of the Hoskings Ranch South of State Highway 78/79 Near Julian San Diego County, California.*** Manuscript on file at the South Coastal Information Center.

2003 Recent Early Iron Age Research in Bassar, Togo. ***Nyame Akuma*** 59:76-78.

2001 The Effect of the Slave Trade on the Bassar Ironworking Society, Togo In ***West Africa During the Atlantic Slave Trade: Archaeological Perspectives***, edited by C. De Corse, pp. 59-80. Leicester University Press, London.

2000	Iron Metallurgy: Sociocultural Context. In ***Ancient African Metallurgy: The Socio-Cultural Context,*** edited by J.O. Vogel, pp. 147-198. AltaMira Press, Walnut Creek, California
1999	***A Sourcebook on Cultural Resource Management, Archaeology, and Cultural Heritage Values for the Native American Communities of California.*** Society for California Archaeology[author & compiler]
1998	***A MiniSourcebook on Cultural Resource Management, Archaeology, and Cultural Heritage Values for the Native American Communities of California.*** Society for California Archaeology. [author and compiler]
1997a	The Cultural Context of Ironworking. In ***Encyclopedia of Precolonial Africa***, edited by J. Vogel, pp. 135-149. AltaMira Press, Walnut Creek, California.
1997b	***Archaeological Investigations at Franciscan Plaza, San Juan Capistrano,*** 2 vols. Chambers Group, Santa Ana, CA. Prepared for Redevelopment Agency City of San Juan Capistrano & Franciscan Plaza Investment Group. Reprinted by Coyote Press, Salinas.
1993	***A Guide to Cultural Resource Management for Planners, Developers, Contractors, and Property Owners.*** Chambers Group, Irvine, California (with Carmen Weber).
1990	A History of Changing Paradigms, Goals, and Methods in the Archaeology of Francophone West Africa. In ***The History of African Archaeology***, edited by P. Robertshaw, pp. 155-172. James Currey, London.
1988	Societal Repercussions of the Rise of Large-Scale Traditional Iron Production: a West African Example. ***The African Archaeological Review*** 6:91-113.
1986	Bassar: A Quantified, Chronologically Controlled, Regional Study of a Traditional Ironworking Centre. ***Africa*** 56(2):148-174.
1982	The Effects of Variable Site Occupation Span on the Results of Frequency Seriation. ***American Antiquity*** 47:291-315.
1980	Archaeological Investigations in 1979 on the Santa Fe National Forest by the Pajarito Archaeological Research Project, USDA Forest Service, Southwestern Region.

Conference Papers and Symposia

- delivered well over three dozen conference papers for various meetings of the AAA, SAA, SCA, ASA, SAfA, CMSA, and other societies, 1980-2009.
- most recent papers given at the World Iron Conference in London in February 2009, the Colloquium on West African Sites in Ouagadougou, Burkina Faso in 20007, and at the SAfA(Calgary) and SAA meetings (Puerto Rico) in 2006.
- organized/chaired symposia on CRM research, Communication Between Native Americans and Archaeologists, and Research at Vandenberg AFB, at various forums, including the SCA and SAA, 1992-1998.
- organized workshop on CRM law for Salinan Nation, Monterey County, 1996.

Professional Affiliations

Society for Professional Archaeologists (SOPA), 1987-1998
Register of Professional Archaeologists (RPA), 1998-2009
Society for American Archaeology (SAA), 1977-1985, 1988-2009
American Anthropological Association (AAA), 1981-1994, 2009
Society for California Archaeology (SCA), 1987-2009
Pacific Coast Archaeological Society (PCAS), 1977-1980, 1988-2009
Society for Conservation Archaeology (SfCA), 1988-1990
California Mission Studies Association (CMSA), 1989-1990
Society for Historical Archaeology (SHA), 1990-1992
Society for Africanist Archaeologists (SAfA), 1992, 2003-2009

Selected Honors and Awards

International Center for Scientific Research Listing (CIRS – Centre International pour la Recherche Scientifique), for Palomar College Archaeology Program Web Pages, 2007

Study Sphere Learning Resource Award of Excellence, Palomar College Archaeology Program Web Pages, 2006
Governor's Heritage Award, 2004, for Native American Programs Committee, committee that I founded and led from 1992-1999.
Palomar College Research Award, 2001
Professorial Fulbright Scholar Award, African Regional Research Program, 2001-2002 – research in Togo West Africa, Jan-July 2002
Commendation Award from Society for California Archaeology for Work as Native American Programs Committee Chair, 1992-1999
Ahmanson Research Grant, UCLA, 1999
NISOD Teaching Excellence Ward, 1998
Palomar College Research Award, 1997
Computer Equipment Grant for Palomar Archaeology Program, 1995

Wenner-Gren Foundation Grant, Togo, West Africa, 1988-1989.
Fulbright Grant - Doctoral Dissertation Research Abroad, 1982.
Teaching Assistant, UCLA, Anthropology Department, 1979-1980.
Research Assistant, UCLA, Pajarito Archaeological Research Project, 1978-80.

Areas of Expertise

- Cultural Resource Management/Section 106
- Prehistoric Hunter-Gatherers of Southern California
- Southern California Historic Archaeology
- Puebloan Cultures of the American Southwest
- Iron Age Cultures of SubSaharan Africa
- Ceramic Typology, Seriation, and Analysis
- Steatite Sourcing in California
- Windows XP; MS Office 2007: Word, Excel, Access, SharePoint Designer
- GPS Trimble Pathfinder; Ashtech ProMark2 & 3 GPS
- Geographic Information Systems (GIS), ArcView 3.2, Spatial and Image Analyst Extensions, ArcView IMS; ArcGIS 9.3.and ArcGIS Server.

References

CRM/Section 106/CEQA

Barbara Tejada, Stephen Hammond
Caltrans District 8
909-383-5950
barbara_tejada@dot.ca.gov

Mark Thompson, Thure Stedt
TRS Consultants
7867 Convoy Court, Ste 312
San Diego, 92111
858-496-2525

Margaret Hangan
U.S. Forest Service, Cleveland National Forest
858-674-2973
mhangan@fs.fed.us

Martin Rosen, Caltrans
District 11
619-688-6751

Steve Dibble, COE
Los Angeles District
213-452-3849

Tom Taylor
Southern California Edison
818-302-9540

Laurie Dobson
Riverside County Trans. Dept.
909-275-2016

Glenn Russell
San Diego County Archaeologist
858-694-2981
glenn.russell@sdcounty.ca.gov

Gail Wright
Dept. of Planning & Land Use
858-694-3003
gail.wright@sdcounty.ca.gov

Larry Spanne, BHPO
Vandenberg AFB
805-732-8232 x50748

Laura Eisenberg
Transportation Corridor Agencies
949-513-3482, -3481

Cliff Hood
Rancho Las Flores, LLC
949-248-2300, x202

Ethen Thacher
Makar Properties
949-255-1100 x 109
714-914-5616 (cell)
ethent@makarproperties.com

Stephen Bouscaren, Ph.D.
San Diego City College
619-271-9139; 230-2609

Mary Beth Broeren, City Planner
City of Huntington Beach
714-536-5550
broerenm@surfcity-hb.org

Experience with Native Americans

Larry Myers, Executive Secretary
Native American Heritage Commission
Sacramento 916-653-4082

Katherine Saubel
NAHC 909-849-8304

Joyce Perry, David Belardes
Juaneño Band of Mission Indians
714-493-4933

Gregg Castro
Salinan Nation
408-218-4459

Academic

Dr. Merrick Posnansky, Prof. Emeritus
Professor of History and Archaeology, Emeritus
UCLA 818-986-1381

Dr. Joe Vogel, retired
Anth Dept., Univ. of Alabama
707-642-5972

APPENDIX B

DEBITAGE ANALYSIS WORKSHEETS

by
Philip de Barros, Ph.D.

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 1 **STP:** ____ **Level:** 0 -- 10 cm cl. quartz – 0.3g

Catalog No. 73 **Level Count:** 15 **Level Weight:** 11.2 g quartz – 10.3g MVa – 0.9

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
green; 1 green buff 4 MV/aphanitic	5	/////				/////				/////				//	///		
Milky Quartz	9	//	/	/////*/	/*		//	/*		//				/	//////	//*	
Clear Quartz	/			/											/		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	15	7	1	7	1	5	2	1		7				3	10	2	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: (1) * includes Split nodule – split along plane; cortical platform, 2–4cm (2) MF quartz flake - poor quality, flaws

milky quartz shatter cortex

P	S	I
/	//	//

clear ↑

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

clear qtz 0.7
MVa 0.3
MVp 0.8
quartzite 0.6
PDL chert 2.7g
chalc 1.0g
milky quartz 34.1g

Unit: 1 **STP:** ______ **Level:** 10 -- 20 **cm**

Catalog No. 75 **Level Count:** 35 **Level Weight:** 40.2 **g**

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
gray MV/porphyritic	1	/				/				/						/	
buff + gray MV/aphanitic	2	/	/			/				/				/	/		
Milky Quartz	23	///⊛	///	10 ~~////~~ ////	//		/	⊛		//				~~////~~ /	~~////~~ ~~////~~ /	~~////~~ /	⊛
Clear Quartz	2		/	/											//		
Obsidian																	
gray Quartzite	2	//			//				//						//		
Chert	4*	///	/		/	/	/		/	//					////		
grayish-white Chalcedony	1	/			/				/						/		
Jasper																	
TOTALS	35	11	6	18	6	3	2	1	4	6				7	21	7	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: * includes 4 PDL chert – gray, red + yellow, olive-yellow, red + lavender gray (close to jasper)
5 of the AS look like lithic assay – split cobbles – (in excavation?) ⊛ bipolar flake – white quartz

AS		
P	S	I
4	10	2

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 1 **STP:** ______ **Level:** 20 -- 30 cm

Catalog No. 78 **Level Count:** 19 **Level Weight:** 8.3 g

obsidian 80 reworked biface frag? not debitage

MVa – 0.3g
clear quartz – 0.3g
milky " – 7.7g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
greenish gray MV/aphanitic	2	/	/				/?			/					//		
Milky Quartz	15	///	///	卌/*///	/	///		///		/				卌 ///	卌 /	/*	
Clear Quartz	2	/		/			/			/				//			
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	19	5	4	10	1	4	1	2		3				10	8	1	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: * Quartz – at least one lithic assay AS

Clear Quartz AS – sec.

Milky "

P	S	I
/	卌	/

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 1 **STP:** ____ **Level:** 30 -- 40 **cm**

MVa - 2.1g

Catalog No. 81 **Level Count:** 4 **Level Weight:** 0.4 **g**

quartz - 0.3

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
gray-black MV/aphanitic	1	1				1				1				1			
Milky Quartz	3		11	1										111			
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	1	2	1		1				1				4			

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS:

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 2 **STP:** ______ **Level:** 0 -- 10 cm

Catalog No. 83 **Level Count:** 21 **Level Weight:** 25.9 g

MVp – 2.2g
MVa – 0.5g
chert – 0.6g
quartz – 22.6g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	3	//		/		/	/			//					///		
MV/aphanitic	4	*///*	/			*///*				//*	/*			*///*	/		
Milky Quartz	13	/////	///	////⊛		///	//			////	/			//	/////////	//⊛	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert	/	/			/			/							/		
Chalcedony																	
Jasper																	
TOTALS	21	11	4	6	1	7	3	1		8	2			5	14	2	

3 greenish, 1 grey

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: Chert has the sparkling crystals of PDL but is greyish lavender to greyish buff

* soft hammer percussion (lipped platform)

Quartz – ⊛ 1 large shatter/excavated damage?

AS – FF – interior

P	S	I
⊛		1

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 2 **STP:** ________ **Level:** 10 -- 20 cm

Catalog No. 93 **Level Count:** 28 **Level Weight:** 11+ g

MVa – 0.2g
MVp – 0.1g
Clear Qtz – 1.4g
Milky Qtz – 9.3g
obsidian – <0.1g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	2	/	/				/			/				//			
MV/aphanitic	1		/												/		
Milky Quartz	17	///	//////	////////	/	/		/		/				//////	9	//	
Clear Quartz	7	//	/	////		//	/			//	/			////	///		
Obsidian	1	/					/						/	/			
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	29	7	10	11	1	3	3	1		4	1		1	13	13	2	

gray quartzite

CAT. NO. 97

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: large, quartz primary flake – lousy material

AS		
P	S	I
///	/	///

FF		
P	S	I
/	/	////

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

milky qtz – 7.2g
MVp – 0.4g
MVa – 1.0g
quartzite – 1.1g
clear quartz – 1.3g

Unit: 2 **STP:** ______ **Level:** 20 -- 30 cm

Catalog No. 99 **Level Count:** 16 **Level Weight:** 11 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
gray MV/porphyritic	1	/				/				/					/		
green, green-gray (2) MV/aphanitic	3	/	//			/				/				//	/		
Milky Quartz	9	/⊛//	////	//	/	//⊛			//⊛			/		///	////*	//⊛	
Clear Quartz	2	/*	/			/*		/*							//		
~~[illegible]~~ light brown Obsidian																	
Quartzite	1	/			/				/							/	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	16	7	7	2	2	5		1	3	2		1		5	8	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: *2 quartz cores in this level – given separate catalog numbers
Clear quartz crystal with 4 original crystal facets ⊛ Two Possible Bipolar flake – one w/ cortex either end

FF		AS	
S	I	S	I
1	卌	1	1

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 2 **STP:** ______ **Level:** 30 -- 40 cm

Catalog No. 104 **Level Count:** 22 **Level Weight:** 14.1 g

MVp – 5.8g
MVa – 2.4g
chalcedony – 0.1g
milky Qtz – 5.8g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
gray MV/porphyritic	2		//													//	
2 gray, 3 green MV/aphanitic	6	////	//			///	/		/	/	//			/	卌		
Milky Quartz	13	///	///	卌 //			///			/	/	/		卌 /	卌 /	/	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
gray + orange Chalcedony	/	/				/		/						/			
Jasper																	
TOTALS	22	8	7	7		4	4	1	1	2	3	1		8	11	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS:

AS		
P	S	I
卌		//

FF		
P	S	I
	/	//

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 2 **STP:** ______ **Level:** 40 -- 50 cm

Catalog No. 106 **Level Count:** 22 **Level Weight:** 6.6+ g

mvc – 0.4g
clear qtz – 1.1g
m. qtz – 5.1
obsidian – 2.1g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
green MV/aphanitic	2	1	1				1					1			2		
Milky Quartz	15	7	4	4		5	2		1	3	1	1	1	4	10	1	
Clear Quartz	4	2		2			2				1	1			4		
CAT. NO. 109 Obsidian	1	1				1							1	1			
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	22	11	5	6		6	5		1	3	2	3	2	5	16	1	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: one quartz w/ lipped platform

AS			FF
P	S	I	I
		4	2

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 2 **STP:** ______ **Level:** 50 -- 56 cm

Catalog No. 111 **Level Count:** 16 **Level Weight:** 10.8 g

MVp - 0.4g
MVa - 0.3g
clear qtz - 0.1g
milky qtz 10.0g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
grey MV/porphyritic	1	I				I					I				I		
H. brown, gry, green MV/aphanitic	3	III				III				I		I	I	II	I		
Milky Quartz	11	IIII			I	II	I		I	II	I			III	||||| I	II	
Clear Quartz	1		I											I			
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	16	8	1		1	6	1		1	3	2	1	1	6	8	2	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: one MVa lipped platform

AS
P S I
1 1 4

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 3 **STP:** ______ **Level:** 0 -- 10 cm

Catalog No. 114 **Level Count:** 23 **Level Weight:** 12.7 g

MVp – 0.4g
MVa – 4.0g
clear qtz – 0.2g
milky qtz – 8.1

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	1	1				1				1					1		
MV/aphanitic	6	4	1	1		3	1			3	1?			1	5		
Milky Quartz	14	1	5	8		1				1				6	7	1	
Clear Quartz	2	1		1			1				1			1	1		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	23	7	6	10		5	2			5	2			8	14	1	

1 gray, 1 purple, 4 green, 1 gray

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: 2 AS – could be excavation breakage

+2

AS			FF
P	S	I	I
3	3	1	5

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 3 **STP:** ____ **Level:** 10 -- 20 cm

Catalog No. 122 **Level Count:** 10 **Level Weight:** 9.8 g

Chert 3.8g
MVp 0.5g
MVa 0.2g
m. quartz -5.3g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic (gray)	2	//				//				//					//		
MV/aphanitic	2	//				//				//				/	/		
Milky Quartz	5	//	/	//*		//							//	////		/*	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert (gray)	/			/												/	
Chalcedony																	
Jasper																	
TOTALS	10	6	1	3		6				4			2	5	3	2	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: Chert - has crystals in it like PDL

*excavation damage or core frag

FF & AS
I - 2

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 4 STP: ______ Level: 0 -- 10 cm

Catalog No. 129 Level Count: 22 Level Weight: 9.4 g

chert - 0.2g
MVp - 2.7g
MVa - 2.3g
clear qtz - 2.5g
wh qtz - 1.7g

2g-blk, 2-3gms gray
3grn, 3gl

gray brown

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	5	//*	//	/		//				//				/	////		
MV/aphanitic	6	/////*		/		/////				//	///			//	////		
Milky Quartz	5⊛	//		///	/	/			/	/				/////			
Clear Quartz	5	/	//	//		/							/?	//	///		
Obsidian																	
Quartzite																	
Chert	/			/										/			
Chalcedony																	
Jasper																	
TOTALS	22	10	4	8	1	9			1	5	3		1	11	11		

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ⊛ a lot of excavation destruction here – tossed most of it – all shatter

* lipped platform (2)

AS
P S I
| || ||||

FF
P S clear quartz
| |

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVp – 2.0g
MVa – 1.6g
M. Quartz – 14.6g
cl. Quartz – 0.5g

Unit: 4 **STP:** ______ **Level:** 10 -- 20 cm

Catalog No. 136 **Level Count:** 15 **Level Weight:** 18.7g

gray + beige
2gr 2beige

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	2	//				//				//					//		
MV/aphanitic	4	*//	//			/	/				//			/*	//	/	
Milky Quartz	8 (*)	////	////	/ (*)	//	/	/	//		//				///	////	//	
Clear Quartz	/																
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	15	8	6	1	2	4	2	2		4	2			4	8	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: *lipped platform

(*) Excavation damage to white quartz – problem; caused a lot of shatter

One AS – could be small core

FF
P S I
卌

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVp – 0,2 g
MVa – 0,6 g
M qtz – 12,8 g

Unit: 4 STP: ______ Level: 20 -- 30 cm

Catalog No. 143 Level Count: 10 Level Weight: 13,6 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	1		/												/		
MV/aphanitic	3	//	/			//				/		/		//	/		
Milky Quartz	6*	/	//	///		/			/					//	///	/	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	10	3	4	3		3			1	1		1		4	5	1	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: *1 very large flake

AS
P S I
I I I

FF
I
II MV
II Qtz

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 4 **STP:** ______ **Level:** 30 -- 40 **cm**

Catalog No. 146 **Level Count:** 46 **Level Weight:** 23.2 **g**
+53.9

chert - 0.6g
clear qtz - 1.0g
MVp - 0.4g
MVa - 2.9g
M. quartz - 18.3g

+53.9g
split nodule

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	2	//				//				//					//		
MV/aphanitic	12	[illegible]	卌 //	/		///	/			//	//			[illegible]	[illegible]		
Milky Quartz	25*	[illegible]	卌 /	卌 ///	//	卌	///	/	//	[illegible]	//		/	[illegible]	[illegible]	卌	
Clear Quartz	5	/	//	//			/				/			///	//		
Obsidian																	
Quartzite																	
Chert	2		//											/	/		
Chalcedony																	
Jasper																	
TOTALS	46	18	17	11	2	10	6	1	2	9	5		1	19	22	5	

gray-black + lt-green (MV/aphanitic)
2 beige 3 green 7 gray-blk (Milky Quartz)
red-brown + bluish + white (Chert)

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: *1 very large + heavy lithic assay 53.9g 1 flake split nodule with removal

MV 1 lipped platform

MV FF
P S I
卌 ||

MV AS
I
1

AS clear qtz
all I (4)

Qtz AS
P S I
2 3 3

Qtz FF
P S I
4+2

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

jasper - 2.2g
chert - 0.3g
MVp - 0.2g
MVa - 1.3g
M-quartz - 2.1g

Unit: 4 **STP:** ______ **Level:** 40 -- 48 cm

Catalog No. 149 **Level Count:** 21 **Level Weight:** 6.1 g

	Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)				
			F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4	
gray	MV/porphyritic	1		/												/			interior
greenish	MV/aphanitic	5*	///	//		/	//			/	/		/		//	///			interior FF
	Milky Quartz	13	////	////	/////	/	///			//	/			/	//////////	//			interior AS + 1
	Clear Quartz																		
	Obsidian																		
	Quartzite																		
gray	Chert	1	/				/				/				/				
	Chalcedony																		
red & whitish red	Jasper	1		/													/		interior
	TOTALS	21	8	8	5	2	6			3	3		1	1	14	6	1		

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: lipped platform (2)

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 5 **STP:** ______ **Level:** 0 -- 10 cm MVa – 1.6g

Catalog No. 152 **Level Count:** 4 **Level Weight:** 3.3 g Qtz – 1.7g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
green MV/aphanitic	/	/				/					?	/				/	
Milky Quartz	3	//		/	/	/			/	/					///		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	3		/	/	2			/	/		/			3	/	

AS – I

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______________________________

____

____

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVp – 2.0g
MVa – 0.2g
Qtz – 6.0g

Unit: 5 **STP:** ______ **Level:** 10 -- 20 cm

Catalog No. 157 **Level Count:** 5 **Level Weight:** 8.2 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
gray MV/porphyritic	/			/												/	
green MV/aphanitic	/		/												/		
Milky Quartz	3	/		//*		/			/						/	//*	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	5	/	/	3		/			/						2	3	

exterior
〃

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: *1 is possible core frag AS – int + sec

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 5 **STP:** ______ **Level:** 20 -- 30 **cm** MVp – 5.0g

Catalog No. 162 **Level Count:** 5 **Level Weight:** 18.8 **g** Qtz – 13.8g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic	2	//			/	/			/	/					/	/	
Milky Quartz	3	//*	/			//				/	/				/	/	/
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	5	4	1		1	3			1	2	1				2	2	1

w/ lecun FF

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: * lipped platform
(*) white quartz

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVa – 0.4
Qtz – 3.2
Ob – 0.3g

Unit: 5 STP: ________ Level: 30--40 cm

Catalog No. 167 Level Count: 3 Level Weight: 3.9 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic	1		1												1		
Milky Quartz	2			11											1	1	
Clear Quartz																	
CAT NO. 313 Obsidian	1	1				1							1		1		
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	1	1	2		1							1		3	1	

w/ feldspar
"

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: ____________________

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

chert – 1.6g
qtz – 3.1g

Unit: 6 **STP:** ____ **Level:** 0 -- 10 cm

Catalog No. 171 **Level Count:** 11 **Level Weight:** 4.7 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	10*		III	ЖII										IЖ	IIII		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert	1*		I												I		
Chalcedony																	
Jasper																	
TOTALS	11		4	7										6	5		

AS mostly sec
FF – int

CRF?

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: banded yellow cream orange/lavender w/ crystals PDL

* Excavation damage – 3 tossed ; AS – damage?

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 6 STP: ____ Level: 10 -- 20 cm

c/a tz – 0.3g
m a tz – 0.9g

Catalog No. 177 Level Count: 4 Level Weight: 1.2 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	3		/	2										/	//		
Clear Quartz	1	/				/					/				/		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	/	/	2		/					/			/	3		

all ut

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ____

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 6 STP: ____ Level: 20 -- 30 cm

Catalog No. 181 Level Count: 6 Level Weight: 2.4 g

cl qtz 0.2g
m. qtz 2.2g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	5	/	/	///		/				/				/	////		
Clear Quartz	/			/										/			
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	6	1	1	4		1				1				2	4		

AS - all sec
wt FF-wt

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ____

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 6 STP: ______ Level: 30 -- 40 cm 0.1 M Qtz

Catalog No. 183 Level Count: 1 Level Weight: 0.1 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
? Milky Quartz	1	1			1						1			1			
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	1	1			1						1			1			

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Clear Qtz = 0.3g
MVp – 1.7g
MVa – 0.2g
M. Qtz – 10.4g

Unit: 7+7A STP: ________ Level: 0 -- 10 cm

Catalog No. 184 Level Count: 22 Level Weight: 12.6 g

2 gray, brown grey-gr

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	3	//	/				//				/		/	/	/	/	
MV/aphanitic	1	/			/					/					/		
Milky Quartz	16	9	4	3		//////	/			//////	//		/	//////// //	/////	//	
Clear Quartz	2		//														
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	22	12	7	3	1	8	3			7	3		2	11	8	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: ____________________

AS
P S I
III

Qtz
FF
P S I
I II III

MV
AS
P S I

FF
P S I
I

C. Qtz – 1.4g
M. Qtz – 8.6g
MVp – 4.1g
MVa – 6.5g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 7 **STP:** ________ **Level:** 10 -- 20 cm

Catalog No. 187 **Level Count:** 37 **Level Weight:** 20.6 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	3	///			/	/	/			//	/				//	/	
MV/aphanitic	12	/////////	//	/	///	//////		///		/	//	//	/	///	//////	////	
Milky Quartz	17	9	6	2	/	//////////	/	/		///	//	/	//	////	//////////	//	
Clear Quartz	5	/	//	//		/							/	///	//		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	37	22	10	5	5	15	2	4		6	5	3	4	10	21	6	

2 gray
1 g-blk

g-blk
1 red-brown
2 beige
7 greenish-gray

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ________________________________

Qtz AS
P S I
||| ||||| ||

FF
P S I
||

MVa
AS
|

FF
||

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 7 STP: ____ Level: 20-- 30 cm

Catalog No. 190 Level Count: 21 Level Weight: 10.1 g

C. Qtz – 0.6g
M. Qtz – 8.5g
MVp – <0.1g
MVa – 0.9g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	1	/				/				/					/		
MV/aphanitic	4	//	//			//				/			/		////		
Milky Quartz	13	7	5	/	/	///// /			//	/			////	///// //	/////	/	
Clear Quartz	3	/	/	/		/					/			//	/		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	21	11	8	2	1	10			2	3	1		5	9	11	1	

beige
1 brown
2 gray,
1 greenish

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ____

Cl Qtz
FF / S
1
AS / I
1

MVa
FF / P S I
1 1

M Qtz
FF / P S I
1 ||||

AS / P S I
1 1

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

qtzite – 0.1g
M Qtz – 9.3
C. Qtz – 0.1g

Unit: 7 **STP:** ______ **Level:** 30 -- 40 cm

Catalog No. 192 **Level Count:** 15 **Level Weight:** 9.5 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	13	4	6	3	|	||	|		|				|||	||||||||	|||	||	
Clear Quartz	1	1				|					|				|		
Obsidian																	
Quartzite	1	1				|							|	|			
Chert																	
Chalcedony																	
Jasper																	
TOTALS	15	6	6	3	1	4	1		1		1		4	9	4	2	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS:

M Qtz

FF

P S |
| ||||

AS

P S |
| ||

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 7 **STP:** ____ **Level:** 40 -- 50 **cm**

Catalog No. 194 **Level Count:** 4 **Level Weight:** 0.6 **g**

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	4	/	/	2		/				/				///	/		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	/	/	2		/				/				3	/		

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS:

3 interior (AS+FF)

MVp – 0.1g
MVa – 0.2g
M.Qtz – 0.6g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 7 STP: ______ Level: 50 -- 60 cm

Catalog No. 199 Level Count: 5 Level Weight: 0.9 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	1	/				/					/				/		
MV/aphanitic	2	/	/			/						/	x	/	/		
Milky Quartz	2	/		/			/					/		/	/		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	5	3	1	1		2	1				1	2		2	3		

gray
green + gray

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 7 STP: ______ Level: 60 -- 70 cm

Catalog No. 202 Level Count: 2 Level Weight: 53 g

MVa - 3.9g
M. Qtz - 1.4g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
gray MV/aphanitic	1	1			1				1							1	
Milky Quartz	1			1											1 (1.4?)		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	2	1		1	1				1						1	1	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 8 **STP:** ______ **Level:** 0 -- 10 cm

Catalog No. 205 **Level Count:** 8 **Level Weight:** 5.9 g

MVp – 0.7g
MVa – 3.0g
clear qtz 0.5g
m-qtz – 1.7g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
gray MV/porphyritic	/	/				/				/					/		
2gr 1 black MV/aphanitic	3	//		/		//			/	/					///		
Milky Quartz	3			///										/	//		
Clear Quartz	/			/											/		
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	8	3		5		3			1	2				1	7		

primary

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: Excavation damage to quartz pieces– several discarded; MVa flake broken, quartz shatter could be junk. This unit in corral area

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 8 **STP:** ______ **Level:** 10 -- 20 cm

Catalog No. 207 **Level Count:** 8 **Level Weight:** 2.1 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic																	
Milky Quartz	8	||	||	||||		||				/			/	||||	|||		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	8																

FF secondary & int.

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ____________________

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVp – 0.6g
MVa – 6.9g
Chalcedony – 0.1g
Chert – 0.3g
C. quartz – 0.6g
M. quartz – 36.0g

Unit: 9 STP: ______ Level: 0 -- 10 cm

Catalog No. 208 Level Count: 87 Level Weight: 44.5 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	2	/	/			/						/		/	/		
MV/aphanitic	10	// 卌	//	/		/	卌			//	/	/	///	卌	///	//	
Milky Quartz	70	30	23	17	////	20	6	/	///	卌 /	卌 /	//	卌卌卌 //	37	25	8	
Clear Quartz	3	/	//			/							/	//	/		
Obsidian																	
Quartzite																	
Chert	1			/										/			
Chalcedony	1	/				/							/		/		
Jasper																	
TOTALS	87	40	28	19	4	25	11	1	3	8	7	4	17	46	31	10	

lt brown & gray (MV/porphyritic)
2 gray, lavender, 6 greenish (all small) (MV/aphanitic)
PDL crystals (Chert)
interior FF
interior both FF
interior

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______

MVa FF

P	S	I
		//

AS

P	S	I
		/

M. Qtz AS

P	S	I
//	卌 /	卌 卌 /

M. Qtz FF

P	S	I
///	卌	卌 卌 卌

Chert – 0.2g
MVa – 4.4g
C. Qtz – 0.9g
M. Qtz – 6.6g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 9 **STP:** ______ **Level:** 10 -- 20 cm

Catalog No. 212 **Level Count:** 47 **Level Weight:** 12.1 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF all interior	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic (5 gray, 6 greenish, 1 brown)	11	7	3	1		~~||||~~ |	|		|	|		||	|||	~~||||~~ |	|||	||	
Milky Quartz	28	13	8	7	||	~~||||~~ ~~||||~~	|	|	||	||		|	~~||||~~ ||	20	~~||||~~ |	||	
Clear Quartz	7	|	||	||||			|				|			~~||||~~ |	|		
Obsidian																	
Quartzite																	
Chert (dark brown)	|			|											|		
Chalcedony																	
Jasper																	
TOTALS	47	21	13	13	2	16	3	1	3	3	1	3	10	32	11	4	

5 interior, 2 secondary

interior

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______________________________

M Qtz AS

P	S	I
|	|	~~||||~~

M Qtz FF

P	S	I
		~~||||~~ |||

quartzite - 4.8g
chert - <0.1g
MVp - 0.4g
C. qtz - 1.0g
M. qtz - 19.0g
MVa - 7.8g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 9 STP: ______ Level: 20 -- 30 cm

Catalog No. 216 Level Count: 63 Level Weight: 33.1 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
black MV/porphyritic	1	I			I				I						I		
gray 3 black, 2 green MV/aphanitic	9	IIII	III	I		IIII	I			I		CRF	III	II	III	III	
3 lt. green + rough, 2 grayish Milky Quartz	46	15	15	16	[illegible]	[illegible]	IIII	I	II	II	I	II	IIII III	24	9	3	
Clear Quartz	4		III	I	I									II	II		
Obsidian																	
gray-black Quartzite	2	II				II			I		I				I	I	
black Chert	1	I				I							I	I			
Chalcedony																	
Jasper																	
TOTALS	63	24	21	18	3	16	5	1	4	3	2	3	11	29	27	7	

all exterior + 1:

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: Qtz AS includes possible core frag

MV
FF
P S I
II

AS
P S I
I

Qtz
FF
P S I
II II IIII IIII

AS
P S I
II II IIII IIII II

Quartzite – 27.0g
Chalcedony – 5.6g
≈MUp – 0.1g
MUa – 6.2g
C. Quartz – 3.1g
M Quartz – 37.2g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 9 STP: ______ Level: 30--40 cm

Catalog No. 219 Level Count: 48 Level Weight: ____ g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
green MV/porphyritic	1	/					/						/	/			
beige & dark green = MV/aphanitic	6	///	///			/	//			/			//	//	///	/	← FF all interior
Milky Quartz	34	12	7	15	/	////	////		//	///	///*	/	///	20	9	5	
Clear Quartz	5	/	/	///		/				/				//	///		← all FF & AS interior
Obsidian																	
CRF → Quartzite	1	/					/					CRF					/
Chert																	
Chalcedony	1	/				/			/							/	
Jasper																	
TOTALS	48	19	11	18	1	10	8		3	5	3	2	6	25	15	7	1

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: * may be core fragment

M. Qtz AS

P	S	I
	////	//// ////

FF

P	S	I
		//// //

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 9 STP: ______ Level: 40--50 cm

Catalog No. 220 Level Count: 42 Level Weight: 14.2 g

MVp – 0.4g
Chalcedony – 0.5g
C. quartz – 0.2g
MVa – 0.8g
M. Quartz – 12.3g

gray
gray black
gray, green(2)

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)				
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4	
MV/porphyritic	1	/					/				/				/			
MV/aphanitic	4	//	//			//					/		/	//	//			inferior
Milky Quartz	34	11	13	10	/	~~////~~	///		//		////	//	///	16	16	2		inferior
Clear Quartz	2		//											/	/			
Obsidian																		
Quartzite																		
Chert																		
Chalcedony	1		/												/			secondary
Jasper																		
TOTALS	42	14	18	10	1	9	4		2		6	2	4	19	21	2		

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ______________________________

M Qtz AS

P	S	I
	1	~~||||~~ ||||

FF

P	S	I
	1	~~||||~~ ~~||||~~ ||

smoky quartz – 0.2g
Chalcedony – 2.0g
chert – 0.1g
MVa – 2.1g
C. qtz – 3.2g
M. qtz – 21.7

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 9 **STP:** ______ **Level:** 50 -- 60 **cm**

Catalog No. 223 **Level Count:** 55 **Level Weight:** 29.3 **g**

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic	6	~~IIII~~	I		I	IIII			I		II		II	II	III	I	
Milky Quartz	40	10	14	16		IIII	I			III	I	III	III	18	18	4	
Clear Quartz	6	I	II	III		I					I			II	IIII		
Obsidian																	
Quartzite																	
Chert	I			I											I		
Chalcedony	I	I				I				I						I	
Jasper																	
smoky quartz	I	I				I					I			I			
TOTALS	55	18	17	20	1	16	1		1	4	5	3	5	23	26	6	

2 beige, 6 black, 2 gray, 2 greenish
brownish black
pink, white, orange
interior
all int + 1 sec
interior

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS:

M Qtz AS

P	S	I
II	III	~~IIII~~ ~~IIII~~ I

Qtz FF

P	S	I
	II	~~IIII~~ ~~IIII~~ III

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVa – 0.3g
C. Qtz – 0.4g
M Qtz – 3.3

Unit: 9 **STP:** ____ **Level:** 60 -- 70 cm

Catalog No. 226 **Level Count:** 15 **Level Weight:** 4.0 g

2 beige
1 grey

in terior

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic	3	1	1	1			/					/		/	//		
Milky Quartz	10	3	3	4		///					///			////	/////		
Clear Quartz	2	1		1			/					/		//			
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	15	5	4	6		3	2				3	2		7	8		

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS:

Qtz AS S I
II II

FF S I
I II

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

MVcc – 0.2g
Quartz – 18.1g

Unit: 10 **STP:** ______ **Level:** 0 -- 10 cm

Catalog No. 228 **Level Count:** 13 **Level Weight:** 18.3 g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
beige MV/aphanitic	1	1				1					1				/		
Milky Quartz	12	5	3	4	///	/	/	///		//				//	///////	///	
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	13	6	3	4	3	2	1	3		2	1			2	8	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: ____________________

FF			AS		
P	S	I	P	S	I
|	||		||	|	|

chalcedony – <0.1g
clear qtz – 0.2g
m. qtz – 8.1
MVp – 2.4g
MVa – 2.9g

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 10 **STP:** ______ **Level:** 10 -- 20 **cm**

Catalog No. 235 **Level Count:** 27 **Level Weight:** 13.7 **g**

lavender gray(2) gray brown

slightly →

beige, green, black brown(2)

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic	4	//	//			///				/	/				//	//	
MV/aphanitic	5	///	/	/		///	/				///			//	///		
Milky Quartz	16	卌/	//	卌///		卌		/		////	/			卌卌	卌	/	
Clear Quartz	/	/				/				/				/			
Obsidian																	
Quartzite																	
Chert																	
Chalcedony	/	/				/				/					/		
Jasper																	
TOTALS	27	13	5	9		12	1	1		7	5			13	11	3	

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: AS Quartz – core fragment present

MV FF
P S I
|||

AS
I
|

Qtz FF
P S I
||

AS
P S I
| ||| ||||

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Unit: 10 **STP:** ______ **Level:** 20 -- 30 cm

MVa - 0.5g

Catalog No. 243 **Level Count:** 12 **Level Weight:** 2.9 g

Qtz - 2.4g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4
MV/porphyritic																	
MV/aphanitic	2	/	/				/						/	/	/		
Milky Quartz	10	5	3	2	/	//	//	/	/	/	//			////	/ /////		
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	12	6	4	2	1	2	3	1	1	1	2		1	5	7		

brown, beige gray

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = Interior flake (no cortex); Thin – thinning flake

COMMENTS: * core fragment given separate cat. no.

FF / PSI
|

Qtz AS / PSI
||

FF / PSI
|||

Pauma Valley – Shadow Run Ranch Project
SDI-9537– Debitage Analysis Worksheet

Qtz - 31.7g
MVa 4.1g

Unit: 10 **STP:** ______ **Level:** 30 -- 40 cm

Catalog No. 249 **Level Count:** 4 **Level Weight:** 35.8g

Lithic Material	Count	Debitage Category			Platform Type			Reduction Stage Flake Type						Flake Size (cm)			
		F	FF	AS	C	SF	MF	P	S	Early Int	Late Int	Early Biface Thin	Late Biface Thin	0-1	1-2	2-4	>4 interior
MV/porphyritic																	
MV/aphanitic beige (large) greenish	2	1	1			1				1				1		1	
Milky Quartz	2	1		1		1			1							1	1 ← 2 cortical surfaces
Clear Quartz																	
Obsidian																	
Quartzite																	
Chert																	
Chalcedony																	
Jasper																	
TOTALS	4	2	1	1		2			1	1				1		2	1

MV = metavolcanic; F = flake; FF = flake frag.; AS = angular shatter; C = cortical platform; SF = single facet platform; MF = multifacet plat.; P = primary flake (>50% dorsal cortex); S = secondary flake (<50% cortex); Int = interior flake (no cortex); Thin – thinning flake

COMMENTS: AS – lithic assay 74cm

APPENDIX C

OBSIDIAN SOURCING

by
Dr. Richard Hughes

May 23, 2005

Dr. Philip de Barros
Professional Archaeological Services
13730 Via Cima Bella
San Diego, CA 92129

Dear Phil:

This letter contains tables presenting energy dispersive x-ray fluorescence (edxrf) data derived from the analysis of five artifacts from CA-SDi-751 (n= 1) and CA-SDi-9537 (n= 4), San Diego County, California. This research was conducted pursuant to your letter request of May 15, 2004.

Analyses of obsidian are performed at my laboratory on a QuanX-EC™ (Thermo Electron Scientific Instruments Corporation) edxrf spectrometer equipped with a silver (Ag) x-ray tube, a 50 kV x-ray generator, digital pulse processor with automated energy calibration, and a Peltier cooled solid state detector with 145 eV resolution (FWHM) at 5.9 keV. The x-ray tube was operated at differing voltage and current settings to optimize excitation of the elements selected for analysis. In this case analyses were conducted for the elements rubidium (Rb Kα), strontium (Sr Kα), yttrium (Y Kα), zirconium (Zr Kα), and niobium (Nb Kα). Iron vs. manganese (Fe Kα/Mn Kα) ratios also were computed.

Table 1

Quantitative Composition Estimates for Obsidian from CA-SDi-731 and CA-SDi-9537

Specimen Number	Trace Element Concentrations											Ratio	Obsidian Source (Chemical Type)
	Zn	Ga	Rb	Sr	Y	Zr	Nb	Ba	Ti	Mn	$Fe_2O_3^T$	Fe/Mn	
SDi-731, Feature L	nm	nm	137 ±4	40 ±3	116 ±3	334 ±4	26 ±3	nm	nm	nm	nm	nm	Obsidian Butte
SDi-9537, 71	nm	nm	127 ±4	31 ±3	31 ±3	97 ±4	9 ±3	974 ±12	nm	nm	nm	63	Unknown
SDi-9537, 80	nm	nm	243 ±4	9 ±3	52 ±3	133 ±4	45 ±3	nm	nm	nm	nm	52	West Sugarloaf, Coso Vol. Field
Comparative Geologic Reference Standard													
RGM-1 (measured)	nm	nm	148 ±4	109 ±3	24 ±3	221 ±4	8 ±3	815 ±10	1580 ±18	288 ±10	1.90 ±.02	64	
RGM-1 (recommended)	32	15	149	108	25	219	9	807	1600	279	1.86	nr	

Values in parts per million (ppm) except total iron [in weight %] and Fe/Mn intensity ratios; ± = expression of x-ray counting uncertainty and regression fitting error at 120-480 seconds livetime. nm= not measured.

Quantitative data in Table 1 indicate that one specimen from SDi-731 was made from Obsidian Butte, Imperial County, volcanic glass, and that another from SDi-9537 (no. 80) was fashioned from West Sugarloaf, Coso Volcanic Field, obsidian. The other specimens from SDi-9537- cat. no. 71- has a trace element profile unlike any of the standards currently in my regional reference collection. Because the other two specimens you submitted were too small and thin to generate quantitative composition estimates, each was analyzed semi-quantitatively. The semi-quantitative analysis protocol followed here is the same as applied to other obsidian artifacts from Ora-149 (Hughes 2001).

Table 2

Semi-Quantitative Element Data for Obsidian Flakes from CA-SDi-9537

	Elemental Intensities				Intensity Ratios				
Cat. no.	Rb	Sr	Zr	Σ Rb,Sr,Zr	Rb%	Sr%	Zr%	Fe/Mn	Obsidian Source (Chemical Type)
97	4223	0	2824	7047	.599	.000	.401	46	Coso Vol. Field
109	4316	0	3166	7482	.577	.000	.423	48	Coso Vol. Field

Elemental intensities (counts above background) generated at 240 seconds livetime.

The accompanying ternary diagram shows that both of these artifacts plot within the Rb/Sr/Zr range for Coso Volcanic Field, Mono Craters, Mono Glass Mountain, and Fish Springs obsidians. As was done previously (Hughes 2001), each specimen also was analyzed to generate Fe/Mn ratios. The Fe/Mn ratios determined indicate that both flakes fall within the range for Coso Volcanic Field obsidians. As you know, semi-quantitative data are not adequate to distinguish among the obsidians *within* the Coso Volcanic Field, as can be done quantitatively.

In summary, combining results from both quantitative (n= 3) and semi-quantitative (n= 2) techniques, it was determined that three specimens analyzed from these two San Diego County sites derive from the Coso Volcanic Field, and that one was manufactured from volcanic glass from Obsidian Butte, Imperial County, California. The fifth specimen could not be matched to a known obsidian source.

I hope this information will help in your analysis and interpretation of these site materials. Please contact me at my laboratory (phone: [650] 851-1410; e-mail: rehughes@silcon.com) if I can provide further assistance or information. As you requested, I have forwarded the samples to Tom Origer for obsidian hydration analysis.

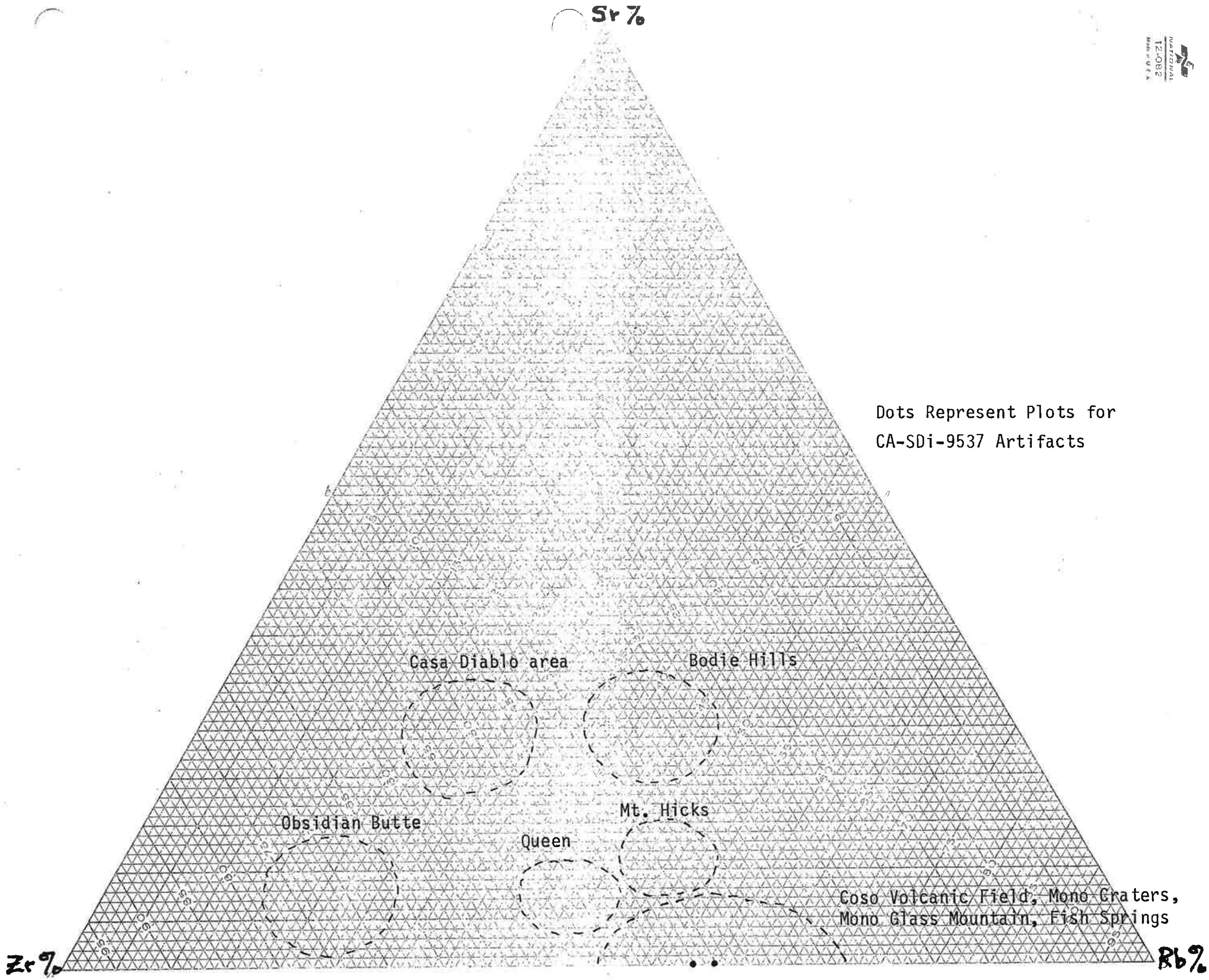
Sincerely,

Richard Hughes

Richard E. Hughes, Ph.D., RPA
Director, Geochemical Research Laboratory

REFERENCE

Hughes, Richard E.
2001 X-ray Fluorescence Analysis of Obsidian Flakes from CA-Ora-149, Located in Huntington Beach, Orange County, California. Geochemical Research Laboratory Letter Report 2001-58 submitted to Philip de Barros, Professional Archaeological Services, July 17, 2001.



Triangular Co-ordinate

APPENDIX D

OBSIDIAN HYDRATION

by
Tom Origer

Origer's Obsidian Laboratory
P.O. Box 1531
Rohnert Park, California 94927
(707) 584-8200, Fax 584-8300
origer@origer.com

May 31, 2005

Philip de Barros
Professional Archaeological Services
13730 Via Cima Bella
San Diego, California 92129

Dear Phil:

I write to report the results of hydration band analysis of five obsidian specimens from two sites including CA-SDI-731 (n=1) and CA-SDI-9537 (n=4) in San Diego County, California. This work was completed following source determinations made by Richard Hughes, Geochemical Research Laboratory, who forwarded the specimens to us on your behalf.

Procedures used by our obsidian lab for preparation of thin sections and measurement of hydration bands are described here. The specimens were examined to find two or more surfaces that would yield edges that would be perpendicular to the slide when preparation of the thin sections was done. Two parallel cuts were made at an appropriate location along the edge of each specimen with a four-inch diameter circular saw blade mounted on a lapidary trimsaw. The cuts resulted in the isolation of small samples with a thickness of about one millimeter. The samples were removed from the specimens and mounted with Lakeside Cement onto glass slides.

The thickness of each sample was reduced by manual grinding with a water-based slurry of #600 silicon carbide abrasive on plate glass. Grinding was completed in two steps. The first grinding was stopped when a sample's thickness was reduced by approximately one-half. This eliminated micro-flake scars created by the saw blade during the cutting process. The slides were then reheated, which liquefied the Lakeside Cement, and the samples inverted. The newly exposed surfaces were then ground until proper thickness was attained.

Correct thin section thickness was determined by the "touch" technique. A finger was rubbed across each slide, onto the samples, and the difference (sample thickness) was "felt." The second technique used to arrive at proper thin section thickness is the "transparency" test where each slide was held up to a strong source of light and the translucency of the samples was observed. The samples were reduced enough when they readily allowed the passage of light. A coverslip was affixed over each sample when grinding was completed. The completed slides are curated under our file number OOL-213.

The hydration band was measured with a strain free 60-power objective and a Bausch and Lomb 12.5-power filar micrometer eyepiece mounted on a Nikon Labophot-Pol petrographic microscope.

Hydration measurements have a range of +/- 0.2 due to standard equipment limitations. Six measurements were taken at several locations along the edge of the thin section, and the mean of the measurements was calculated and listed on the enclosed data page. All specimens yielded hydration band measurements.

Don't hesitate to contact me if you have questions regarding this hydration work.

Sincerely,

Thomas M. Origer
Director

Submitter: P. de Barros - Professional Archaeological Services — May 2005

	Lab#	Sample#	Description	Unit	Depth	Remarks	Measurements	Mean	Source
CA-SDI- 731									
	1		Debitage	Feature L		none	3.6 3.6 3.7 3.7 3.7 3.7	3.7	
CA-SDI-9573									
	2	9573- 71	SN Point Fragment	Row 6	Surface	weathered	13.4 13.4 13.4 13.5 13.7 13.7	13.5	
	3	9573- 80	Biface Fragment	Unit 1	20-30	none	7.2 7.2 7.2 7.3 7.3 7.4	7.3	
	4	9573- 97	Debitage	Unit 2	10-20	none	7.7 7.7 7.8 7.8 7.8 7.9	7.8	
	5	9573-109	Debitage	Unit 2	40-50	weathered	7.0 7.2 7.2 7.2 7.3 7.4	7.2	

Lab Accession No: OOL-213 — Technician: Thomas M. Origer

APPENDIX E

CERAMIC THIN SECTION ANALYSIS

by
Monica Guerrero
Gallegos and Associates

PETROGRAPHIC ANALYSIS OF CERAMIC ARTIFACTS FROM SITE CA-SDI-9537/H SAN DIEGO COUNTY, CALIFORNIA

Prepared for:
Professional Archaeological Services
13730 Via Cima Bella
San Diego, CA 92129

Prepared by:
Monica Guerrero
Gallegos & Associates
5671 Palmer Way, Suite A
Carlsbad, CA 92008

June 2005

INTRODUCTION

Ceramic analysis is valuable in the interpretation of an archaeological site, as it provides data on the activities of the people who once occupied the site, the clay sources, and trade and travel. Typically, when ceramics are recovered from an archaeological site in the San Diego region, they are found in small quantities. Moreover, the collection usually consists of small, fragmented body sherds and a few rim sherds. Without diagnostic pieces (incised, decorated, etc.) or whole vessels, analysis of vessel attributes, vessel morphology, and specific activities cannot be addressed. In a situation where there are few ceramic sherds to examine, a different type of analysis may be more useful. Petrographic analysis of ceramics allows the researcher to identify mineral inclusions of the ceramics that are specific to geologic zones, providing data on the possible trade and movement of the people who once occupied the site. For large ceramic collections, petrographic analysis is also helpful, as it provides information on local clay source preferences.

In the San Diego region, ceramic artifacts are created from local clays in the mountains or from clays farther east from different areas of the desert. To differentiate which clays are local and non-local, clays need to be identified in relationship to their geological source. The different geologic zones that make up the San Diego region include the coastal plains, the Peninsular Range Mountains, and the Salton Trough desert. The coast and desert regions contain alluvial clays derived from marine and lacustrine sedimentary rock, while the Peninsular Range Mountains contain residual clays derived from gabbroic-granitic materials. An analysis of the mineral composition of the ceramic sherd must be conducted in order to identify the geological source from which the clay was obtained. The type of ceramic ware can be identified, once the geological source of the clay has been determined. Salton Brown Ware sherds had an average mineral composition of 61% quartz, 11% plagioclase, 15% biotite, 6% muscovite, and 4% amphibole (Hildebrand et al. 2002). Analysis of the Tizon Brown Ware sherds indicated an average mineral composition of 51% quartz, 20% plagioclase, 4% biotite, 1% muscovite, and 20% amphibole (Hildebrand et al. 2002). These results suggest that Salton Brown Ware ceramics have a higher percentage of quartz and mica and almost no amphibole, while Tizon Brown Ware has a higher percentage of amphibole and plagioclase. The minerals contained in Lower Colorado Buff Ware include quartz, feldspar, rare instances of amphibole, and sometimes mica.

METHODS

A total of 29 ceramic sherds were recovered from the excavation of site CA-SDI-9537. The ceramic sherds were placed into different sample groups based upon mica (biotite and muscovite) concentration, sherd thickness, rim shape variability, surface color, and core color. Sherds with recent broken edges were checked to see if they mended with other sherds within the sample group. Both procedures reduced the possibility of analyzing sherds from the same parent vessel. Samples were selected based on a requested sample list by Phil DeBarros. A total of five sherds from site CA-SDI-9537 (#85A, #85B, #116, #163 and #230A) were chosen for petrographic thin-section analysis.

A thin-section of each sample was created San Diego Petrographics Laboratory in Escondido, California. At the laboratory, each sherd was enveloped in epoxy resin, then polished and cemented to a glass slide. The samples were then cut and polished to a thickness of 30 microns (μm), and finally sealed with glass-cover slips.

Petrographic analysis consists of examining thin sections of ceramic sherds with a polarizing microscope. A polarizing microscope allows one to examine and identify minerals by their optical properties. Each thin-section sample was examined under plane-polar and cross-polar light (40x magnification). Important characteristics that were considered when examining the thin sections included distinctive cleavage, twinning, alteration, zoning, exsolution, and the presence of inclusions. The following provides a description of these characteristics:

Cleavage: Cleavage is the appearance of fine parallel cracks in mineral grains; minerals exhibit different types and intersecting angles of cleavage that aid in mineral identification.

Twinning: Twinning denotes different regions of grain that have different crystallographic orientations that result in the appearance of horizontal or vertical bands.

Alteration: Minerals may be altered for some reason, such as weathering; this results in the secondary minerals, where there is a complete replacement of one mineral by another.

Zoning: The composition of mineral grains is heterogeneous, where different parts of a mineral exhibit different optical properties.

Exsolution: At high temperatures, some minerals exsolve, or unmix to form two distinct composition during or after cooling.

Inclusions: Minerals that contain inclusions of other minerals aid in the identification, as some minerals contain inclusions of specific minerals.

Mineral inclusions were quantified by using a point-count method with a minimum count of 100. Samples were analyzed once using the point-count method, and a second time to identify atypical inclusions and trace minerals.

RESULTS

Petrographic thin-section analysis was conducted on five ceramic sherds. Results of this analysis indicate that all five samples (100%) are identified as Tizon Brown Ware (see Table 1). There are no Salton Brown Ware or Lower Colorado Buff Ware types.

Table 1
Results of Petrographic Analysis of CA-SDI-9537

Catalog #	Quartz	Plagioclase	Biotite	Muscovite	Amphibole	Clay/Matrix
9537-85A	48%	18%	7%	6%	13%	8%
9537-85B	58%	12%	1%	1%	25%	3%
9537-116	55%	7%	2%	0%	17%	19%
9537-163	53%	11%	6%	4%	21%	5%
9537-230A	50%	23%	1%	3%	16%	7%

The thin-section results indicate that the clay sources procured for production of the recovered sherds were local, suggesting that the occupants of site CA-SDI-9537 utilized their immediate surroundings for clay resources. There is no evidence for westward transport of ceramics from the desert to the Peninsular Range, or eastward transport from the coast to the Peninsular Range.

REFERENCES

Hildebrand, John G., Timothy Gross, Jerry Schaefer, and Hector Neff
2002 Patayan Ceramic Variability: Using Trace Element and Petrographic Analysis to Study Brown and Buff Wares in Southern California. In Ceramic Production and Circulation in the Greater Southwest: Source Determination by INAA and Complementary Mineralogical Investigations. D. Glowacki and H. Neff, eds. Monograph 44, The Cotsen Institute of Archaeology, University of California, Los Angeles.

APPENDIX F

FAUNAL ANALYSIS

by
Patricia Mitchell

Vertebrate Faunal Analysis From Site CA-SDI-9537, Pauma Valley San Diego County, California

By
Patricia Mitchell
(de Barros 05-02)

May 2005

Introduction

The mammal and fish bone collected from site CA-SDI-9537 consists of 2,123 fragments weighing 278.1 grams and were recovered from the 0 to 80 cm levels of nine excavation units and four shovel test pits (STPs). All bone fragments were identified to class, order, family, or when possible to genus and species. Eight animal species were identified and included *Canis latrans* (coyote), *Clemmys marmorata* (southwestern pond turtle), *Lepus californicus* (black-tailed jackrabbit), *Myliobatos californica* (bat ray), *Odocoileus hemionus* (mule deer), *Spermophilus beecheyi* (California ground squirrel), *Sylvilagus audubonii* (desert cottontail rabbit), and *Thomomys bottae* (Botta's pocket gopher). The remaining bone fragments lacked the morphological features that would have allowed them to be identified to a taxonomic category greater than their class. Other categories used to identify these fragments included artiodactyl, small mammal, medium mammal, and large mammal. Evidence of burning and butchering was present on a portion of the collection and has allowed for some interpretation of the preparation of the meat diet at site CA-SDI-9537. Three bone artifacts were also recovered and will be discussed at the end of this report.

Methods

Each bone was examined to determine:

- element
- right or left side
- highest taxonomic category
- evidence of burning, and if so, what degree of oxidation
- evidence of butchering, and if so, what method of butchering

Comparative skeletal collections used in the identification process included those from private collections, and a photographic database. Bone atlases (Carr 1952; Lawrence 1951; Nickel et al. 1986; Olsen 1985; Sandefur 1977; Schmid 1972) supplemented the analysis.

Categories used in this analysis include:

Burned: Bone elements or fragments that show color change from exposure to heat or fire (oxidation):

- brown = exposure to heat, but little or no exposure to open flames.
- black = direct exposure to open flames (i.e., roasting or discard in a fire).
- blue/white (calcined) = direct exposure to a fire hotter than 800° Celsius (Ubelaker 1978:34). This may represent bone that was severely burned during preparation, in which case, if flesh was present on the bone during exposure to the fire the bone would exhibit signs of warping and shrinking (Ubelaker 1978:34). Calcined bone may also be the result of having been discarded in a fire hearth (Wing and Brown 1979:109).

Unburned: No evidence of burning or oxidation.

Butchered: Bone with evidence of processing by slicing or chopping actions.

Artiodactyl: Even-toed ungulates (pronghorn antelope, bighorn sheep, or mule deer). These remains are the size of large mammals, and are primarily tooth fragments.

Small Mammal: All non-diagnostic vertebrate fragments, whose sizes are between a mouse and a jackrabbit.

Medium Mammal: All non-diagnostic vertebrate fragments, whose sizes are larger than a jackrabbit, but smaller than a deer.

Large Mammal: All non-diagnostic vertebrate fragments, whose sizes are deer-size and larger.

The quantification of faunal material can be studied with several methods. The methods used in individual studies are usually determined by the sample size and type of site being investigated. Two methods were used in this study: the number of identified specimens per taxon (NISP) which represents the total number of specimens within a category; and the minimum number of individuals (MNI) which represents the minimum number of individuals within a genus and species category.

Results

The animal remains recovered from nine excavation units and four STPs consisted of 2,123 bone elements (278.1 grams) from the 0 to 180 cm levels of the site (Tables 1, 2, and 3). Eight animal species were identified from 47 (2.2 percent) of the 2,123 bones. Four of the species identified were small-sized terrestrial mammals and included *Lepus californicus* (black-tailed jackrabbit), *Spermophilus beecheyi* (California ground squirrel), *Sylvilagus audubonii* (desert cottontail rabbit), and *Thomomys bottae* (Botta's pocket gopher). Medium-sized mammals identified included *Canis latrans* (coyote). Large-sized mammals were represented by *Odocoileus hemionus* (mule deer). Two aquatic

Table 1
CA-SDI-9537
NISP Summary of Vertebrate Remains By STP/Unit

Specimen	STP 1	STP 2	STP 3	STP 9	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 9	Unit 10	Total	Percent
Canis latrans	0	0	0	0	0	0	0	0	0	0	0	1	0	1	<0.1%
Clemmys marmorata	0	0	0	0	0	0	0	1	0	0	0	5	0	6	0.3%
Lepus californicus	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0.2%
Myliobatos californica	0	0	0	0	0	0	0	1	0	0	0	0	0	1	<0.1%
Odocoileus hemionus	0	0	0	0	0	1	0	3	0	0	0	10	1	15	0.7%
Spermophilus beecheyi	0	0	0	0	0	0	0	0	0	0	0	1	0	1	<0.1%
Sylvilagus audubonii	0	1	1	0	1	0	0	3	0	0	0	11	0	17	0.8%
Thomomys bottae	0	0	0	0	0	0	0	1	0	0	0	0	0	1	<0.1%
Artiodactyla	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0.2%
Large Mammal	2	6	7	1	112	75	3	180	9	3	17	761	41	1217	57.3%
Medium Mammal	0	1	0	0	0	0	0	18	0	0	0	134	5	158	7.4%
Small Mammal	0	3	5	0	57	44	0	146	0	0	4	437	0	696	32.8%
Total	2	11	13	1	170	120	3	353	9	3	21	1368	49	2123	100.0%
Percent	0.1%	0.5%	0.6%	<0.1%	8.0%	5.7%	0.1%	16.6%	0.4%	0.1%	1.0%	64.4%	2.3%	100.0%	

Table 2
CA-SDI-9537
NISP Summary of Vertebrate Remains By Unit Level

Specimen	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	60-70 cm	Total	Percent
Canis latrans	0	0	0	0	0	0	1	1	<0.1%
Clemmys marmorata	0	0	3	0	2	0	1	6	0.3%
Lepus californicus	0	0	0	0	2	3	0	5	0.2%
Myliobatos californica	0	0	0	1	0	0	0	1	<0.1%
Odocoileus hemionus	5	2	3	1	3	0	1	15	0.7%
Spermophilus beecheyi	0	0	0	0	1	0	0	1	<0.1%
Sylvilagus audubonii	1	1	4	3	4	2	0	15	0.7%
Thomomys bottae	0	0	0	1	0	0	0	1	<0.1%
Artiodactyla	0	2	0	0	2	1	0	5	0.2%
Large Mammal	209	213	235	128	279	115	22	1201	57.3%
Medium Mammal	30	18	36	12	43	15	3	157	7.5%
Small Mammal	161	92	143	104	103	80	5	688	32.8%
Total	406	328	424	250	439	216	33	2096	100.0%
Percent	19.4%	15.6%	20.2%	11.9%	20.9%	10.3%	1.6%	100.0%	

Table 3
CA-SDI-9537
NISP Summary of Vertebrate Remains By STP Level

Specimen	0-20 cm	20-40 cm	40-60 cm	60-80 cm	Total	Percent
Sylvilagus audubonii	0	0	2	0	2	7.4%
Large Mammal	2	3	9	2	16	59.3%
Medium Mammal	1	0	0	0	1	3.7%
Small Mammal	2	0	6	0	8	29.6%
Total	5	3	17	2	27	100.0%
Percent	18.5%	11.1%	63.0%	7.4%	100.0%	

species: *Clemmys marmorata* (southwestern pond turtle), *Myliobatos californica* (bat ray) were also identified. The remaining 2.076 bones lacked the morphological features that would have allowed them to be identified to the genus and species level and were therefore identified as artiodactyl, small mammal, medium mammal, or large mammal.

Horizontal distribution of NISP counts presented in Table 1 shows the majority of bones were recovered from Unit 9 (64.4 percent), then units 4 (16.6 percent), 1 (8.0 percent), 2 (5.7 percent), and 10 (2.3 percent). The remaining four units and four STPs contributed one percent or less each.

Table 2 presents the results of the vertical distribution of NISP counts of the nine units. There are fluctuations in each 10 cm level beginning with nearly 20 percent of the bone recovered in the 0 to 10 cm level, which then drops approximately 5 percent in the 10 to 20 cm level. The 20 to 30 cm level increases by 5 percent, and then decreases in the 30 to 40 cm level by 10 percent. Once again, in the 40 to 50 cm level the bone counts increase by 10 percent, then decrease in the next 10 cm level. The NISP counts then begin to decline from the 60 cm level to the 70 cm level (10.3 percent to 1.6 percent). The majority of bones (98.4 percent combined) from the nine units were recovered from the 0 to 60 cm levels.

Table 3 presents the results of the vertical distribution of NISP counts of the four STPs. The vertical distribution of the STPs is discussed separately from the units because they were excavated in 20 cm levels rather than 10 cm levels. They also show the fluctuations in each excavated level beginning with 18.5 percent of the bone recovered in the 0 to 20 cm level, which then drops approximately 7.5 percent in the 20 to 40 cm level. The 40 to 60 cm level increases by 52 percent, and then decreases significantly in the 60 to 80 cm level. The majority of bones (63.0 percent) were recovered from the 40-60 cm levels.

When comparing the differences in fluctuation of bone counts by depth in units and STPs the differences appear to be greatly exaggerated in the STPs. If the counts in the units are examined by 20 cm levels, the fluctuation does not appear to be as great as in the STPs. In the nine units, 35.0 percent of the bone was recovered from the 0 to 20 cm levels; 32.1 percent from the 20 to 40 cm levels; 31.2 percent from the 40-60 cm levels; and 1.6 percent from the 60 to 80 cm levels.

Table 4 presents the total NISP and MNI (when possible) for each genus and species identified. A minimum total of 11 animals were represented in the collection. The terrestrial small mammal species (*Lepus californicus*: MNI=1, *Spermophilus beecheyii*: MNI=1, *Sylvilagus audubonii*: MNI=4, and *Thomomys bottae*: MNI=1) were the most abundant and represented 7 of the 11 animals. The remaining species represented one animal each (*Canis latrans, Odocoileus hemionus, Clemmys marmorata* and *Myliobatos californica).*

Throughout the site, the greatest resource was identified as large-sized mammals and included *Odocoileus hemionus,* artiodactyla, and large mammal. The remaining animal resources contributed much less to the meat diet at the site: small mammal resources were 33.9 percent and include *Lepus californicus*, *Spermophilus beecheyi, Sylvilagus audubonii*, *Thomomys bottae*, and small mammal; medium mammal resources were 7.5 percent and included *Canis latrans,* and medium mammal; freshwater (*Clemmys marmorata*) and marine (*Myliobatos californica*) aquatic animal resources were 0.3 percent and less than 0.1 percent, respectively.

As seen in Table 5, evidence of burning was present on the majority of the collection (92.2 percent). Of the 1,957 bones burned, 77.2 percent (n=1,510) were burned brown in color, which indicated exposure to heat but not to a direct flame. This suggests that these animals were cooked in some type of container (e.g., pottery, stone, basketry). Animal species or categories burned brown in color included *Canis latrans*, *Clemmys marmorata, Lepus californicus*, *Myliobatos californica*, *Odocoileus hemionus*, *Spermophilus beecheyi, Sylvilagus audubonii*, *Thomomys bottae,* artiodactyla, small mammal, medium mammal, and large mammal.

The bones that were burned black in color represent 3.8 percent (n=75) of the burned specimens. The coloring suggests that these bones were burned during roasting or they were discarded in a fire hearth. Wing and Brown (1979:109) suggested that this type of charring is usually confined to the exposed ends of bone. This type of charring was not identified on any of the longbones burned black in color. It is likely that the specimens charred black were the result of being discarded in a fire hearth. Animal species or categories charred black in color included small mammal, medium mammal, and large mammal.

Table 4
CA-SDI-9537
NISP and MNI Summary

Specimen	NISP	MNI	Element Used
Canis latrans	1	1	Right magnum
Clemmys marmorata	6	1	Left peripheral carapace fragment
Lepus californicus	5	1	Right distal humerus
Myliobatos californica	1	1	Vertebra
Odocoileus hemionus	15	1	Right trapezoid-magnum
Spermophilus beecheyi	1	1	Right distal tibia
Sylvilagus audubonii	17	4	Left proximal calcaneum
Thomomys bottae	1	1	Right humerus
Artiodactyla	5	-	
Large Mammal	1217	-	
Medium Mammal	158	-	
Small Mammal	696	-	
Total	2123	11	

Table 5
CA-SDI-9537
Summary of Burned Bone

Specimen	Brown	Black	Calcined	Total	Percent	Overall Total
Canis latrans	1	0	0	1	100.0%	1
Clemmys marmorata	4	0	1	5	83.3%	6
Lepus californicus	3	0	2	5	100.0%	5
Myliobatos californica	1	0	0	1	100.0%	1
Odocoileus hemionus	2	0	1	3	20.0%	15
Spermophilus beecheyi	1	0	0	1	100.0%	1
Sylvilagus audubonii	12	0	2	14	82.4%	17
Thomomys bottae	1	0	0	1	100.0%	1
Artiodactyla	1	0	1	2	40.0%	5
Large Mammal	838	35	256	1129	92.8%	1217
Medium Mammal	119	7	23	149	94.3%	158
Small Mammal	527	33	86	646	92.8%	696
Total	1510	75	372	1957	92.2%	2123
Percent	77.2%	3.8%	19.0%	100.0%		

The specimens that were calcined (19.0 percent/n=372 of the burned elements) were exposed to a direct flame at extremely high temperatures (greater than 800° Celsius). Of the 372 calcined bones, 6 large mammal specimens exhibited signs of shrinking or warping. These are attributes that indicate the presence of soft tissue on the bone at the time the bones were exposed to an open flame. It should be noted that the six calcined bones with warping and shrinking attributes were recovered from the 40-50 cm level of Unit 9, which also had *Odocoileus hemionus* remains identified. It is possible that these six calcined bones represent deer meat that had been accidentally burned. It is likely that the remaining 366 calcined specimens were the result of discarded waste in a fire hearth. Animal species or categories calcined included *Clemmys marmorata, Lepus californicus*, *Odocoileus hemionus*, *Sylvilagus audubonii*, artiodactyla, small mammal, medium mammal, and large mammal.

Butchered Bone

Thirty-two bones had cut marks that showed that they were butchered. All 32 bones were large mammal or artiodactyla specimens, and 31 of the 32 were burned (29 burned brown and 2 calcined). All 32 specimens were chopped, probably to extract marrow. These cut marks were wide, deep marks with evidence of chipping of the cortical bone that surrounds the impact point.

Natural History

<u>Terrestrial</u>

There are two species of Leporidae represented in the vertebrate collection: *Lepus californicus* (black-tailed jackrabbit) and *Sylvilagus audubonii* (desert cottontail rabbit). Jackrabbit is found only in open or partially open areas (Bond 1977:234), and is most active in the morning and early evening. They feed on green vegetation, shrubs, and cacti (Russo and Oldhausen 1987:20). According to Christenson (1986), jackrabbit is best hunted with nets. Desert cottontail can be found in open plains, foothills, low valleys, and coastal areas, and are easily caught with a rabbit stick or bow and arrow (Christenson 1986). They are most active in early morning, late afternoon, and at night. Their diet consists of green vegetation and fruit (Russo and Oldhausen 1987:25). Both Leporidae were probably hunted for food as well as for their pelts (Schroth and Gallegos 1991).

Two rodent species were identified in this collection, and both species are native to San Diego County. *Spermophilus beecheyi* (California ground squirrel) and *Thomomys bottae* (Botta's pocket gopher) can be found in areas ranging from the mountains to the coast. The ground squirrel, like the gopher, is a burrowing animal. It is active from dawn until dusk, and while it may climb into brush or trees it usually remains on the ground. The gopher is the most common and widespread rodent, occurring wherever there is vegetation and loose dirt to burrow through (Bond 1977:235-236).

Odocoileus hemionus (mule deer) are native to the western half of the United States, most of Canada, and northern Mexico. They feed on shrubs, twigs, grasses, and herbs in several types of habitats, such as coniferous forests, desert shrubs, chaparral, and grasslands with shrubs. Mule deer are most active in the morning and the evening, and occur singly or in small groups (Burt and Gossenheider 1976:216). Ethnographic data states that hunters would disguise themselves with the head and fur of a deer when stalking other deer (Ashby and Winterbourne 1966; Christenson 1981:69), and the usual weapon used to kill deer was the bow and arrow, but the use of snares has also been documented (Sparkman 1908:197). The killed deer was useful for items such as the meat, hide, and hoof (for rattles).

Canis latrans (coyote) is native to most of the United States (Booth 1950:159), and are found in San Diego County in the Upper and Lower Sonoran life-zones (Bond 1977:242). Coyotes are primarily nocturnal, but can be active at any hour. Their dens are usually located along river banks, canyons, and gulches. They are omnivorous, but their diet consists mostly of small mammals (Russo and Olhausen 1987:81).

<u>Aquatic</u>

Clemmys marmorata (southwestern pond turtle) once ranged from Monterey Bay to northern Baja California, from coastal drainages to foothills, and even to the desert slope of the Mojave River (by the San Bernadino Mountains) (Bogert 1930). They hibernate through winter and emerge in March (Carr 1978:127-128). The southwestern pond turtle diet consists of aquatic plants, insects, and carrion (Schneider and Everson 1989:181). "Turtle" uses include meat consumption, ceremonial use (rattles), medicinal use, technological use includes ladles, scoops, bowls, and containers, and symbolic use can be seen in Native American artwork, and heard in oral traditions.

Myliobatos californica (bat ray) is a common fish that can be found in bays and sandy shallow areas to a depth of 150 ft. anywhere from the Gulf of California to Oregon (Miller and Lea 1972:50). It can weigh up to 210 lbs. and have a width of 4 ft. (Miller and Lea 1972:50).

Modified Bone

Three bone artifacts were recovered during excavation. One (SDI-9537-112) is a modified tip fragment that has been burned (brown in color), shaped, and polished. It is manufactured from a longbone splinter of a medium-sized mammal. No striations or use-wear other than the polish was observed, therefore, no functional category could be assigned. It was recovered from the 50-56 cm level of Unit 2.

The other two artifacts (SDI-9537-205) were both recovered from the 0-10 cm level of Unit 9. They are both antler fragments. The larger fragment is calcined and the smaller is burned brown. No evidence of use was present, but they are probably fragments of antler tines used in flint knapping. Gifford (1940:186) describes this type of artifact as "flint flakers", and notes one such Luiseno specimen in the ethnological collection (his ethnological figure 19; Gifford 1940:237).

References Cited

Ashby, Gladyce E. and John W. Winterbourne

1966 A Study of Primitive Man in Orange County and Some of its Coastal Areas. *Pacific Coast Archaeological Society Quarterly* 2(1):5-52. (Originally published 1939).

Bogert, Charles M.

1930 An Annotated List of the Amphibians and Reptiles of Los Angeles County, California. *Bulletin of Southern California Academy of Sciences*, 24:3-14.

Bond, Suzanne I.

1977 An Annotated List of the Mammals of San Diego County, California. *Transactions of the San Diego Society of Natural History*, Volume 18, No. 14. San Diego, California.

Booth, Ernest S.

1950 *How to Know the Mammals*. Wm. C. Brown Company, Duburque, Iowa.

Burt, William H. and Richard P. Gossenheider

1976 *A Field Guide to Mammals of America North of Mexico*. Houghton Mifflin Company. Boston.

Carr, Archie

1978 *Handbook of Turtles: The Turtles of the United States, Canada, and Baja California*. Comstock Publishing Associates, Ithaca, New York.

Christenson, Lynne E.

1981 *Mammalian Faunal Butchering Techniques of an Inland La Jollan Site, San Diego County, California*. Coyote Press, Salinas, California.

1986 Kumeyaay Economic Optimization: A Linear Programming Analysis. Paper presented at the Annual Meeting Society for California Archaeology, Santa Maria, California.

Gifford, Edward W.

1940 California Bone Artifacts. *Anthropological Records* 3(2). University of California Press, Berkeley.

Lawrence, Barbara

1951 Post-Cranial Skeletal Characteristics of Deer, Pronghorn, and Sheep-Goat with Notes on Bos and Bison. *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University Vol. XXXV-No. 3, Peabody Museum, Cambridge, Massachusetts.

Miller, Daniel J. and Robert N. Lea

1972 Guide to the Coastal Marine Fishes of California. *Department of Fish and Game Fish Bulletin* 157.

Nickel, R., A. Schummer, E. Seiferle, J. Frewein, H. Wilkens, and K. Wille

1986 *The Locomotor System of the Domestic Mammals*. Springer-Verlag, New York.

Olsen, Stanley J.

1985 Mammal Remains From Archaeological Sites. Part I Southeastern and Southwestern United States. *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University Vol. 56, No. 1, Peabody Museum, Cambridge, Massachusetts.

Russo, Ron and Pam Oldhausen

1987 *Mammal Finder: A Guide to Mammals of the Pacific Coast States, their Tracks, Skulls, and Other Signs.* Nature Study Guide, Berkeley, California.

Sandefur, Elsie

1977 *Archaeology and the Mule Deer: A Guide to Carpal Identification.* The Archaeological Survey Association Paper No. 10. La Verne, California.

Schmid, Elizabeth

1972 *Atlas of Animal Bones*. Elsevier Publishing Company, New York.

Schneider, Joan S. and G. Dicken Everson

1989 The Desert Tortoise (*Xerobates agassizii*) in the Prehistory of the Southwestern Great Basin and Adjacent Areas. *Journal of California and Great Basin Anthropology* Vol. 11, No. 2. Malki Museum, Inc., Banning, California.

Schroth, Adella and Dennis R. Gallegos

1991 Archaeological Investigations at a Five Hundred Year Old Settlement Twin Oaks Valley Ranch, San Marcos, California. On file, South Coastal Information Center, San Diego State University, San Diego, California.

Shackley, M. Steven, G. Timothy Gross, John R. Cook, Carol J. Serr and Lynn E. Christensen

1989 An Evaluation of Cultural Resources Within the Talega Valley Project (Development Phases 2, 3, and 4) Orange County, California. On file, Brian F. Mooney Associates, San Diego, California.

Sparkman, Philip S.

1908 The Culture of the Luiseno Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234. Berkeley.

Ubelaker, Douglas H.

1978 *Human Skeletal Remains*. Aldine Publishing Company, Chicago.

Wing, Elizabeth S. and Antoinette B. Brown

1979 *Paleo-Nutrition: Method and Theory in Prehistoric Foodways*. Studies in Archaeology, Academic Press, Orlando, Florida.

APPENDIX A

VERTEBRATE FAUNAL CATALOGUE

							Burned Bone (Br=brown; Bl=black; Ca=calcined)											
Catalogue Number	Provenience	Level	Specimen	Element	Part	Side	Br.Ct.	Br.Wt.	Bl.Ct.	Bl.Wt.	Ca.Ct.	Ca.Wt.	Cut#	Cut Wt.	Method	Total	Weight	Comments
CA-SDI-9537-074	Unit 1	000-010	Small Mammal	unidentifiable	fragment		22	1.4								22	1.4	
CA-SDI-9537-074	Unit 1	000-010	Large Mammal	unidentifiable	fragment		18	2.4			2	0.9				21	3.3	
CA-SDI-9537-076	Unit 1	010-020	Small Mammal	unidentifiable	fragment		10	0.5			3	0.1				13	0.6	
CA-SDI-9537-076	Unit 1	010-020	Large Mammal	unidentifiable	fragment		32	6.8			14	2.4				46	9.2	
CA-SDI-9537-079	Unit 1	020-030	Sylvilagus audubonii	humerus	distal	right	1	0.1								1	0.1	
CA-SDI-9537-079	Unit 1	020-030	Small Mammal	unidentifiable	fragment		13	0.8	1	<0.1	2	0.1				16	0.9	
CA-SDI-9537-079	Unit 1	020-030	Large Mammal	unidentifiable	fragment		22	4.3	2	0.1	13	1.4	1	0.6	chopped	42	6.3	Chopped=burned brown
CA-SDI-9537-082	Unit 1	030-040	Small Mammal	unidentifiable	fragment		4	0.2			2	0.1				6	0.3	
CA-SDI-9537-082	Unit 1	030-040	Large Mammal	unidentifiable	fragment						3	0.5				3	0.5	
CA-SDI-9537-084	Unit 2	000-010	Odocoileus hemionus	tooth	fragment											1	0.2	
CA-SDI-9537-084	Unit 2	000-010	Large Mammal	unidentifiable	fragment		11	2.7			3	0.6				14	3.3	
CA-SDI-9537-094	Unit 2	010-020	Small Mammal	unidentifiable	fragment		1	0.1								1	0.1	
CA-SDI-9537-094	Unit 2	010-020	Large Mammal	unidentifiable	fragment		12	2.6	1	0.1	1	<0.1	2	1.0	chopped	14	2.7	Chopped=burned brown
CA-SDI-9537-100	Unit 2	020-030	Small Mammal	unidentifiable	fragment		9	0.6								9	0.6	
CA-SDI-9537-100	Unit 2	020-030	Large Mammal	unidentifiable	fragment		14	4.6			2	0.4	1	2.9	chopped	16	5.0	Chopped=burned brown
CA-SDI-9537-105	Unit 2	030-040	Small Mammal	unidentifiable	fragment		9	0.4								9	0.4	
CA-SDI-9537-105	Unit 2	030-040	Large Mammal	unidentifiable	fragment		20	3.0			3	0.7				23	3.7	
CA-SDI-9537-107	Unit 2	040-050	Small Mammal	unidentifiable	fragment		6	0.6								6	0.6	
CA-SDI-9537-107	Unit 2	040-050	Large Mammal	unidentifiable	fragment		2	0.7			2	0.2				4	0.9	
CA-SDI-9537-112	Unit 2	050-056	Small Mammal	unidentifiable	fragment		14	0.7			1	0.3				19	1.2	
CA-SDI-9537-112	Unit 2	050-056	Large Mammal	unidentifiable	fragment		2	0.3			2	0.5				4	0.8	
CA-SDI-9537-115	Unit 3	000-010	Large Mammal	unidentifiable	fragment		1	0.1								1	0.1	
CA-SDI-9537-123	Unit 3	010-020	Large Mammal	unidentifiable	fragment		1	0.1	1	0.1						2	0.2	
CA-SDI-9537-130	Unit 4	000-010	Odocoileus hemionus	tooth	fragment											1	0.1	
CA-SDI-9537-130	Unit 4	000-010	Small Mammal	unidentifiable	fragment		14	0.6	2	0.2	1	0.1				17	0.9	
CA-SDI-9537-130	Unit 4	000-010	Large Mammal	unidentifiable	fragment		8	1.0			2	0.2				10	1.2	
CA-SDI-9537-137	Unit 4	010-020	Small Mammal	unidentifiable	fragment		8	0.4								8	0.4	
CA-SDI-9537-137	Unit 4	010-020	Large Mammal	unidentifiable	fragment		8	1.3			1	0.2	1	0.2	chopped	11	2.4	Chopped=burned brown
CA-SDI-9537-144	Unit 4	020-030	Clemmys marmorata	carapace	peripheral	left	1	0.4								1	0.4	
CA-SDI-9537-144	Unit 4	020-030	Small Mammal	unidentifiable	fragment		12	0.6			1	0.1				14	0.8	
CA-SDI-9537-144	Unit 4	020-030	Large Mammal	tooth	root		1	0.1								1	0.2	
CA-SDI-9537-144	Unit 4	020-030	Large Mammal	unidentifiable	fragment		20	2.3			4	0.4				24	2.8	
CA-SDI-9537-147	Unit 4	030-040	Myliobatos californica	vertebra	complete		1	0.1								1	0.1	
CA-SDI-9537-147	Unit 4	030-040	Thomomys bottae	humerus	complete	right	1	0.2								1	0.2	
CA-SDI-9537-147	Unit 4	030-040	Sylvilagus audubonii	scapula	glenoid	right	1	0.1								1	0.1	
CA-SDI-9537-147	Unit 4	030-040	Sylvilagus audubonii	calcaneum	proximal	right	1	0.2								1	0.2	
CA-SDI-9537-147	Unit 4	030-040	Sylvilagus audubonii	calcaneum	complete	left	1	0.3								1	0.3	
CA-SDI-9537-147	Unit 4	030-040	Small Mammal	unidentifiable	fragment		65	3.6			15	0.7				88	4.6	
CA-SDI-9537-147	Unit 4	030-040	Medium Mammal	unidentifiable	fragment		9	1.2			2	0.3				12	1.7	
CA-SDI-9537-147	Unit 4	030-040	Large Mammal	unidentifiable	fragment		76	17.0			12	2.9				90	20.4	
CA-SDI-9537-147	Unit 4	030-040	Odocoileus hemionus	trapezoid-mag	complete	right	1	2.8								1	2.8	
CA-SDI-9537-150	Unit 4	040-048	Odocoileus hemionus	tooth	fragment		1	0.1								1	0.1	
CA-SDI-9537-150	Unit 4	040-048	Small Mammal	unidentifiable	fragment		12	0.6	3	0.2	4	0.2				19	1.0	
CA-SDI-9537-150	Unit 4	040-048	Medium Mammal	unidentifiable	fragment		5	1.1			1	0.2				6	1.3	
CA-SDI-9537-150	Unit 4	040-048	Large Mammal	unidentifiable	fragment		39	6.9			5	0.2				44	7.1	
CA-SDI-9537-153	Unit 5	000-010	Large Mammal	unidentifiable	fragment		7	1.5								7	1.5	
CA-SDI-9537-158	Unit 5	010-020	Large Mammal	unidentifiable	fragment											1	0.3	
CA-SDI-9537-169	Unit 5	050-056	Large Mammal	unidentifiable	fragment						1	0.1				1	0.1	
CA-SDI-9537-172	Unit 6	000-010	Large Mammal	unidentifiable	fragment		1	0.2								1	0.2	
CA-SDI-9537-178	Unit 6	010-020	Large Mammal	unidentifiable	fragment		1	0.1								2	0.2	
CA-SDI-9537-185	Unit 7	000-010	Small Mammal	unidentifiable	fragment						1	0.1				1	0.1	
CA-SDI-9537-185	Unit 7	000-010	Large Mammal	unidentifiable	fragment		1	0.5								1	0.5	
CA-SDI-9537-188	Unit 7	010-020	Small Mammal	unidentifiable	fragment		1	0.1			1	0.1				2	0.2	
CA-SDI-9537-188	Unit 7	010-020	Large Mammal	unidentifiable	fragment						7	0.7				7	0.7	
CA-SDI-9537-191	Unit 7	020-030	Large Mammal	unidentifiable	fragment		2	0.4			1	0.1				3	0.5	
CA-SDI-9537-193	Unit 7	030-040	Small Mammal	unidentifiable	fragment		1	0.1								1	0.1	

							Burned Bone (Br=brown; Bl=black; Ca=calcined)											
Catalogue Number	Provenience	Level	Specimen	Element	Part	Side	Br.Ct.	Br.Wt.	Bl.Ct.	Bl.Wt.	Ca.Ct.	Ca.Wt.	Cut#	Cut Wt.	Method	Total	Weight	Comments
CA-SDI-9537-193	Unit 7	030-040	Large Mammal	unidentifiable	fragment		2	0.4								2	0.4	
CA-SDI-9537-200	Unit 7	050-060	Large Mammal	unidentifiable	fragment						1	0.1				1	0.1	
CA-SDI-9537-203	Unit 7	060-070	Large Mammal	unidentifiable	fragment		1	0.1								3	0.2	
CA-SDI-9537-209	Unit 9	000-010	Sylvilagus audubonii	calcaneum	proximal	right	1	0.1								1	0.1	
CA-SDI-9537-209	Unit 9	000-010	Odocoileus hemionus	tooth	fragment											2	0.2	
CA-SDI-9537-209	Unit 9	000-010	Small Mammal	unidentifiable	fragment		104	4.8	3	0.2	8	0.4				121	5.7	
CA-SDI-9537-209	Unit 9	000-010	Medium Mammal	unidentifiable	fragment		28	2.3			2	0.2				30	2.5	
CA-SDI-9537-209	Unit 9	000-010	Large Mammal	unidentifiable	fragment		117	19.3	5	0.7	22	2.5	3	1.6	chopped	144	22.5	Chopped=burned brown
CA-SDI-9537-211	Unit 9	000-010	Odocoileus hemionus	incisor	fragment											1	0.1	
CA-SDI-9537-213	Unit 9	010-020	Sylvilagus audubonii	tooth	fragment		1	0.1								1	0.1	
CA-SDI-9537-213	Unit 9	010-020	Odocoileus hemionus	tooth	fragment											2	0.1	
CA-SDI-9537-213	Unit 9	010-020	Small Mammal	unidentifiable	fragment		54	2.5	2	0.2	1	0.1				68	3.3	
CA-SDI-9537-213	Unit 9	010-020	Medium Mammal	unidentifiable	fragment		12	1.1			2	0.1				14	1.2	
CA-SDI-9537-213	Unit 9	010-020	Large Mammal	unidentifiable	fragment		82	12.1	5	0.6	19	3.0	5	3.4	chopped	117	17.3	Chopped=burned brown
CA-SDI-9537-217	Unit 9	020-030	Sylvilagus audubonii	calcaneum	proximal	left					1	0.1				1	0.1	
CA-SDI-9537-217	Unit 9	020-030	Sylvilagus audubonii	calcaneum	complete	left					1	0.4				1	0.4	
CA-SDI-9537-217	Unit 9	020-030	Sylvilagus audubonii	scapula	glenoid	left	1	0.1								1	0.1	
CA-SDI-9537-217	Unit 9	020-030	Clemmys marmorata	carapace	fragment		1	0.2			1	0.1				2	0.3	
CA-SDI-9537-217	Unit 9	020-030	Odocoileus hemionus	tooth	fragment											2	0.1	
CA-SDI-9537-217	Unit 9	020-030	Small Mammal	unidentifiable	fragment		79	3.1	10	0.7	10	0.4				104	4.4	
CA-SDI-9537-217	Unit 9	020-030	Medium Mammal	unidentifiable	fragment		23	2.6	5	0.4	7	0.5				35	3.5	
CA-SDI-9537-217	Unit 9	020-030	Large Mammal	unidentifiable	fragment		96	16.9	12	2.7	20	3.3	3	1.7	chopped	141	26.0	Chopped=burned brown
CA-SDI-9537-221	Unit 9	040-050	Odocoileus hemionus	tooth	fragment											2	0.2	
CA-SDI-9537-221	Unit 9	040-050	Clemmys marmorata	carapace	fragment		1	0.2								2	0.3	
CA-SDI-9537-221	Unit 9	040-050	Sylvilagus audubonii	calcaneum	complete	right										1	0.1	
CA-SDI-9537-221	Unit 9	040-050	Sylvilagus audubonii	innominate	acetabulum	left	1	0.3								1	0.3	
CA-SDI-9537-221	Unit 9	040-050	Sylvilagus audubonii	tooth	fragment											2	0.1	
CA-SDI-9537-221	Unit 9	040-050	Lepus californicus	calcaneum	proximal	right	1	0.2								1	0.2	
CA-SDI-9537-221	Unit 9	040-050	Lepus californicus	humerus	distal	right	1	0.5								1	0.5	
CA-SDI-9537-221	Unit 9	040-050	Spermophilus beecheyi	tibia	distal	right	1	0.1								1	0.1	
CA-SDI-9537-221	Unit 9	040-050	Small Mammal	unidentifiable	fragment		43	2.7	7	0.5	19	1.2				78	5.0	
CA-SDI-9537-221	Unit 9	040-050	Medium Mammal	unidentifiable	fragment		28	4.0	1	<0.1	5	0.6				37	4.9	
CA-SDI-9537-221	Unit 9	040-050	Large Mammal	unidentifiable	fragment		126	19.0	6	1.2	82	11.9	4	3.1	chopped	231	34.6	Chopped=burned brown; 6 (1.8) calcined=warping, shrinking, cracking
CA-SDI-9537-221	Unit 9	040-050	Artiodactyla	metapodial	proximal		1	1.1			1	1.3	2	2.4	chopped	2	2.4	Chopped=burned brown & calcined
CA-SDI-9537-224	Unit 9	050-060	Artiodactyla	metapodial	condyle											1	2.7	
CA-SDI-9537-224	Unit 9	050-060	Lepus californicus	ulna	proximal	right					1	0.3				1	0.3	
CA-SDI-9537-224	Unit 9	050-060	Lepus californicus	scapula	glenoid	left	1	0.3								1	0.3	
CA-SDI-9537-224	Unit 9	050-060	Lepus californicus	calcaneum	proximal	left					1	0.2				1	0.2	
CA-SDI-9537-224	Unit 9	050-060	Sylvilagus audubonii	calcaneum	proximal	left	1	0.1								1	0.1	
CA-SDI-9537-224	Unit 9	050-060	Sylvilagus audubonii	scapula	glenoid	left	1	<0.1								1	<0.1	
CA-SDI-9537-224	Unit 9	050-060	Small Mammal	unidentifiable	fragment		34	2.3	5	0.3	16	0.6				61	3.6	
CA-SDI-9537-224	Unit 9	050-060	Medium Mammal	unidentifiable	fragment		8	1.1	1	0.2	4	0.6				15	2.0	
CA-SDI-9537-224	Unit 9	050-060	Large Mammal	unidentifiable	fragment		64	13.3	3	0.5	23	2.4	6	4.0	chopped	109	19.7	Chopped=burned brown
CA-SDI-9537-227	Unit 9	060-070	Clemmys marmorata	carapace	fragment		1	0.2								1	0.2	
CA-SDI-9537-227	Unit 9	060-070	Odocoileus hemionus	tooth	fragment											1	0.2	
CA-SDI-9537-227	Unit 9	060-070	Small Mammal	unidentifiable	fragment		4	0.2			1	<0.1				5	0.2	
CA-SDI-9537-227	Unit 9	060-070	Medium Mammal	unidentifiable	fragment											3	0.1	
CA-SDI-9537-227	Unit 9	060-070	Large Mammal	unidentifiable	fragment		13	1.7			3	0.7				19	3.3	
CA-SDI-9537-227	Unit 9	060-070	Canis latrans	magnum	complete	right	1	0.5								1	0.5	
CA-SDI-9537-229	Unit 10	000-010	Large Mammal	unidentifiable	fragment		3	0.3			2	0.1				10	1.0	
CA-SDI-9537-236	Unit 10	010-020	Medium Mammal	unidentifiable	fragment		4	0.6								4	0.6	
CA-SDI-9537-236	Unit 10	010-020	Large Mammal	unidentifiable	fragment		8	2.4			2	0.3				13	3.1	
CA-SDI-9537-236	Unit 10	010-020	Artiodactyla	tooth	fragment											2	0.2	
CA-SDI-9537-244	Unit 10	020-030	Odocoileus hemionus	tooth	fragment						1	0.2				1	0.2	
CA-SDI-9537-244	Unit 10	020-030	Medium Mammal	Ph-1	proximal		1	0.4								1	0.4	
CA-SDI-9537-244	Unit 10	020-030	Large Mammal	unidentifiable	fragment		7	0.9			1	0.6	1	0.6	chopped	8	1.5	Chopped=calcined

							Burned Bone (Br=brown; Bl=black; Ca=calcined)											
Catalogue Number	Provenience	Level	Specimen	Element	Part	Side	Br.Ct.	Br.Wt.	Bl.Ct.	Bl.Wt.	Ca.Ct.	Ca.Wt.	Cut#	Cut Wt.	Method	Total	Weight	Comments
CA-SDI-9537-250	Unit 10	030-040	Large Mammal	unidentifiable	fragment		8	1.0			2	0.4				10	0.4	
CA-SDI-9537-254	STP 1	040-060	Large Mammal	unidentifiable	fragment		1	1.0			1	0.2	1	1.0	chopped	2	1.2	Chopped=burned brown
CA-SDI-9537-257	STP 2	000-020	Small Mammal	unidentifiable	fragment		1	<0.1								1	<0.1	
CA-SDI-9537-257	STP 2	000-020	Medium Mammal	unidentifiable	fragment		1	0.1								1	0.1	
CA-SDI-9537-261	STP 2	040-060	Sylvilagus audubonii	ulna	proximal	left	1	0.1								1	0.1	
CA-SDI-9537-261	STP 2	040-060	Small Mammal	unidentifiable	fragment		2	0.1								2	0.1	
CA-SDI-9537-261	STP 2	040-060	Large Mammal	unidentifiable	fragment		3	0.3								4	0.4	
CA-SDI-9537-263	STP 2	060-080	Large Mammal	unidentifiable	fragment		2	0.1								2	0.1	
CA-SDI-9537-265	STP 3	000-020	Small Mammal	unidentifiable	fragment		1	0.2								1	0.2	
CA-SDI-9537-265	STP 3	000-020	Large Mammal	unidentifiable	fragment		1	0.3								1	0.3	
CA-SDI-9537-267	STP 3	020-040	Large Mammal	unidentifiable	fragment		3	0.3								3	0.3	
CA-SDI-9537-270	STP 3	040-060	Sylvilagus audubonii	scapula	glenoid	left	1	0.1								1	0.1	
CA-SDI-9537-270	STP 3	040-060	Small Mammal	unidentifiable	fragment		4	0.1								4	0.1	
CA-SDI-9537-270	STP 3	040-060	Large Mammal	unidentifiable	fragment		2	0.1					1	0.8	chopped	3	0.9	Chopped=unburned
CA-SDI-9537-285	STP 9	000-020	Large Mammal	unidentifiable	fragment											1	0.1	

APPENDIX G

FLORAL ANALYSIS

by
Dr. Virginia Popper
Paleoethnobotany Lab
Cotsen Institute of Archaeology at UCLA

Macrobotanical Analysis of Samples from CA-SDI-9537/H, San Diego County, California

by

Virginia S. Popper
Paleoethnobotany Laboratory
Cotsen Institute of Archaeology
University of California, Los Angeles

prepared for

Professional Archaeological Services
13730 Via Cima Bella
San Diego, CA 92129

June 15, 2005

Introduction

CA-SDI-9537 is a large site with pottery and obsidian points indicating a Late Prehistoric date. The site is covered by a citrus orchard and contained a historic residence from ca. 1899 to the mid-1920's. Historic debris was recovered from the 0-20/30 cm levels. CA-SDI-9537 sits on a bluff above Frey Creek. Currently oak trees grow around the site, but during the Late Prehistoric period coastal sage scrub probably covered the area. Professional Archaeological Services collected 11 flotation samples and 33 charcoal/seed samples from the site and sent them to the Paleoethnobotany Laboratory, Cotsen Institute of Archaeology, University of California, Los Angeles for macrobotanical analysis (Tables 1 and 8). Unit 2 was within the historic homestead area, but Unit 9 was not. The objectives of this analysis were to determine what plant remains were deposited at CA-SDI-9537, what were their uses, and what habitats and vegetative communities were exploited.

Methods

Professional Archaeological Services processed the soil samples in a mechanical flotation machine and sent the light fractions to the Paleoethnobotany Laboratory. The light fractions were sifted through a series of nested sieves (2.00, 1.00, and 0.50 mm), yielding four size fractions in preparation for sorting. The light fraction is divided because it is easier to sort material of similar size, given the shallow depth of field of the incident light binocular microscope (10-40x), and it allows one to selectively remove distinct materials from each fraction. In this analysis, carbonized wood was removed only from the >2.00 mm fraction. Material <0.50 mm was scanned for whole or identifiable seeds, but none were found. Most of the remains were counted, but wood charcoal and the possible cereal fragment were weighed because variation in fragmentation make weight a more representative measure of abundance.

Plant material generally decomposes in a relatively short time after deposition in open-air sites, so uncarbonized plant remains are usually interpreted as contamination from modern vegetation (Minnis 1981). These samples contained uncarbonized wood, rootlets, and seeds, including *Calandrinia* sp., *Euphorbia* sp., and *Silene* sp. Only carbonized material was considered to be of cultural origin in this analysis.

Wood charcoal specimens were fractured to give a clean transverse section and then examined under an incident light binocular microscope at 60x. All flotation sample fragments large enough for identification were inspected. For most of the hand-picked samples, all fragments were identified. Two charcoal samples contained many fragments, so the total charcoal weight was recorded but only 20 specimens were examined. This subsample size was considered appropriate given the diversity of taxa present (Smart and Hoffman 1988:186). The recovered plant remains were identified though the use of seed and wood manuals as well as comparative collections located in the Paleoethnobotany Laboratory at UCLA.

Results and Discussion

Eleven sediment samples, comprising a total soil volume of 22 liters, were analyzed (Table 1). Tables 2 and 3 catalogue the absolute counts and weights of the recovered carbonized remains. Density values (counts/liter or grams/liter) of the remains were calculated to allow for comparisons with other sites (Tables 4 and 5). Tables 6 and 7 present the wood charcoal absolute counts and weights. Table 8 lists the charcoal and seed remains pulled from the excavation.

Sample seed densities ranged from 0.0 to 3.5 seeds/l for Unit 2, and 0.0 to 0.5 seeds/l for Unit 9. The wood charcoal densities ranged from 0 to 0.02 g/l for Unit 2, 0 to 0.04 g/l for Unit 9.

The samples contained very few carbonized seeds and most come from the historic occupation. The following identifiable seeds were recovered from the samples: *Erodium* sp. cf. (filaree), *Malva* sp. (mallow), *Medicago* sp. cf. (burclover/alfalfa), and *Olea* sp. (cultivated olive). The Cheno-Am category includes many species from the Chenopodiaceae and Amaranthaceae families where the seeds contain a central endosperm around which the embryo curves (e.g., *Amaranthus, Atriplex, Chenopodium*). Seeds placed in this category lack diagnostic seed coats for identification. One seed could not be identified to genus and, based on morphology, was placed in the Solanaceae (nightshade) family. The cereal fragment probably comes from maize *(Zea mays)*, but was too small and eroded for a definitive identification. Two maize cupules (parts of the cob) provide additional evidence of maize consumption. Seeds that were too distorted or fragmented to classify to even the family level were placed in the Unidentifiable Seeds category. The abbreviation "cf" indicates that the identification of the taxon is uncertain.

In addition to seeds and fruits, we recovered wood, amorphous material and a leaf fragment. Amorphous material is typically very porous and lacks diagnostic characteristics. The wood taxa identified from the flotation samples were Asteraceae (sunflower family), *Platanus racemosa* (western sycamore), *Populus/Salix* sp. (poplar/willow), *Quercus* sp. (oak), *Salvia* sp. cf. (sage), and *Umbellularia californica* cf. (California Bay). Type A may be from *Olea* sp. (olive), but we do not have a comparative sample to confirm the identification. Some fragments were an unidentifiable diffuse porous type and others were unidentifiable dicotyledon wood.

The preservation of plant remains is extremely poor at CA-SDI-9537. It is rare to find archaeological deposits in California with no trace of charcoal, even in the smaller factions, but four of the floatation samples contained no charcoal and the rest contained low densities of charcoal. Most of the carbonized seeds are non-native species and show there was significant mixing of prehistoric and historic remains down to 40 cm. Olive and maize remains provide evidence of consumption and possibly cultivation of these introduced crops. Burclover/alfalfa grows in disturbed and agricultural areas, and filaree and mallow grow on disturbed soils, indicating that these are remains of weeds growing in fields or around the occupation. The paucity of seeds in the samples could indicate that plant processing and use were not important components of the site economy during Late Prehistoric times or were not important in these areas of the site. But it seems prudent to attribute the scarcity of remains to poor preservation rather than lack of plant use since most samples contained little or no charcoal.

It is more difficult to separate historic and Late Prehistoric fuel use from the charcoal remains, because other than Type A, which may be olive, the other charcoal types are probably native taxa. Two or three different habitats were exploited for firewood. Most of the charcoal is Type A and oak, which grows at the site today. These could come from trees in the orchard, but the oak may also represent scrub or chaparral vegetation. Sage and sunflower plants also commonly grow in coastal sage scrub and chaparral. The rest of the identified charcoal probably came from riparian forests along Frey Creek. California Bay, western sycamore, and poplar/willow all thrive along streams, and in other moist environments. The riparian taxa must have been brought to the site for firewood or other uses, but the other taxa could come from natural or man-made burns of the local vegetation.

Native California groups use these trees and shrubs for fuel and other purposes (Ebeling 1986; Strike 1994). Willow and poplar were used for fuel, construction material, baskets, and tools, among other items. Sycamore was considered an excellent fuel source, and was commonly used in construction, for tools, and as a medicine. Oak bark and wood were used for medicines, fuel, building material, and for making utensils, and acorns were an important food source. Sage stalks, leaves and seeds were important resources for California Indians as food and medicine. California Bay fruit flesh was eaten raw or boiled; the seed kernels or cakes made from pounded kernels could be stored for later consumption. Although we have no evidence of uses other than fuel, these resources were available to the site inhabitants.

The analysis of 11 flotation samples, charcoal, and seeds from CA-SDI-9537 provide little information on the Late Prehistoric occupation of the site. Preservation is extremely poor and there may have been minimal plant processing at the site. Most, if not all, of the seeds come from agricultural crops and weeds associated with the historic occupation. Charcoal indicates the use of local coastal sage scrub, chaparral, and riparian taxa.

References Cited

Ebeling, Walter

1986 *Handbook of Indian Foods and Fibers of Arid America.* University of California Press, Berkeley.

Minnis, Paul E.

1981 Seeds in Archaeological Sites: Sources and Some Interpretive Problems. *American Antiquity* 46:143-152.

Smart, Tristine Lee, and Ellen S. Hoffman

1988 Environmental Interpretation of Archaeological Charcoal. In *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains,* edited by C. A. Hastorf and V. S. Popper, pp. 167-205. University of Chicago Press, Chicago.

Strike, Sandra S.

1994 *Ethnobotany of the California Indians.* Koeltz Scientific Books, Champaign, Illinois.

Table 1. Provenience Information for the Flotation Samples from CA-SDI-9537.

EB Number[a]	Unit	Level (cm)	Volume (L)
4023	9	0-10	2
4024		10-20	2
4025		20-30	2
4026		30-40	2
4027		40-50	2
4028		50-60	2
4029	2	0-10	2
4030		10-20	2
4031		20-30	2
4032		30-40	2
4033		40-50	2

[a] The EB number is the accession number of the UCLA Paleoethnobotany Laboratory.

Table 2. Carbonized Plant Material Absolute Counts and Weights (g) from CA-SDI-9537, Unit 9.

Level	0-10	10-20	20-30	30-40	40-50	50-60
EB Number	4023	4024	4025	4026	4027	4028
TYPE						
SEEDS						
Medicago sp. cf.					1	
Unidentifiable seeds	1					
Seed Total[a]	1	0	0	0	1	0
PLANT PARTS						
Wood [b]	0.04	0.02	0	0.02	0.02	0
Leaf frag.				1		

[a] Seed total includes unidentifiable seeds and fragments.
[b] Weights (in grams).

Table 3. Carbonized Plant Material Absolute Counts and Weights (g) from CA-SDI-9537, Unit 2.

Level	0-10	10-20	20-30	30-40	40-50
EB Number	4029	4030	4031	4032	4033
TYPE					
SEEDS					
Cheno- Ams		1			
Cereal frag. cf.[b]			0.006		
Erodium sp. cf.		1			
Malva sp.		4			
Medicago sp. cf.			1		
Solanaceae		1			
Seed Total	0	7	1	0	0
PLANT PARTS					
Wood[b]	0.08	0.08	<0.01	0	0

[b] Weights (in grams).

Table 4. Carbonized Plant Material Densities (counts/liter or grams/liter) from CA-SDI-9537, Unit 9.

Level	0-10	10-20	20-30	30-40	40-50	50-60
EB Number	4023	4024	4025	4026	4027	4028
TYPE						
SEEDS						
Medicago sp. cf.					0.5	
Unidentifiable seeds	0.5					
Seed Total[a]	0.5	0	0	0	0.5	0
PLANT PARTS						
Wood[b]	0.02	0.01	0	0.01	0.01	0
Leaf part				0.5		

[a] Seed density total includes unidentifiable seeds and fragments.
[b] Density in g/L.

Table 5. Carbonized Plant Material Densities (counts/liter or grams/liter) from CA-SDI-9537, Unit 2.

Level	0-10	10-20	20-30	30-40	40-50
EB Number	4029	4030	4031	4032	4033
TYPE					
SEEDS					
Cheno- Ams		0.5			
Cereal frag. cf.[b]			0.003		
Erodium sp. cf.		0.5			
Malva sp.		2.0			
Medicago sp. cf.			0.5		
Solanaceae		0.5			
Seed Total	0	3.5	0.5	0	0
PLANT PARTS					
Wood[b]	0.04	0.04	<0.01	0	0

[b]Density in g/L.

Table 6. Wood Charcoal Absolute Counts and Weights (g) for CA-SDI-9537, Unit 9.

Level	0-10		10-20		30-40		40-50	
EB Number	4023		4024		4026		4027	
TYPE	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Asteraceae	1	0.04						
Diffuse porous			3	0.02			2	0.02
Type A					3	0.02		
Total identified	1	0.04	3	0.02	3	0.02	2	0.02
Total Charcoal		0.04		0.02		0.02		0.02

Table 7. Wood Charcoal Absolute Counts and Weights (g) for CA-SDI-9537, Unit 2.

Level	0-10		10-20		20-30	
EB Number	4029		4030		4031	
TYPE	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Asteraceae			1	0.04		
Diffuse porous			2	0.03		
Platanus racemosa			1	<0.01		
Quercus sp.			1	<0.01	1	<0.01
Type A	1	0.08				
Total identified	1	0.08	5	0.07	1	<0.01
Total Charcoal		0.08		0.08		<0.01

Table 8. Charcoal and Seed Samples from CA-SDI-9537.

Unit	Level (cm)	Location	Seed	Charcoal	Type	Count	Weight (g)
2	10	North Wall		x	Diffuse porous	3	0.02
	10-20			x	Dicotyledon	1	0.07
				x	*Quercus* sp.	8	0.45
			x		*Zea mays* cupule	2	
	15	West Wall		x	*Quercus* sp.	4	0.07
	18	South Wall		x	Stems	3	0.01
			x		Cheno-Ams	1	
			x		*Malva* sp.	3	
	20-30			x	*Quercus* sp.	1	0.02
3	0-10			x	Type A	20	1.22
					Total Charcoal		4.24
	0-10			x	*Platanus racemosa*	1	0.01
				x	Type A	19	0.70
					Total Charcoal		2.47
			x		*Olea* sp.	3	
	10-20			x	*Quercus* sp.	1	0.05
				x	Type A	19	0.99
					Total Charcoal		1.62
	L3			x	Dicotyledon	1	0.01
4	0-10			x	Amorphous	2	0.06
				x	Dicotyledon	4	0.31
				x	*Platanus racemosa* cf.	1	0.06
				x	*Quercus* sp.	11	0.61
				x	*Umbellularia californica* cf.	1	0.07
				x	Type A	5	0.23
			x		*Olea* sp.	8	
	10-20			x	Diffuse porous	11	0.25
				x	*Quercus* sp.	8	0.18
				x	*Salvia* sp. cf.	2	0.04
				x	Type A	2	0.08
	20-30			x	Dicotyledon	1	0.02
				x	*Quercus* sp.	1	0.01
	30-40		x		*Olea* sp.	1	
	40-48			x	Amorphous	3	0.05
				x	Diffuse porous	1	0.02

Table 8 (cont.)

Unit	Level (cm)	Location	Seed	Charcoal	Type	Count	Weight (g)
5	0-10			x	*Populus/Salix* sp.	1	0.08
				x	*Quercus* sp.	1	0.01
				x	*Umbellularia californica* cf.	10	0.67
	20-30			x	Dicotyledon	2	0.66
				x	*Umbellularia californica* cf.	1	0.53
	30-40			x	*Salvia* sp. cf.	6	0.08
	50-60			x	Diffuse porous	1	0.01
6	0-10			x	Amorphous	1	0.04
				x	Dicotyledon	4	0.1
				x	*Quercus* sp.	1	0.02
				x	*Umbellularia californica* cf.	9	0.37
				x	Type A	3	0.09
			x		*Olea* sp.	2	
7	0-20			x	Diffuse porous	1	0.02
				x	Type A	1	0.01
			x		*Olea* sp.	1	
	10-20			x	Diffuse porous	1	0.02
9	0-10			x	Dicotyledon	3	0.05
				x	*Salvia* sp. cf.	4	0.14
				x	Type A	3	0.12
			x		*Olea* sp.	1	
	50-60			x	Diffuse porous	1	0.01
10	0-10			x	Dicotyledon	2	0.08
	10-20			x	Dicotyledon	2	0.02
				x	*Quercus* sp.	2	0.05
STP 1	40-60			x	Type A	1	0.01
STP 2	40-60			x	Diffuse porous	1	0.04
STP 3	0-20			x	Diffuse porous	1	0.02
	20-40			x	Diffuse porous	2	0.02
	40-60		x		*Olea* sp.	1	
STP 6	0-20			x	Diffuse porous	2	0.01
STP 7	20-30			x	Dicotyledon	1	0.03
			x		*Olea* sp.	2	
STP 8	0-20			x	Type A	7	0.17

Addendum to Macrobotanical Analysis of Samples from CA-SDI-9537/H, San Diego County, California

Virginia S. Popper
Paleoethnobotany Laboratory
Cotsen Institute of Archaeology
University of California, Los Angeles

June 20, 2005

Ten vials of remains that were hand-picked from the CA-SDI-9537/H excavations were sent to the Paleoethnobotany Laboratory for identification. Table 1 lists the identified seeds, but does not include the few fragments of wood and charcoal in the vials. Most of the seeds are *Olea* sp. (cultivated olive), and many are only partially carbonized. One sample contains maize cupules (parts of the cob). All of these remains post-date the Late Prehistoric occupation of the site. The uncarbonized *Quercus* sp. (oak) acorn and probable *Rhamnus* sp. (buckthorn) seeds come from vegetation currently growing on the site. Consequently, none of the seeds sheds light on Late Prehistoric plant use at the site.

Table 1. Seed Samples from CA-SDI-9537.

Cat. No.	Unit	Level (cm)	Type	Count
88	2	0-10	*Olea* sp. fragment	1
119	3	0-10	*Olea* sp. fragment*	4
134	4	0-10	*Olea* sp. whole	2
			Olea sp. fragment	4
141	4	10-20	*Olea* sp. whole*	1
176	6	0-10	*Olea* sp. whole*	6
			Olea sp. fragment*	35
			Quercus sp. acorn uncarbonized	1
			Rhamnus sp. cf. frag. uncarbonized	1
180	6	10-20	*Zea mays* cupule	4
182	6	20-30	*Olea* sp. fragment*	9
186	7	0-10	*Olea* sp. fragment	1
215	9	10-20	*Olea* sp. fragment	1
222	9	40-50	*Olea* sp. whole	1

* Some only partially carbonized.

APPENDIX H

RADIOCARBON DATING

by
Beta Analytic, Inc.

BETA

Consistent Accuracy
Delivered On Time.

Beta Analytic Inc.
4985 SW 74 Court
Miami, Florida 33155 USA
Tel: 305 667 5167
Fax: 305 663 0964
beta@radiocarbon.com
www.radiocarbon.com

MR. DARDEN HOOD
Director

Mr. Ronald Hatfield
Mr. Christopher Patrick
Deputy Directors

June 10, 2005

Dr. Phillip L. deBarros
Professional Archaeological Services
13730 Via Cima Bella
San Diego, CA 92129
USA

RE: Radiocarbon Dating Results For Samples SDI9537U2L2E, SDI9537U2L5, SDI9537U9L2

Dear Dr. de Barros:

Enclosed are the radiocarbon dating results for three samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses went normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

Our invoice is enclosed. Please, forward it to the appropriate officer or send VISA charge authorization. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

UNIVERSITY BRANCH
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305/667-5167 FAX: 305/663-0964
E-MAIL: beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Dr. Phillip L. deBarros — Report Date: 6/10/2005

Professional Archaeological Services — Material Received: 5/18/2005

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 205071	110 +/- 40 BP	-26.7 o/oo	80 +/- 40 BP

SAMPLE : SDI9537U2L2E
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1680 to 1740 (Cal BP 270 to 200) AND Cal AD 1800 to 1930 (Cal BP 150 to 20)
Cal AD 1950 to 1960 (Cal BP 0 to 0)

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 205072	120 +/- 40 BP	-25.1 o/oo	120 +/- 40 BP

SAMPLE : SDI9537U2L5
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1670 to 1950 (Cal BP 280 to 0)

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 205073	90 +/- 40 BP	-22.9 o/oo	120 +/- 40 BP

SAMPLE : SDI9537U9L2
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1670 to 1950 (Cal BP 280 to 0)

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.7:lab. mult=1)

Laboratory number: **Beta-205071**

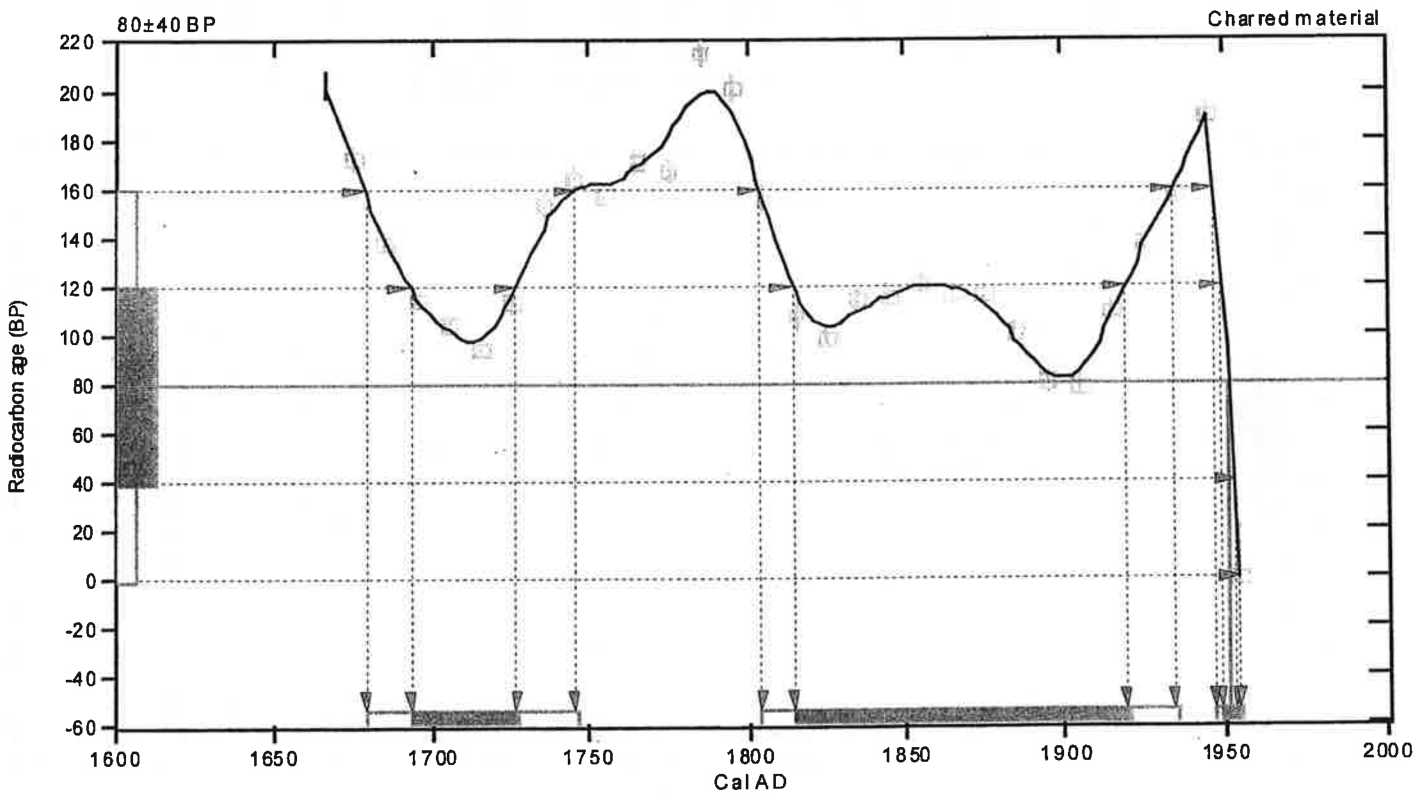
Conventional radiocarbon age: **80±40 BP**

2 Sigma calibrated results: **Cal AD 1680 to 1740 (Cal BP 270 to 200) and**
(95% probability) **Cal AD 1800 to 1930 (Cal BP 150 to 20) and**
Cal AD 1950 to 1960 (Cal BP 0 to 0)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results: Cal AD 1690 to 1730 (Cal BP 260 to 220) and
(68% probability) Cal AD 1810 to 1920 (Cal BP 140 to 30) and
Cal AD 1950 to 1950 (Cal BP 0 to 0)



References:
Database used
INTCAL98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.1:lab. mult=1)

Laboratory number: **Beta-205072**

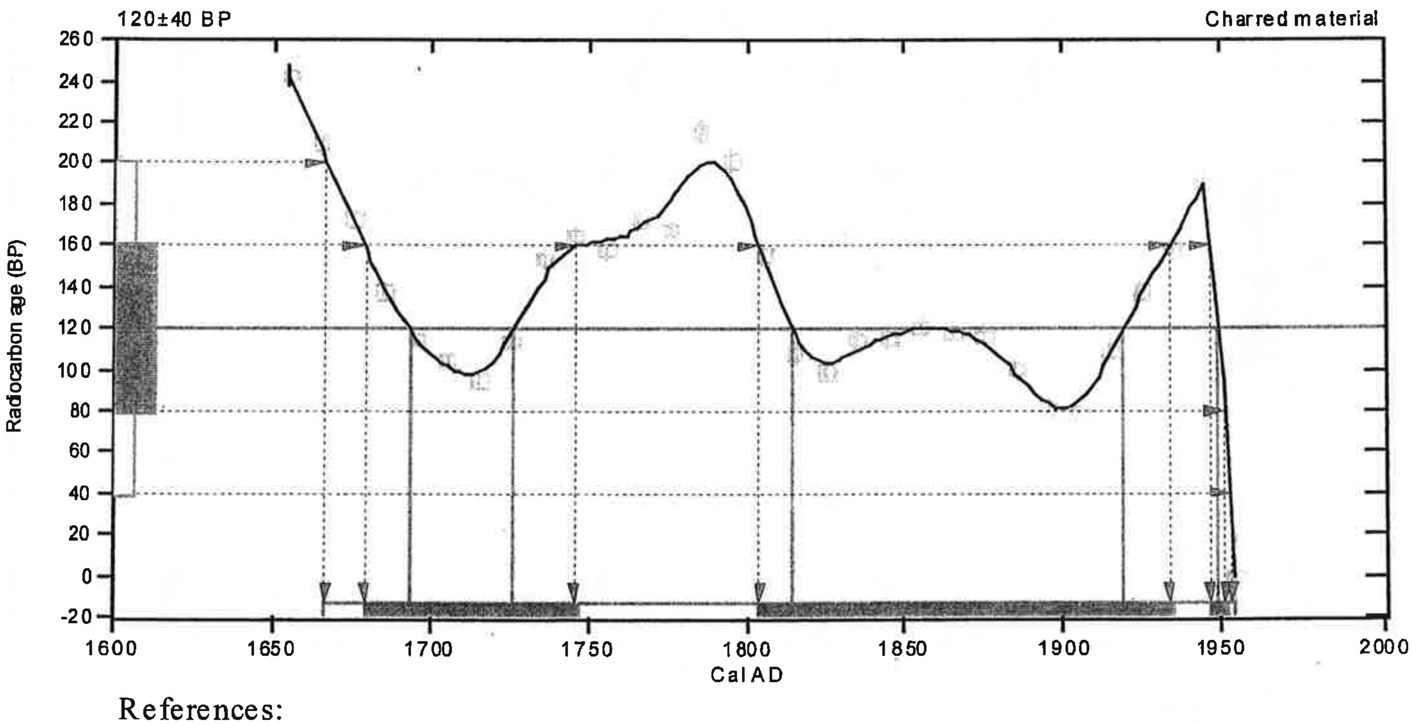
Conventional radiocarbon age: **120±40 BP**

2 Sigma calibrated result: **Cal AD 1670 to 1950 (Cal BP 280 to 0)**
(95% probability)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal AD 1690 (Cal BP 260) and
Cal AD 1730 (Cal BP 220) and
Cal AD 1810 (Cal BP 140) and
Cal AD 1920 (Cal BP 30) and
Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results: Cal AD 1680 to 1740 (Cal BP 270 to 200) and
(68% probability) Cal AD 1800 to 1930 (Cal BP 150 to 20) and
Cal AD 1950 to 1950 (Cal BP 0 to 0)



References:

Database used
INTCAL98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22.9:lab. mult=1)

Laboratory number: **Beta-205073**

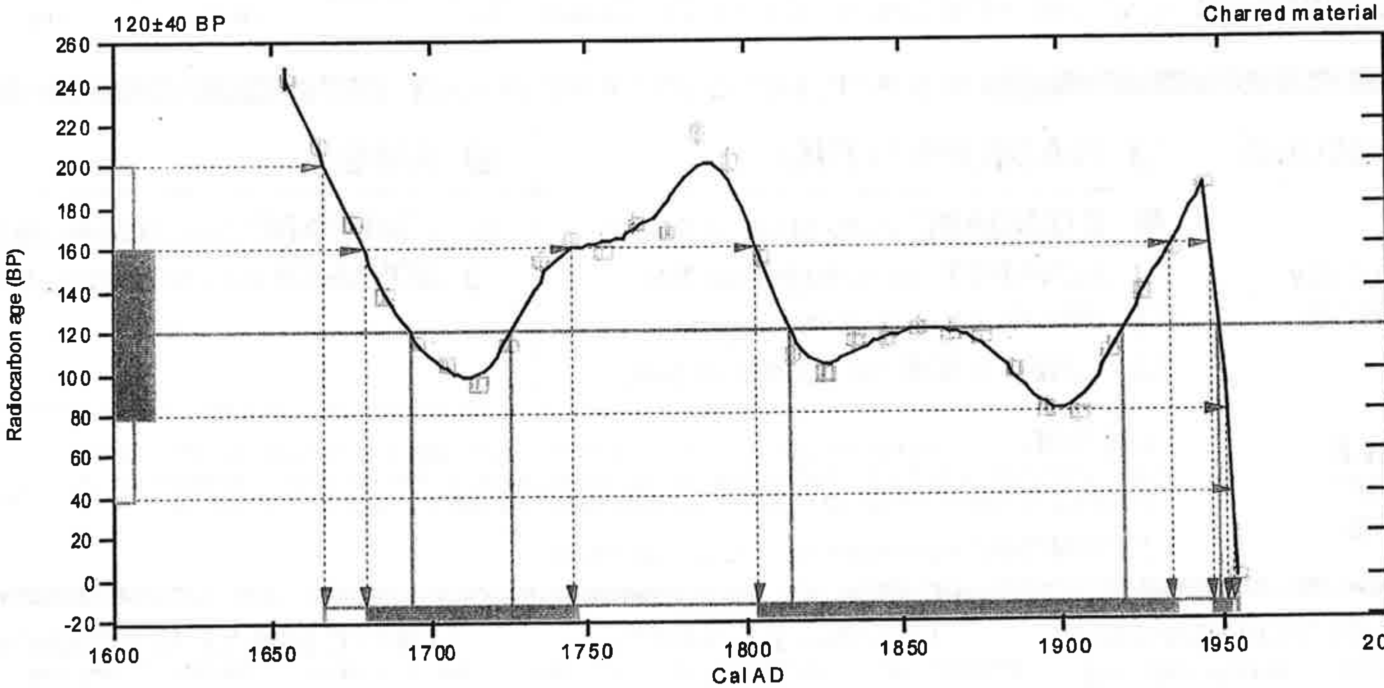
Conventional radiocarbon age: **120±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 1670 to 1950 (Cal BP 280 to 0)**

Intercept data

Intercepts of radiocarbon age with calibration curve:
Cal AD 1690 (Cal BP 260) and
Cal AD 1730 (Cal BP 220) and
Cal AD 1810 (Cal BP 140) and
Cal AD 1920 (Cal BP 30) and
Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results: (68% probability)
Cal AD 1680 to 1740 (Cal BP 270 to 200) and
Cal AD 1800 to 1930 (Cal BP 150 to 20) and
Cal AD 1950 to 1950 (Cal BP 0 to 0)



References:

Database used
INTCAL98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

BETA | BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
MIAMI, FLORIDA USA 33155
TELE: (01) 305-667-5167 FAX: (01) 305-663-0964
E-MAIL: beta@radiocarbon.com
WEB SITE: http://www.radiocarbon.com

RADIOCARBON SAMPLE DATA SHEET

Please contact us at any time for advice, assistance or discussion of results.

SUBMITTER NAME: Philip de Barros **DATE:** 5/15/05

ADDRESS: 13730 Via Cima Bella
San Diego CA 92129

TELEPHONE: (760) 807-9489 **FAX:** (760) 761-3516 **E-MAIL:** atavikodi@hotmail.com

METHOD OF PAYMENT: PURCHASE ORDER ____ / CREDIT CARD ____ / CHECK X / BANK - WIRE TRANSFER ____

OTHER (SPECIFY) ____________ **PURCHASE ORDER #** ____________

CREDIT CARD #: ____________ **EXP. DATE** /
(PLEASE PROVIDE CREDIT CARD BILLING ADDRESS ON BACK)

YOUR SAMPLE CODE NUMBER: S D 1 9 5 3 7 U 2 L 5
PLEASE CHOOSE ≤ 12 INITIAL CHARACTERS TO APPEAR ON THE DATA REPORT SHEET — ADDITIONAL LABELING IF NEEDED

INSTRUCTIONS TO LABORATORY

TECHNIQUE: ☐ **RADIOMETRIC** | ☒ **AMS**

DELIVERY SERVICE:

RADIOMETRIC	AMS
■ **STANDARD** 20-30 BUSINESS DAYS	☒ **STANDARD** 20-30 BUSINESS DAYS
☐ **ADVANCE** 10-14 BUSINESS DAYS	☐ **ADVANCE** 6-14 BUSINESS DAYS
☐ **PRIORITY** 6 BUSINESS DAYS	
☐ **TIME-GUIDE** 2-3 BUSINESS DAYS	

STABLE ISOTOPE RATIOS

13C/12C ratio is recommended for all samples and included in the price. It is required for all AMS samples, but may be omitted **ONLY** for Radiometric samples when you do not feel it necessary for your research. Check box to omit the C13/C12 ratio and receive a discounted price for Radiometric samples. ☐

☐ **15N/14N** ratio analysis (diet indicator for bones)

COMPLEX / NON-STANDARD SERVICES: ADDITIONAL FEES APPLY

☐ **EXTENDED COUNTING** (RADIOMETRIC - ENHANCED / OPTIMAL PRECISION)

☐ **MICRO-SAMPLE AMS COUNTING** (AMS - MINIMUM OF 100-300 MICROGRAMS FINAL CARBON

☐ **BULK / LOW CARBON MATERIALS** (RADIOMETRIC - BULK SEDIMENTS / CARBONATES > 200 GMS)

☐ **BONE DATING** (COLLAGEN EXTRACTION)

☐ **CELLULOSE / SOLVENT EXTRACTIONS** (UNCHARRED WOOD AND TEXTILES)

☐ **SEM** (SCANNING ELECTRON MICROSCOPY)

☐ **SPECIAL REQUESTS** ____________
(ADDITIONAL SPACE ON REVERSE)

SAMPLE MATERIAL TYPE: Charcoal **SAMPLE WEIGHT:** < 0.1g

ESTIMATED AGE: < 10,000 years ***CARBONATE SAMPLES: MARINE** ____ **/ FRESH WATER** ____
(*FOR CARBONATE SAMPLES INDICATE IF MARINE OR FRESH WATER)

GENERAL GEOGRAPHIC LOCATION: San Diego County, California
(REQUIRED FOR CALIBRATION OF CARBONATE SAMPLES – NOT REQUIRED FOR CALIBRATION OF ORGANIC SAMPLES)

(OVER)

EVIDENCE OF CONTAMINATION: roots
(ROOT PENETRATION, LEACHING, HUMIC ACIDS, ETC.)

COLLECTION, TREATMENT AND STORAGE PROCEDURES: collected from wet screening; stored in film cannister then transferred to aluminum foil after 2 weeks

STRATIGRAPHIC AND ENVIRONMENTAL DETAILS: in unit with hearth feature
(PLEASE PUT DRAWINGS AND ADDITIONAL TEXT HERE)
20-30, 30-40cm in depth

GENERAL SAMPLE SIZE REQUIREMENTS

RADIOMETRIC TECHNIQUE

Material	Recommended	Minimum*
Charcoal	10-30 grams	~ 2 grams*
Wood	15-100 grams	~ 7 grams*
Dung	10-30 grams	~ 3 grams*
Peat / Gyttja	20-30 grams	~ 3 grams*
Organic sediments	200-2000 grams**	<200 grams*
Bone / Antler	400 grams	250 grams
Shell	20-100 grams	7-15 grams*
DIC (ppt as SrCO3)	30-50 grams	7-10 grams*

Water – Please contact the laboratory for recommendations.

*Extended Counting is typically recommended for enhanced precision.
**Bulk/Low Carbon Materials Service is required for samples with an initial dry weight of more than 200 gms.

Quantities listed for Radiometric and AMS samples assume the materials are dry and free from adhering / associated matrix.

ACCELERATOR MASS SPECTROMETRY TECHNIQUE (AMS TECHNIQUE)

Material	Recommended	Minimum*
Charcoal	20-50 milligrams	~ 3 milligrams
Wood	20-100 milligrams	~ 5 milligrams
Dung	20-100 milligrams	~ 5 milligrams
Plant, Seeds	20-50 milligrams	~ 5 milligrams
Peat / Gyttja	30-100 milligrams	~ 3 milligrams
Organic sediments	2-10 grams	NA
Bone / Antler	1-2 grams	75-200 milligrams
Teeth	Several Teeth	Single Tooth
Ivory	1-2 grams	300-500 milligrams
Hair	20-50 milligrams	7-15 milligrams
Insects (Chitin)	10-20 milligrams	5-10 milligrams
Phytoliths (extracted)	300 milligrams	NA
Pollen (extracted)	~ 15 milligrams	>10 milligrams
Shell	50-100 milligrams	10-30 milligrams
Forams	20-40 milligrams	~ 5 milligrams
DIC (ppt as SrCO3)	50-100 milligrams	~ 10 milligrams
Water	1 liter	500 ml to 1 liter

*Minimums assume that 100 micrograms to 1 milligram of final carbon is available as graphite. Samples containing less than 300 micrograms carbon will require the "Micro-Sample AMS Counting Service".

QUOTED DELIVERY DATES

You can depend on our commitment to prompt delivery of results. Only in rare instances due to acts of nature, interruption in essential services or other unforeseen circumstances would we anticipate any delay in the meeting of our delivery commitments. Please allow for this in your expectations and contract obligations.

LIMITATION OF DAMAGES – REPAYMENT SERVICE PRICE

It is agreed that in the event of any breach of any warranty or breach of contract, or negligence of Beta Analytic Inc., as well as its agents or representatives, the liability of Beta Analytic Inc., shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Beta Analytic Inc.. Beta Analytic Inc., shall not be liable for any damages, either direct or consequential.

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

MIAMI, FLORIDA USA 33155
TELE: (01) 305-667-5167 FAX: (01) 305-663-0964
E-MAIL: beta@radiocarbon.com
WEB SITE: http://www.radiocarbon.com

RADIOCARBON SAMPLE DATA SHEET

Please contact us at any time for advice, assistance or discussion of results.

SUBMITTER NAME: Philip de Barros **DATE:** 5/15/05

ADDRESS: 13730 Via Cima Bella
San Diego CA 92129

TELEPHONE: (760) 807-9489 **FAX:** (760) 761-3516 **E-MAIL:** atavikidjoe@hotmail.com

METHOD OF PAYMENT: PURCHASE ORDER ___ / CREDIT CARD ___ / CHECK X / BANK - WIRE TRANSFER ___

OTHER (SPECIFY) ___ **PURCHASE ORDER #** ___

CREDIT CARD #: ___ **EXP. DATE** /
(PLEASE PROVIDE CREDIT CARD BILLING ADDRESS ON BACK)

YOUR SAMPLE CODE NUMBER: S D 1 9 5 3 7 V 9 L 2
PLEASE CHOOSE ≤ 12 INITIAL CHARACTERS TO APPEAR ON THE DATA REPORT SHEET — ADDITIONAL LABELING IF NEEDED

INSTRUCTIONS TO LABORATORY

TECHNIQUE: ☐ **RADIOMETRIC** ☒ **AMS**

DELIVERY SERVICE:

Radiometric:
- ☐ **STANDARD** 20-30 BUSINESS DAYS
- ☐ **ADVANCE** 10-14 BUSINESS DAYS
- ☐ **PRIORITY** 6 BUSINESS DAYS
- ☐ **TIME-GUIDE** 2-3 BUSINESS DAYS

AMS:
- ☒ **STANDARD** 20-30 BUSINESS DAYS
- ☐ **ADVANCE** 6-14 BUSINESS DAYS

STABLE ISOTOPE RATIOS

13C/12C ratio is recommended for all samples and included in the price. It is required for all AMS samples, but may be omitted **ONLY** for Radiometric samples when you do not feel it necessary for your research. Check box to omit the C13/C12 ratio and receive a discounted price for Radiometric samples. ☐

☐ **15N/14N** ratio analysis (diet indicator for bones)

COMPLEX / NON-STANDARD SERVICES: ADDITIONAL FEES APPLY

☐ **EXTENDED COUNTING** (RADIOMETRIC - ENHANCED / OPTIMAL PRECISION)

☐ **MICRO-SAMPLE AMS COUNTING** (AMS - MINIMUM OF 100-300 MICROGRAMS FINAL CARBON)

☐ **BULK / LOW CARBON MATERIALS** (RADIOMETRIC - BULK SEDIMENTS / CARBONATES > 200 GMS)

☐ **BONE DATING** (COLLAGEN EXTRACTION)

☐ **CELLULOSE / SOLVENT EXTRACTIONS** (UNCHARRED WOOD AND TEXTILES)

☐ **SEM** (SCANNING ELECTRON MICROSCOPY)

☐ **SPECIAL REQUESTS** ___
(ADDITIONAL SPACE ON REVERSE)

SAMPLE MATERIAL TYPE: Charcoal **SAMPLE WEIGHT:** < 0.1g

ESTIMATED AGE: < 10,000 ya ***CARBONATE SAMPLES: MARINE** ___ **/ FRESH WATER** ___
(*FOR CARBONATE SAMPLES INDICATE IF MARINE OR FRESH WATER)

GENERAL GEOGRAPHIC LOCATION: San Diego County, California
(REQUIRED FOR CALIBRATION OF CARBONATE SAMPLES – NOT REQUIRED FOR CALIBRATION OF ORGANIC SAMPLES)

(OVER)

EVIDENCE OF CONTAMINATION: roots
(ROOT PENETRATION, LEACHING, HUMIC ACIDS, ETC.)

COLLECTION, TREATMENT AND STORAGE PROCEDURES: collected from wet screening; stored in film cannister 2 weeks, then transferred to aluminum foil

STRATIGRAPHIC AND ENVIRONMENTAL DETAILS: in unit with abundant
(PLEASE PUT DRAWINGS AND ADDITIONAL TEXT HERE)
burned and unburned animal bone from 0-60cm

GENERAL SAMPLE SIZE REQUIREMENTS

RADIOMETRIC TECHNIQUE

Material	Recommended	Minimum*
Charcoal	10-30 grams	~ 2 grams*
Wood	15-100 grams	~ 7 grams*
Dung	10-30 grams	~ 3 grams*
Peat / Gyttja	20-30 grams	~ 3 grams*
Organic sediments	200-2000 grams**	<200 grams*
Bone / Antler	400 grams	250 grams
Shell	20-100 grams	7-15 grams*
DIC (ppt as SrCO3)	30-50 grams	7-10 grams*

Water – Please contact the laboratory for recommendations.

*Extended Counting is typically recommended for enhanced precision.
**Bulk/Low Carbon Materials Service is required for samples with an initial dry weight of more than 200 gms.

Quantities listed for Radiometric and AMS samples assume the materials are dry and free from adhering / associated matrix.

ACCELERATOR MASS SPECTROMETRY TECHNIQUE (AMS TECHNIQUE)

Material	Recommended	Minimum*
Charcoal	20-50 milligrams	~ 3 milligrams
Wood	20-100 milligrams	~ 5 milligrams
Dung	20-100 milligrams	~ 5 milligrams
Plant, Seeds	20-50 milligrams	~ 5 milligrams
Peat / Gyttja	30-100 milligrams	~ 3 milligrams
Organic sediments	2-10 grams	NA
Bone / Antler	1-2 grams	75-200 milligrams
Teeth	Several Teeth	Single Tooth
Ivory	1-2 grams	300-500 milligrams
Hair	20-50 milligrams	7-15 milligrams
Insects (Chitin)	10-20 milligrams	5-10 milligrams
Phytoliths (extracted)	300 milligrams	NA
Pollen (extracted)	~ 15 milligrams	>10 milligrams
Shell	50-100 milligrams	10-30 milligrams
Forams	20-40 milligrams	~ 5 milligrams
DIC (ppt as SrCO3)	50-100 milligrams	~ 10 milligrams
Water	1 liter	500 ml to 1 liter

*Minimums assume that 100 micrograms to 1 milligram of final carbon is available as graphite. Samples containing less than 300 micrograms carbon will require the "Micro-Sample AMS Counting Service".

QUOTED DELIVERY DATES

You can depend on our commitment to prompt delivery of results. Only in rare instances due to acts of nature, interruption in essential services or other unforeseen circumstances would we anticipate any delay in the meeting of our delivery commitments. Please allow for this in your expectations and contract obligations.

LIMITATION OF DAMAGES – REPAYMENT SERVICE PRICE

It is agreed that in the event of any breach of any warranty or breach of contract, or negligence of Beta Analytic Inc., as well as its agents or representatives, the liability of Beta Analytic Inc., shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Beta Analytic Inc.. Beta Analytic Inc., shall not be liable for any damages, either direct or consequential.

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

MIAMI, FLORIDA USA 33155
TELE: (01) 305-667-5167 FAX: (01) 305-663-0964
E-MAIL: beta@radiocarbon.com
WEB SITE: http://www.radiocarbon.com

RADIOCARBON SAMPLE DATA SHEET

Please contact us at any time for advice, assistance or discussion of results.

SUBMITTER NAME: Philip de Barros **DATE:** 5/15/05

ADDRESS: 13730 Via Cima Bella
San Diego CA 92129

TELEPHONE: (760) 807-9489 **FAX:** (760) 761-3516 **E-MAIL:** atavikodjo@hotmail.com

METHOD OF PAYMENT: PURCHASE ORDER ____ / CREDIT CARD ____ / CHECK X / BANK - WIRE TRANSFER ____

OTHER (SPECIFY) ____ **PURCHASE ORDER #** ____

CREDIT CARD #: ____ **EXP. DATE** /
(PLEASE PROVIDE CREDIT CARD BILLING ADDRESS ON BACK)

YOUR SAMPLE CODE NUMBER: S D 1 9 5 3 7 U 2 L 2 E
PLEASE CHOOSE ≤ 12 INITIAL CHARACTERS TO APPEAR ON THE DATA REPORT SHEET — ADDITIONAL LABELING IF NEEDED

INSTRUCTIONS TO LABORATORY

TECHNIQUE: ☐ RADIOMETRIC ☒ AMS

DELIVERY SERVICE:

RADIOMETRIC	AMS
☐ STANDARD 20-30 BUSINESS DAYS	☒ STANDARD 20-30 BUSINESS DAYS
☐ ADVANCE 10-14 BUSINESS DAYS	☐ ADVANCE 6-14 BUSINESS DAYS
☐ PRIORITY 6 BUSINESS DAYS	
☐ TIME-GUIDE 2-3 BUSINESS DAYS	

STABLE ISOTOPE RATIOS

13C/12C ratio is recommended for all samples and included in the price. It is required for all AMS samples, but may be omitted **ONLY** for Radiometric samples when you do not feel it necessary for your research. Check box to omit the C13/C12 ratio and receive a discounted price for Radiometric samples. ☐

☐ **15N/14N** ratio analysis (diet indicator for bones)

COMPLEX / NON-STANDARD SERVICES: ADDITIONAL FEES APPLY

☐ **EXTENDED COUNTING** (RADIOMETRIC - ENHANCED / OPTIMAL PRECISION)

☐ **MICRO-SAMPLE AMS COUNTING** (AMS - MINIMUM OF 100-300 MICROGRAMS FINAL CARBON

☐ **BULK / LOW CARBON MATERIALS** (RADIOMETRIC - BULK SEDIMENTS / CARBONATES > 200 GMS)

☐ **BONE DATING** (COLLAGEN EXTRACTION)

☐ **CELLULOSE / SOLVENT EXTRACTIONS** (UNCHARRED WOOD AND TEXTILES)

☐ **SEM** (SCANNING ELECTRON MICROSCOPY)

☐ **SPECIAL REQUESTS** ____
(ADDITIONAL SPACE ON REVERSE)

SAMPLE MATERIAL TYPE: Charcoal **SAMPLE WEIGHT:** 0.3g

ESTIMATED AGE: <10,000 ya ***CARBONATE SAMPLES: MARINE** ____ **/ FRESH WATER** ____
(*FOR CARBONATE SAMPLES INDICATE IF MARINE OR FRESH WATER)

GENERAL GEOGRAPHIC LOCATION: San Diego County, California
(REQUIRED FOR CALIBRATION OF CARBONATE SAMPLES -- NOT REQUIRED FOR CALIBRATION OF ORGANIC SAMPLES)

(OVER

EVIDENCE OF CONTAMINATION: roots
(ROOT PENETRATION, LEACHING, HUMIC ACIDS, ETC.)

COLLECTION, TREATMENT AND STORAGE PROCEDURES: collected from east wall of unit with tro[illegible]
stored in film cannister, then transferred to aluminum foil after 2 weeks

STRATIGRAPHIC AND ENVIRONMENTAL DETAILS: in unit with hearth feature
(PLEASE PUT DRAWINGS AND ADDITIONAL TEXT HERE)
from 20-40cm

GENERAL SAMPLE SIZE REQUIREMENTS

RADIOMETRIC TECHNIQUE

Material	Recommended	Minimum*
Charcoal	10-30 grams	~ 2 grams*
Wood	15-100 grams	~ 7 grams*
Dung	10-30 grams	~ 3 grams*
Peat / Gyttja	20-30 grams	~ 3 grams*
Organic sediments	200-2000 grams**	<200 grams*
Bone / Antler	400 grams	250 grams
Shell	20-100 grams	7-15 grams*
DIC (ppt as SrCO3)	30-50 grams	7-10 grams*

Water – Please contact the laboratory for recommendations.

*Extended Counting is typically recommended for enhanced precision.
**Bulk/Low Carbon Materials Service is required for samples with an initial dry weight of more than 200 gms.

Quantities listed for Radiometric and AMS samples assume the materials are dry and free from adhering / associated matrix.

ACCELERATOR MASS SPECTROMETRY TECHNIQUE (AMS TECHNIQUE)

Material	Recommended	Minimum*
Charcoal	20-50 milligrams	~ 3 milligrams
Wood	20-100 milligrams	~ 5 milligrams
Dung	20-100 milligrams	~ 5 milligrams
Plant, Seeds	20-50 milligrams	~ 5 milligrams
Peat / Gyttja	30-100 milligrams	~ 3 milligrams
Organic sediments	2-10 grams	NA
Bone / Antler	1-2 grams	75-200 milligrams
Teeth	Several Teeth	Single Tooth
Ivory	1-2 grams	300-500 milligrams
Hair	20-50 milligrams	7-15 milligrams
Insects (Chitin)	10-20 milligrams	5-10 milligrams
Phytoliths (extracted)	300 milligrams	NA
Pollen (extracted)	~ 15 milligrams	>10 milligrams
Shell	50-100 milligrams	10-30 milligrams
Forams	20-40 milligrams	~ 5 milligrams
DIC (ppt as SrCO3)	50-100 milligrams	~ 10 milligrams
Water	1 liter	500 ml to 1 liter

*Minimums assume that 100 micrograms to 1 milligram of final carbon is available as graphite. Samples containing less than 300 micrograms carbon will require the "Micro-Sample AMS Counting Service".

QUOTED DELIVERY DATES

You can depend on our commitment to prompt delivery of results. Only in rare instances due to acts of nature, interruption in essential services or other unforeseen circumstances would we anticipate any delay in the meeting of our delivery commitments. Please allow for this in your expectations and contract obligations.

LIMITATION OF DAMAGES – REPAYMENT SERVICE PRICE

It is agreed that in the event of any breach of any warranty or breach of contract, or negligence of Beta Analytic Inc., as well as its agents or representatives, the liability of Beta Analytic Inc., shall be limited to the repayment, to the purchaser (submitter), of the individual analysis price paid by him/her to Beta Analytic Inc.. Beta Analytic Inc., shall not be liable for any damages, either direct or consequential.

APPENDIX J

ARTIFACT CATALOG FOR CA-SDI-9537/H

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	1	2001	Surface	NA	Surface	groundstone	unifacial mano	granitic		
SDI-9537/H	2	2001	Surface	NA	Surface	groundstone	bifacial mano	granitic		
SDI-9537/H	3	2001	Surface	NA	Surface	flakedstone	chopper	MVa		
SDI-9537/H	4	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	5	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	6	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	7	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	8	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	9	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	10	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	11	2001	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	12	2001	Surface	NA	Surface	core-cobble tool	multipurpose	MVa		
SDI-9537/H	13	2005	Surface	NA	Surface	groundstone	unifacial mano	unidentified		
SDI-9537/H	14	2005	Surface	NA	Surface	groundstone	basin metate	granitic		
SDI-9537/H	70	2005	Surface	NA	Surface	core-cobble tool	hammerstone			
SDI-9537/H	71	2005	Surface	NA	Surface	flakedstone	arrowpoint	obsidian		
SDI-9537/H	72	2005	Surface	NA	Surface	pottery	Brownware			
SDI-9537/H	73	2005	1x1m	1	0-10	flakedstone	debitage	varied		
SDI-9537/H	74	2005	1x1m	1	0-10	bone	NA			
SDI-9537/H	75	2005	1x1m	1	10-20	flakedstone	debitage	varied		
SDI-9537/H	76	2005	1x1m	1	10-20	bone	NA			
SDI-9537/H	77	2005	1x1m	1	10-20	charcoal	NA			
SDI-9537/H	78	2005	1x1m	1	20-30	flakedstone	NA	varied		
SDI-9537/H	79	2005	1x1m	1	20-30	bone	NA			
SDI-9537/H	80	2005	1x1m	1	20-30	obsidian	biface	obsidian		
SDI-9537/H	81	2005	1x1m	1	30-40	flakedstone	NA	varied		
SDI-9537/H	82	2005	1x1m	1	30-40	bone	NA			
SDI-9537/H	83	2005	1x1m	2	0-10	flakedstone	debitage	varied		
SDI-9537/H	84	2005	1x1m	2	0-10	bone	NA			
SDI-9537/H	85	2005	1x1m	2	0-10	pottery	Brownware			
SDI-9537/H	88	2005	1x1m	2	0-10	seeds	NA			
SDI-9537/H	89	2005	1x1m	2	10 cm	charcoal	NA			
SDI-9537/H	90	2005	1x1m	2	15 cm	charcoal	NA			
SDI-9537/H	91	2005	1x1m	2	18 cm	charcoal	NA			
SDI-9537/H	92	2005	1x1m	2	20 cm	charcoal	NA			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
1					1	frag	No	
2					1	whole	No	
3					1	whole	No	or adze
4	2.4		0.5	2.40	1	sherd	Yes	potsherd #1
5	2.3		0.6	3.60	1	sherd	Yes	potsherd #2
6	2.0		0.6	2.40	1	sherd	Yes	potsherd #3
7	2.5		0.6	2.60	1	sherd	Yes	potsherd #4
8	2.9		0.5	5.60	1	sherd	Yes	potsherd #5
9	3.8		0.7	8.30	1	sherd	Yes	potsherd #6
10	2.0		0.5	1.70	1	sherd	Yes	potsherd #7
11	3.3		0.5	4.60	1	sherd	Yes	potsherd #8
12					1	whole	No	adze/chopper & hammer
13					1	frag	No	cobble mano
14					1	frag	No	
70					1	frag	No	angular; #1 near Unit 1
71	1.7	1.6	0.4	1.10	1	frag	Yes	sourcing & hydration
72	3.4		0.6	5.50	1	sherd	Yes	
73					15		No	quartz; Mva
74					43		No	
75					35		No	quartz; Mva
76					59		No	
77					9999		No	
78					19		No	quartz; Mva
79					59		No	
80	1.3	0.8	0.7	0.90	1	frag	Yes	sourcing/hydration
81					4		No	quartz; Mva
82					9		No	
83					21		No	quartz; Mva
84					15		No	
85					4	sherds	Yes	see report for other data
88					1	frag	No	
89					9999		No	north wall
90					9999		No	north wall
91					9999		No	south wall
92				0.30	1		No	east wall; C14 dating AMS

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	93	2005	1x1m	2	10-20	flakedstone	debitage	varied		
SDI-9537/H	94	2005	1x1m	2	10-20	bone	NA			
SDI-9537/H	97	2005	1x1m	2	10-20	obsidian	debitage	obsidian		
SDI-9537/H	98	2005	1x1m	2	10-20	charcoal	NA			
SDI-9537/H	99	2005	1x1m	2	20-30	flakedstone	debitage	varied		
SDI-9537/H	100	2005	1x1m	2	20-30	bone	NA			
SDI-9537/H	102	2005	1x1m	2	20-30	charcoal	NA			
SDI-9537/H	103	2005	1x1m	2	30-40	groundstone	bifacial mano	granitic		
SDI-9537/H	104	2005	1x1m	2	30-40	flakedstone	debitage	varied		
SDI-9537/H	105	2005	1x1m	2	30-40	bone	NA			
SDI-9537/H	106	2005	1x1m	2	40-50	flakedstone	debitage	varied		
SDI-9537/H	107	2005	1x1m	2	40-50	bone	NA			
SDI-9537/H	109	2005	1x1m	2	40-50	obsidian	debitage	obsidian		
SDI-9537/H	110	2005	1x1m	2	40-50	charcoal	NA			
SDI-9537/H	111	2005	1x1m	2	50-56	flakedstone	debitage	varied		
SDI-9537/H	112	2005	1x1m	2	50-56	bone	NA			
SDI-9537/H	113	2005	1x1m	3	0-10	groundstone	unifacial mano	granitic		
SDI-9537/H	114	2005	1x1m	3	0-10	flakedstone	debitage	varied		
SDI-9537/H	115	2005	1x1m	3	0-10	bone	NA			
SDI-9537/H	116	2005	1x1m	3	0-10	pottery	Brownware			
SDI-9537/H	119	2005	1x1m	3	0-10	seeds	NA			
SDI-9537/H	120	2005	1x1m	3	0-10	charcoal	NA			
SDI-9537/H	122	2005	1x1m	3	10-20	flakedstone	debitage	varied		
SDI-9537/H	123	2005	1x1m	3	10-20	bone	NA			
SDI-9537/H	126	2005	1x1m	3	10-20	charcoal	NA			
SDI-9537/H	127	2005	.25x.25	3	20-30	charcoal	NA			
SDI-9537/H	129	2005	1x1m	4	0-10	flakedstone	debitage	varied		
SDI-9537/H	130	2005	1x1m	4	0-10	bone	NA			
SDI-9537/H	133	2005	1x1m	4	0-10	charcoal	NA			
SDI-9537/H	134	2005	1x1m	4	0-10	seeds	NA			
SDI-9537/H	135	2005	1x1m	4	0-10	other	NA			
SDI-9537/H	136	2005	1x1m	4	10-20	flakedstone	debitage	varied		
SDI-9537/H	137	2005	1x1m	4	10-20	bone	NA			
SDI-9537/H	140	2005	1x1m	4	10-20	charcoal	NA			
SDI-9537/H	141	2005	1x1m	4	10-20	seeds	NA			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
93					27		No	quartz; Mva
94					15		No	
97	0.7	0.6	0.2	0.10	1		Yes	<0.1g; sourced
98					9999		No	
99					16		No	quartz; Mva
100					25		No	
102					9999		No	
103					1	frag	No	
104					22		No	quartz; Mva
105					32		No	
106					21		No	quartz; MV
107					10		No	
109	0.6	0.6	0.1	0.10	1		Yes	<0.1g; sourced
110				0.10	1		No	C14 AMS dating
111					16		No	quartz; Mva
112					23		No	
113					1	frag	No	2nd face missing
114					23		No	quartz; Mva
115					1		No	
116	3.6		0.7	8.70	1	sherd	Yes	
119					4		No	
120					9999		No	
122					10		No	quartz; Mva
123					2		No	
126					9999		No	
127					9999		No	
129					22		No	quartz; Mva
130					28		No	
133					9999		No	
134					2		No	
135					9999		No	Tar pieces
136					15		No	quartz; Mva
137					19		No	
140					9999		No	
141					1		No	

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	142	2005	1x1m	4	20-30	flakedstone	multipurpose	MVa		
SDI-9537/H	143	2005	1x1m	4	20-30	flakedstone	debitage	varied		
SDI-9537/H	144	2005	1x1m	4	20-30	bone	NA			
SDI-9537/H	145	2005	1x1m	4	20-30	charcoal	NA			
SDI-9537/H	146	2005	1x1m	4	30-40	flakedstone	debitage	varied		
SDI-9537/H	147	2005	1x1m	4	30-40	bone	NA			
SDI-9537/H	148	2005	1x1m	4	30-40	charcoal	NA			
SDI-9537/H	149	2005	1x1m	4	40-48	flakedstone	debitage	varied		
SDI-9537/H	150	2005	1x1m	4	40-48	bone	NA			
SDI-9537/H	151	2005	1x1m	4	40-48	charcoal	NA			
SDI-9537/H	152	2005	1x1m	5	0-10	flakedstone	debitage	varied		
SDI-9537/H	153	2005	1x1m	5	0-10	bone	NA			
SDI-9537/H	156	2005	1x1m	5	0-10	charcoal	NA			
SDI-9537/H	157	2005	1x1m	5	10-20	flakedstone	debitage	varied		
SDI-9537/H	158	2005	1x1m	5	10-20	bone	NA			
SDI-9537/H	160	2005	1x1m	5	10-20	pottery	Brownware			
SDI-9537/H	162	2005	1x1m	5	20-30	flakedstone	debitage	varied		
SDI-9537/H	163	2005	1x1m	5	20-30	pottery	Brownware			
SDI-9537/H	166	2005	1x1m	5	20-30	charcoal	NA			
SDI-9537/H	167	2005	1x1m	5	30-40	flakedstone	debitage	varied		
SDI-9537/H	168	2005	1x1m	5	30-40	charcoal	NA			
SDI-9537/H	169	2005	1x1m	5	50-60	bone	NA			
SDI-9537/H	170	2005	1x1m	5	50-60	charcoal	NA			
SDI-9537/H	171	2005	1x1m	6	0-10	flakedstone	debitage	varied		
SDI-9537/H	172	2005	1x1m	6	0-10	bone	NA			
SDI-9537/H	175	2005	1x1m	6	0-10	charcoal	NA			
SDI-9537/H	176	2005	1x1m	6	0-10	seeds	NA			
SDI-9537/H	177	2005	1x1m	6	10-20	flakedstone	debitage	varied		
SDI-9537/H	178	2005	1x1m	6	10-20	bone	NA			
SDI-9537/H	180	2005	1x1m	6	10-20	seeds	NA			
SDI-9537/H	181	2005	1x1m	6	20-30	flakedstone	debitage	varied		
SDI-9537/H	182	2005	1x1m	6	20-30	seeds	NA			
SDI-9537/H	183	2005	1x1m	6	30-40	flakedstone	debitage	white quartz		
SDI-9537/H	184	2005	1x1.5m"	7	0-10	flakedstone	debitage	varied		
SDI-9537/H	185	2005	1x1.5m"	7	0-10	bone	NA			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
142					1	whole	No	core, hammer, scraper?
143					10		No	quartz; Mva
144					40		No	
145					9999		No	
146					46		No	
147					196		No	
148					9999		No	
149					21		No	quartz; Mva
150					70		No	
151					9999		No	
152					4		No	quartz; Mva
153					7		No	
156					9999		No	
157					5		No	quartz; Mva
158					1		No	
160					4	sherds	Yes	see report for other data
162					5		No	quartz; Mva
163	1.7		0.5	1.30	1	sherd	Yes	
166					9999		No	
167					3		No	
168					9999		No	
169					1		No	
170					9999		No	
171					11		No	
172					2		No	
175					9999		No	
176					43		No	
177					4		No	
178					2		No	
180					4		No	
181					6		No	
182					9		No	
183					1		No	
184					22		No	quartz; Mva
185					3		No	

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	186	2005	1x1.5m"	7	0-10	seeds	NA			
SDI-9537/H	187	2005	1x1.5m"	7	10-20	flakedstone	debitage	varied		
SDI-9537/H	188	2005	1x1.5m"	7	10-20	bone	NA			
SDI-9537/H	189	2005	1x1.5m"	7	10-20	charcoal	NA			
SDI-9537/H	190	2005	1x1.5m"	7	20-30	flakedstone	debitage	varied		
SDI-9537/H	191	2005	1x1.5m"	7	20-30	bone	NA			
SDI-9537/H	192	2005	1x1.5m"	7	30-40	flakedstone	debitage	varied		
SDI-9537/H	193	2005	1x1.5m"	7	30-40	bone	NA			
SDI-9537/H	194	2005	1x1.5m"	7	40-50	flakedstone	debitage	varied		
SDI-9537/H	195	2005	1x1.5m"	7	50-60	groundstone	basin metate	granitic		
SDI-9537/H	196	2005	1x1.5m"	7	50-60	groundstone	basin metate	granitic		
SDI-9537/H	197	2005	1x1.5m"	7	40-50	groundstone	basin metate	granitic		
SDI-9537/H	198	2005	1x1.5m"	7	50-60	core-cobble tool	core/hammer	MVa		
SDI-9537/H	199	2005	1x1.5m"	7	50-60	flakedstone	debitage	varied		
SDI-9537/H	200	2005	1x1.5m"	7	50-60	bone	NA			
SDI-9537/H	201	2005	1x1.5m"	7	50-60	groundstone	basin metate	granitic		
SDI-9537/H	202	2005	1x1.5m"	7	60-70	flakedstone	debitage	varied		
SDI-9537/H	203	2005	1x1.5m"	7	60-70	bone	NA			
SDI-9537/H	205	2005	1x1m	8	0-10	flakedstone	debitage	varied		
SDI-9537/H	206	2005	1x1m	8	10-20	groundstone	unifacial mano	granitic		
SDI-9537/H	207	2005	1x1m	8	10-20	flakedstone	debitage	white quartz		
SDI-9537/H	208	2005	1x1m	9	0-10	flakedstone	debitage	varied		
SDI-9537/H	209	2005	1x1m	9	0-10	bone	NA			
SDI-9537/H	210	2005	1x1m	9	0-10	charcoal	NA			
SDI-9537/H	211	2005	1x1m	9	0-10	bone	tooth			
SDI-9537/H	212	2005	1x1m	9	10-20	flakedstone	debitage	varied		
SDI-9537/H	213	2005	1x1m	9	10-20	bone	NA			
SDI-9537/H	214	2005	1x1m	9	10-20	charcoal	NA			
SDI-9537/H	215	2005	1x1m	9	10-20	seeds	NA			
SDI-9537/H	216	2005	1x1m	9	20-30	flakedstone	debitage	varied		
SDI-9537/H	217	2005	1x1m	9	20-30	bone	NA			
SDI-9537/H	218	2005	1x1m	9	30-40	groundstone	bifacial mano	granitic		
SDI-9537/H	219	2005	1x1m	9	30-40	flakedstone	debitage	varied		
SDI-9537/H	220	2005	1x1m	9	40-50	flakedstone	debitage	varied		
SDI-9537/H	221	2005	1x1m	9	40-50	bone	NA			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
186					1		No	
187					37		No	quartz; Mva
188					9		No	
189					9999		No	
190					21		No	quartz; Mva
191					3		No	
192					15		No	quartz; Mva
193					3		No	
194					4		No	
195					1	frag	No	West Wall Unit 7
196					1	frag	No	South Wall Unit 7
197					1	frag	No	Unit 7A
198				75.80	1	whole	No	
199					5		No	quartz; Mva
200					1		No	
201					1	frag	No	Unit 7A
202					2		No	quartz; Mva
203					3		No	
205					8		No	
206					1	frag	No	2nd face missing
207					8		No	
208					87		No	quartz; Mva
209					298		No	
210					9999		No	
211					1		No	
212					47		No	quartz; Mva
213					202		No	
214				0.05	1		No	C14 AMS dating
215					1		No	
216					63		No	quartz; Mva
217					287		No	
218					1	frag	No	in NW corner of unit
219					48		No	1 quartz; 1 Mva
220					42		No	quartz; Mva
221					359		No	

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	222	2005	1x1m	9	40-50	seeds	NA			
SDI-9537/H	223	2005	1x1m	9	50-60	flakedstone	debitage	varied		
SDI-9537/H	224	2005	1x1m	9	50-60	bone	NA			
SDI-9537/H	225	2005	1x1m	9	50-60	charcoal	NA			
SDI-9537/H	226	2005	1x1m	9	60-70	flakedstone	debitage	varied		
SDI-9537/H	227	2005	1x1m	9	60-70	bone	NA			
SDI-9537/H	228	2005	1x1m	10	0-10	flakedstone	debitage	varied		
SDI-9537/H	229	2005	1x1m	10	0-10	bone	NA			
SDI-9537/H	230	2005	1x1m	10	0-10	pottery	Brownware			
SDI-9537/H	234	2005	1x1m	10	0-10	charcoal	NA			
SDI-9537/H	235	2005	1x1m	10	10-20	flakedstone	debitage	varied		
SDI-9537/H	236	2005	1x1m	10	10-20	bone	NA			
SDI-9537/H	237	2005	1x1m	10	10-20	pottery	Brownware			
SDI-9537/H	241	2005	1x1m	10	10-20	charcoal	NA			
SDI-9537/H	242	2005	1x1m	10	20-30	groundstone	bifacial mano	granitic		
SDI-9537/H	243	2005	1x1m	10	20-30	flakedstone	debitage	varied		
SDI-9537/H	244	2005	1x1m	10	20-30	bone	NA			
SDI-9537/H	245	2005	1x1m	10	20-30	pottery	Brownware			
SDI-9537/H	248	2005	1x1m	10	30-40	flakedstone	core	white quartz		
SDI-9537/H	249	2005	1x1m	10	30-40	flakedstone	debitage	varied		
SDI-9537/H	250	2005	1x1m	10	30-40	bone	NA			
SDI-9537/H	251	2005	STP	1	0-20	flakedstone	debitage	white quartz		
SDI-9537/H	252	2005	STP	1	20-40	flakedstone	debitage	white quartz		
SDI-9537/H	253	2005	STP	1	40-60	flakedstone	debitage	white quartz		
SDI-9537/H	254	2005	STP	1	40-60	bone	NA			
SDI-9537/H	255	2005	STP	1	40-60	charcoal	NA			
SDI-9537/H	256	2005	STP	2	0-20	flakedstone	debitage	white quartz		
SDI-9537/H	257	2005	STP	2	0-20	bone	NA			
SDI-9537/H	258	2005	STP	2	0-20	seeds	NA			
SDI-9537/H	259	2005	STP	2	20-40	flakedstone	debitage	white quartz		
SDI-9537/H	260	2005	STP	2	40-60	flakedstone	debitage	white quartz		
SDI-9537/H	261	2005	STP	2	40-60	bone	NA			
SDI-9537/H	262	2005	STP	2	40-60	charcoal	NA			
SDI-9537/H	263	2005	STP	2	60-80	bone	NA			
SDI-9537/H	264	2005	STP	3	0-20	flakedstone	debitage	white quartz		

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
222					1		No	
223					55		No	quartz; Mva
224					191		No	
225					9999		No	
226					15		No	quartz; Mva
227					30		No	
228					13		No	quartz; Mva
229					10		No	
230					4	sherds	Yes	see report for other data
234					9999		No	
235					27		No	quartz;Mva
236					19		No	
237					4	sherds	Yes	see report for other data
241					9999		No	
242					1	frag	No	
243					12		No	quartz; Mva
244					10		No	
245					3	sherds	Yes	see report for other data
248				85.40	2	frags	Yes	broken by excavation; core?
249					4		No	quartz; Mva
250					10		No	
251					1		No	
252					2		No	
253					3		No	
254					2		No	
255					9999		No	
256					7		No	
257					2		No	
258					1		No	
259					3		No	
260					5		No	
261					6		No	
262					9999		No	
263					2		No	
264					1		No	

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	265	2005	STP	3	0-20	bone	NA			
SDI-9537/H	266	2005	STP	3	20-40	flakedstone	debitage	white quartz		
SDI-9537/H	267	2005	STP	3	20-40	bone	NA			
SDI-9537/H	268	2005	STP	3	20-40	charcoal	NA			
SDI-9537/H	269	2005	STP	3	40-60	flakedstone	debitage	white quartz		
SDI-9537/H	270	2005	STP	3	40-60	bone	NA			
SDI-9537/H	271	2005	STP	3	40-60	charcoal	NA			
SDI-9537/H	272	2005	STP	3	40-60	seeds	NA			
SDI-9537/H	273	2005	STP	4	0-20	flakedstone	debitage	white quartz		
SDI-9537/H	274	2005	STP	4	20-40	flakedstone	debitage	white quartz		
SDI-9537/H	275	2005	STP	6	0-20	flakedstone	debitage	white quartz		
SDI-9537/H	276	2005	STP	6	0-20	charcoal	NA			
SDI-9537/H	277	2005	STP	7	0-20	flakedstone	debitage	white quartz		
SDI-9537/H	278	2005	STP	7	0-20	charcoal	NA			
SDI-9537/H	279	2005	STP	7	0-20	seeds	NA			
SDI-9537/H	280	2005	STP	7	20-30	charcoal	NA			
SDI-9537/H	281	2005	STP	8	0-20	flakedstone	debitage	varied		
SDI-9537/H	282	2005	STP	8	0-20	charcoal	NA			
SDI-9537/H	283	2005	STP	8	40-60	flakedstone	debitage			
SDI-9537/H	284	2005	STP	9	0-20	flakedstone	debitage	varied		
SDI-9537/H	285	2005	STP	9	0-20	bone	NA			
SDI-9537/H	287	2005	STP	10	0-20	flakedstone	debitage	varied		
SDI-9537/H	288	2005	STP	12	0-20	flakedstone	debitage	MVa		
SDI-9537/H	289	2005	STP	12	0-20	seeds	NA			
SDI-9537/H	290	2005	STP	13	0-20	charcoal	NA			
SDI-9537/H	291	2005	STP	15	20-40	flakedstone	debitage	MVa		
SDI-9537/H	292	2005	STP	15	20-30	seeds	NA			
SDI-9537/H	293	2005	STP	15	40-50	flakedstone	debitage	white quartz		
SDI-9537/H	294	2005	STP	16	0-20	flakedstone	debitage	varied		
SDI-9537/H	295	2005	1x1m	2	0-10	soilsample	NA			
SDI-9537/H	296	2005	1x1m	2	10-20	soilsample	NA			
SDI-9537/H	297	2005	1x1m	2	20-30	soilsample	N A			
SDI-9537/H	298	2005	1x1m	2	30-40	soilsample	NA			
SDI-9537/H	299	2005	1x1m	2	40-50	soilsample	NA			
SDI-9537/H	300	2005	1x1m	9	0-10	soilsample	NA			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
265					2		No	
266					2		No	
267					3		No	
268					9999		No	
269					4		No	
270					8		No	
271					9999		No	
272					1		No	
273					1		No	
274					2		No	
275					2		No	
276					9999		No	
277					1		No	
278					9999		No	
279					2		No	
280					9999		No	
281					4		No	
282					9999		No	
283					1	frag	Yes	
284					3		No	
285					1	frag	No	
287					1		No	
288					1		No	
289					1		No	
290					9999		No	
291					1		No	
292					2		No	
293					1		No	
294					2		No	1 quartz; 1 green chert
295					1		Yes	floated col sample
296					1		Yes	floated col sample
297					1		Yes	floated col sample
298					1		Yes	floated col sample
299					1		Yes	floated col sample
300					1		Yes	floated col sample

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	301	2005	1x1m	9	10-20	soilsample	NA			
SDI-9537/H	302	2005	1x1m	9	20-30	soilsample	NA			
SDI-9537/H	303	2005	1x1m	9	30-40	soilsample	NA			
SDI-9537/H	304	2005	1x1m	9	40-50	soilsample	NA			
SDI-9537/H	305	2005	1x1m	9	50-60	soilsample	NA			
SDI-9537/H	310	2005	1x1m	4	20-30	groundstone	metate	granitic		
SDI-9537/H	311	2005	1x1m	4	30-40	groundstone	basin metate	granitic		
SDI-9537/H	312	2005	1x1m	10	20-30	groundstone	bifacial mano	granitic		
SDI-9537/H	313	2005	1x1m	5	30-40	obsidian	NA	obsidian		
SDI-9537/H	314	2005	1x1m	2	0-10	flakedstone	core	white quartz		
SDI-9537/H	315	2005	1x1m	4	20-30	other	NA			
SDI-9537/H	316	2005	1x1m	2	20-30	flakedstone	core	white quartz		
SDI-9537/H	317	2005	1x1m	2	20-30	flakedstone	core	white quartz		
SDI-9537/H	318	2005	1x1m	2	30-40	flakedstone	core	white quartz		
SDI-9537/H	319	2005	1x1m	4	0-10	flakedstone	core	white quartz		
SDI-9537/H	320	2005	1x1m	4	30-40	flakedstone	biface	MVa		
SDI-9537/H	321	2005	1x1m	5	20-30	flakedstone	utilizedflake	MVp		
SDI-9537/H	322	2005	1x1m	10	20-30	flakedstone	core	white quartz		
SDI-9537/H	323	2005	1x1m	10	20-30	flakedstone	core	white quartz		
SDI-9537/H	324	2005	1x1m	10	20-30	flakedstone	core	MVa		
SDI-9537/H	325	2005	1x1m	7	10-20	flakedstone	core	white quartz		
SDI-9537/H	326	2005	1x1m	7	10-20	flakedstone	core	MVa		
SDI-9537/H	327	2005	1x1m	7	10-20	flakedstone	biface	MVa		
SDI-9537/H	328	2005	1x1m	9	10-20	flakedstone	biface	MVa		
SDI-9537/H	329	2005	1x1m	2	50-56	bone	awl			
SDI-9537/H	330	2005	1x1m	9	0-10	bone	antler tine			
SDI-9537/H	331	2005	1x1m	10	20-30	pottery	Brownware			
SDI-9537/H	500	2001	Surface	1	Surface	glass	bottle		clear	
SDI-9537/H	501	2005	Surface	NA	Surface	glass	bottle		light green	
SDI-9537/H	502	2005	Surface	3	Surface	glass	bottle		SCA	
SDI-9537/H	503	2005	Surface	4	Surface	glass	bottle		clear	
SDI-9537/H	504	2005	Surface	6	Surface	glass	bottle		clear	
SDI-9537/H	505	2005	Surface	7	Surface	glass	bottle		brown	
SDI-9537/H	506	2005	Surface	8	Surface	glass	bottle		dark green	
SDI-9537/H	507	2005	Surface	9	Surface	glass	bottle		clear	

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
301					1		Yes	floated col sample
302					1		Yes	floated col sample
303					1		Yes	floated col sample
304					1		Yes	floated col sample
305					1		Yes	floated col sample
310					2	frag	Yes	fire-altered
311					1	frag	No	fire-altered; basin type
312					1	frag	No	fire-altered
313	1.2	1.1	0.3	0.25	1		Yes	flake; not sent for sourcing
314				19.90	1		Yes	
315					1	frag	No	tar or asphaltum?
316				14.40	1		Yes	
317				8.40	1		Yes	
318				16.40	1		Yes	
319				5.10	1		Yes	
320					1	frag	Yes	biface preform on flake blank
321				13.70	1	whole	Yes	retouched flake
322				2.90	1	whole	Yes	exhausted core
323				1.80	1	whole	Yes	exhausted core
324				4.90	1	frag	Yes	core fragment
325				6.20	1		Yes	probable core
326				7.00	1		Yes	exhausted core
327				5.10	1	frag	Yes	adze edge fragment?
328				0.90	1	frag	Yes	tool edge fragment
329					1	frag	No	possible awl
330					2	frag	No	antler tines
331					1	frag	Yes	found later
500					2	frags	Yes	Cholo Cola Co.
501					1	frag	Yes	Item #2 near Unit 3
502					1	frag	Yes	bottle top
503					4	frags	Yes	Pepsi soda, white ACL
504					1	frag	Yes	bottle base; "..493";
505					1	frag	Yes	neck & lip
506					1	frag	Yes	pushup base; "C";
507					15	frags	Yes	dimples; "..O.."; "..UA.."

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	508	2005	Surface	11	Surface	glass	bottle		varied	
SDI-9537/H	509	2005	Surface	12	Surface	glass	bottle		varied	
SDI-9537/H	510	2005	Surface	14	Surface	glass	bottle		SCA	
SDI-9537/H	511	2005	Surface	15	Surface	glass	bottle		clear	
SDI-9537/H	512	2005	Surface	17	Surface	glass	bottle		aqua	
SDI-9537/H	513	2005	Surface	19	Surface	glass	bottle		dark green	
SDI-9537/H	514	2005	Surface	22	Surface	glass	bottle		brown	
SDI-9537/H	515	2005	Surface	24	Surface	glass	bottle		dark green	
SDI-9537/H	516	2005	Surface	25	Surface	glass	bottle		brown	
SDI-9537/H	517	2005	Surface	26	Surface	glass	bottle		clear	
SDI-9537/H	518	2005	Surface	27	Surface	glass	bottle		dark green	
SDI-9537/H	519	2005	Surface	28	Surface	glass	bottle		brown	
SDI-9537/H	520	2005	Surface	29	Surface	glass	bottle		dark green	
SDI-9537/H	521	2005	Surface	30	Surface	glass	bottle		brown	
SDI-9537/H	522	2005	Surface	31	Surface	glass	bottle		brown	
SDI-9537/H	523	2005	Surface	32	Surface	glass	bottle		varied	
SDI-9537/H	524	2005	Surface	33	Surface	glass	bottle		light green	
SDI-9537/H	525	2005	Surface	34	Surface	metal	NA			
SDI-9537/H	526	2005	Surface	35	Surface	glass	bottle		brown	
SDI-9537/H	527	2005	Surface	36	Surface	glass	bottle		dark green	
SDI-9537/H	528	2005	Surface	37	Surface	glass	bottle		brown	
SDI-9537/H	529	2005	Surface	38	Surface	glass	bottle		aqua	
SDI-9537/H	530	2005	Surface	40	Surface	glass	bottle		clear	
SDI-9537/H	531	2005	Surface	41	Surface	glass	bottle		brown	
SDI-9537/H	532	2005	Surface	42	Surface	glass	bottle		brown	
SDI-9537/H	533	2005	Surface	44	Surface	glass	window			
SDI-9537/H	534	2005	Surface	45	Surface	glass	bottle		light green	
SDI-9537/H	535	2005	Surface	46	Surface	glass	bottle		brown	
SDI-9537/H	536	2005	Surface	47	Surface	glass	bottle		aqua	
SDI-9537/H	537	22005	Surface	48	Surface	glass	bottle		brown	
SDI-9537/H	538	2005	Surface	49	Surface	glass	bottle		dark green	
SDI-9537/H	539	2005	Surface	50	Surface	glass	bottle		varied	
SDI-9537/H	540	2005	Surface	51	Surface	glass	bottle		brown	
SDI-9537/H	541	2005	Surface	52	Surface	glass	bottle		brown	
SDI-9537/H	542	2005	Surface	53	Surface	glass	bottle		brown	

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
508					4	frags	Yes	dark green (3); brown
509					4	frags	Yes	SCA; light green (3)
510					1	frag	Yes	
511					1	frag	Yes	base
512					1	frag	Yes	Nehi Bottling Co.
513					1	frag	Yes	
514					1	frag	Yes	
515					2	frags	Yes	base included
516					1	frag	Yes	
517					1	frag	Yes	
518					1	frag	Yes	pushup base
519					1	frag	Yes	
520					2	frags	Yes	base included
521					1	frag	Yes	modern?; emblem
522					2	frags	Yes	
523					5	frags	Yes	brown(3); light green
524					1	frag	Yes	
525					3	frags	Yes	shovel frag?;2 aqua glass
526					2	frags	Yes	
527					1	frag	Yes	pushup base
528					1	frag	Yes	
529					1	frag	Yes	
530					1	frag	Yes	base
531					2	frags	Yes	
532					1	frag	Yes	
533					1	frag	Yes	
534					1	frag	Yes	white line present
535					1	frag	Yes	base
536					1	frag	Yes	
537					1	frag	Yes	
538					1	frag	Yes	pushup base
539					2	frags	Yes	brown; green
540					2	frags	Yes	modern
541					1	frag	Yes	
542					3	frags	Yes	bottle top

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	543	2005	Surface	20	Surface	glass	unidentified		aqua	
SDI-9537/H	544	2005	Surface	23	Surface	glass	bottle		clear	
SDI-9537/H	545	2001	Surface	2	Surface	histceramic	whiteware			unID
SDI-9537/H	546	2005	Surface	5	Surface	histceramic	whiteware			cup
SDI-9537/H	547	2005	Surface	10	Surface	histceramic	whiteware			unID
SDI-9537/H	548	2005	Surface	13	Surface	histceramic	whiteware			plate
SDI-9537/H	549	2005	Surface	16	Surface	histceramic	whiteware			plate
SDI-9537/H	550	2005	Surface	18	Surface	histceramic	whiteware			saucer
SDI-9537/H	551	2005	Surface	20	Surface	histceramic	whiteware			cup
SDI-9537/H	552	2005	Surface	21	Surface	histceramic	whiteware			plate
SDI-9537/H	553	2005	Surface	23	Surface	histceramic	whiteware			plate
SDI-9537/H	554	2005	Surface	39	Surface	histceramic	whiteware			saucer
SDI-9537/H	555	2005	Surface	43	Surface	histceramic	whiteware			plate
SDI-9537/H	556	2005	Surface	21	Surface	histceramic	whiteware			cup
SDI-9537/H	557	2005	Surface	21	Surface	histceramic	whiteware			unID
SDI-9537/H	558	2005	Surface	NA	Surface	pottery	whiteware			unID
SDI-9537/H	559	2005	Surface	NA	Surface	pottery	whiteware			unID
SDI-9537/H	560	2005	1x1m	10	0-10	histceramic	whiteware			plate
SDI-9537/H	561	2005	1x1m	10	10-20	histceramic	whiteware			unID
SDI-9537/H	562	2005	Surface	NA	Surface	histceramic	whiteware			plate
SDI-9537/H	600	2005	1x1m	2	0-10	glass	NA			
SDI-9537/H	601	2005	1x1m	2	0-10	metal	nail/tack			
SDI-9537/H	602	2005	1x1m	2	10-20	metal	nail/tack			
SDI-9537/H	603	2005	1x1m	2	10-20	glass	NA			
SDI-9537/H	604	2005	1x1m	2	20-30	metal	nail/tack			
SDI-9537/H	605	2005	1x1m	2	40-50	glass	NA			
SDI-9537/H	606	2005	1x1m	3	0-10	glass	NA			
SDI-9537/H	607	2005	1x1m	3	0-10	metal	nail/tack			
SDI-9537/H	608	2005	1x1m	3	0-10	wood	NA			
SDI-9537/H	609	2005	1x1m	3	10-20	glass	NA			
SDI-9537/H	610	2005	1x1m	3	10-20	metal	nail/tack			
SDI-9537/H	611	2005	.25x.25	3	20-30	wood	NA			
SDI-9537/H	612	2005	1x1m	4	0-10	glass	NA		varied	
SDI-9537/H	613	2005	1x1m	4	0-10	metal	nail/tack			
SDI-9537/H	614	2005	1x1m	4	10-20	glass	NA		clear	

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
543					1	frag	No	pane glass; thicker
544					1		No	was in #23 surface
545					1	frag	Yes	Thomas Furnival & Sons, 1878-1890
546					1	frag	Yes	panel mold; see Unit bundle
547					1	frag	Yes	plate or saucer; "ghost" decoration?
548					1	frag	Yes	molded? Well used
549					1	frag	Yes	stilt mark present
550					1	frag	Yes	plate
551					4	frags	Yes	all (inc. 2 rims) conjoin
552					3	frags	Yes	sharp edge rim; Pearlware?
553		7.5			2	frags	Yes	plate; inc. clear bottle glass
554		6.0			1	frag	Yes	bowl rim
555		7.0			2	frags	Yes	both rims conjoin
556					1	frag	No	was in #21 surface
557					1	frag	No	cup or bowl
558					1	frag	Yes	cup or bowl
559					2	frag	Yes	cup or bowl, 1 rim
560					1	frags	Yes	or platter; maker's mark trace
561					1	frag	Yes	cup or bowl
562		9.0			1	frag	Yes	rim; item #3 near Unit 3
600					38		Yes	
601					12		Yes	+ 2 metal frags
602					9		Yes	+ 3 metal frags
603					14		Yes	
604					2	frag	Yes	
605					1		Yes	
606					18	frags	Yes	
607					13	frags	Yes	+ 6 metal frags
608					20	frags	No	burned wood?
609					4		Yes	
610					3		Yes	+ 1 metal frag
611					1	frag	No	burnt wood?
612					43	frags	Yes	
613					24	frags	Yes	+ some metal frags
614					8	frags	Yes	

Site#	Cat#	Year	UnitType	Unit#	Level(cm)	ArtifactCategory	ArtifactType	LithicMaterial	GlassColor	Vessel
SDI-9537/H	615	2005	1x1m	4	10-20	metal	nail/tack			
SDI-9537/H	616	2005	1x1m	5	0-10	glass	NA		varied	
SDI-9537/H	617	2005	1x1m	5	0-10	metal	nail/tack			
SDI-9537/H	618	2005	1x1m	5	10-20	glass	NA		clear	
SDI-9537/H	619	2005	1x1m	5	10-20	metal	nail/tack			
SDI-9537/H	620	2005	1x1m	5	20-30	glass	NA		clear	
SDI-9537/H	621	2005	1x1m	5	20-30	metal	nail/tack			
SDI-9537/H	622	2005	1x1m	6	0-10	glass	NA		clear	
SDI-9537/H	623	2005	1x1m	6	0-10	metal	nail/tack			
SDI-9537/H	624	2005	1x1m	6	10-20	metal	NA			
SDI-9537/H	625	2005	1x1m	10	0-10	glass	NA		varied	
SDI-9537/H	626	2005	1x1m	10	0-10	metal	nail/tack			
SDI-9537/H	627	2005	1x1m	10	10-20	glass	NA		brown	
SDI-9537/H	628	2005	1x1m	10	10-20	metal	nail/tack			
SDI-9537/H	629	2005	1x1m	10	20-30	glass	NA		clear	
SDI-9537/H	630	2005	1x1m	10	20-30	metal	nail/tack			

Cat No	L	W/D	T	Wt	Count	Condition	Washed?	Remarks
615					9	frags	Yes	+ 2 metal frags
616					13		Yes	
617					13	frags	Yes	+ some metal frags
618					3	frags	Yes	
619					6	frags	Yes	
620					4	frags	Yes	+ 1 light green
621					10	frags	Yes	
622					4	frags	Yes	
623					29	frags	Yes	+ some metal frags
624					4	frags	Yes	
625					23	frags	Yes	
626					26	frags	Yes	+ some metal frags
627					13	frags	Yes	1 clear glass
628					15	frags	Yes	
629					2	frags	Yes	1 brown frag
630					1	frag	Yes	

APPENDIX K

SAN DIEGO COUNTY FORM NO. 1

County Application #________

FORM NO. 1

CULTURAL RESOURCE SURVEY REPORT FORM

COUNTY OF SAN DIEGO

(All responses must be typed. Attach additional sheets if necessary. All graphics must meet American Antiquity Standards.)

Complete by:

Philip de Barros ________ [signature] ________ 7/25/05

Name ________ Signature ________ Date

Date of initial SOPA registration: 1987

General Information

A. Name of Applicant Sherrill Schoepe, Shadow Run Ranch, LLC

Address: P.O. Box 1249

City: Pauma Valley State: CA Zip: 92061

Phone Number: 858-663-1492

B. Name of organization/individual completing this form:

Philip de Barros, Ph.D., SOPA/RPA, Professional Archaeological Services

Address: 13730 Via Cima Bella

City: San Diego State: CA Zip: 92129

Phone Number: 858-484-3478; 760-807-9489

C. Project Location

1. The property is located on the N S E W (circle one) side of State Route 76 and west of ________ between Adams Road or Drive and ________

Street address (if any): ________

2. Complete Assessor's parcel reference: 111-080-07,08,09,10,18,19 Portions 14,15,&16 111-070-12&13

Book: ________ Page: ________ Parcel(s): ________

3. Attach a current U.S.G.S. quadrangle map showing the project boundaries accurately plotted.

Project Description

A. Describe in detail the main features of the project. This description should adequately reflect the ultimate use of the site in terms of all construction and development, verifiable by submitted drawings/plans. If the project will be phased, the anticipated phasing schedule should be described.

The project consists of 248.26 acre site to be subdivided into 44 residential lots and three open space lots. Active agriculture will be preserved onsite, as well as biologically sensitive species.

B. Proposed Site Use

1. Total area 248.26 acres

2. Number of buildings: 44 residences

C. Topography and Grading

1. Percent of area previously graded: 6.29 percent

2. Slope Classification:

	Existing
0-15%:	157.03
16-25%:	31.57
Over 25%:	59.65

3. Area to be graded if archaeological resources could be impacted:

135.7 arces of residentil and recretional development

D. Describe all off-site improvements necessary to implement the project, and their points of access or connection to the project site. These improvements include: new streets, street widening, extension of gas, electric, sewer, and water lines, cut and fill slopes and pedestrian and bicycle paths.

The project will improve offsite sections of Haas Way Road as well as Adams Drive. The project will utilize existing utilities surrounding the site for the proposed development.

E. Additional Information

1. Use:

Project relationship to adjacent areas: Give compass direction in blanks as appropriate:

Private Dwellings N, S, E & W
Commercial: None
Mobilehome: South
Agriculture: East & West
Multiple Dwellings: None
Industrial: None
Vacant: North
Indian Reservation: N, S, E & W

2. Environmental Setting:

Does the project site contain any of the following physical features?

Rock Outcrops: yes Streams: yes Oak Groves: yes

3. Briefly describe the biological setting (note Community, Barliour and Major, 1980):

The property supports agriculture in the form of groves. Native habitats onsite include numerous wetland and upland communities.

4. What is the distance from the central portion of the property to the nearest water source: less 100 m

Describe water source: Frey Creek drainage, seasonal stream, tributary of San Luis Rey River.

5. Briefly describe the geologic setting: granitic

Survey Description

Date of Survey: April 7 thru July 22, 2001

Institution/Individual Responsible: Philip de Barros, Professional Archaeological Services

Individual in Charge: Philip de Barros, Ph.D., SOPA/RPA

Person hours required to complete field work: 256

Number of acres surveyed: 245 out of 286

1. Intensity of Survey (Describe transect technique or submit survey route maps): Survey was done in linear transects between rows of orange, grapefruit, avocado and other orchard trees.

2. If area surveyed is different from project area explain: 41 acres were not surveyable due to very steep slopes (see Figure 4 in report) Some portions of the Frey Creek drainage had very limited visibility due to vegetation.

Number of resources found: (ATTACH A COPY OF THE RESOURCE FORM FOR EACH RESOURCE INDICATED)

Isolates: 8

Prehistoric Sites: 9 (one with historic component)

Historic Sites: 1 (component of larger prehistoric site)

Other Resources (Specify): none

5 sites (3 prehistoric, 2 trails) not relocated

Background Research (previous studies within one mile): see report

Author	Title	Results (No. and Type of Sites)

List repositories from which record checks and/or historical documents were obtained and attach copies of the results.

South Coastal Information Center
San Diego Museum of Man

List conditions that may have affected the accuracy of the survey results.
Steep slopes way too steep to have sites. Frey Creek drainage had limited visibility but this entire drainage is to be placed in biological-archaeological open space.

APPENDIX L

CURATION

ACCESSION AGREEMENT

Transfer of Title of Archaeological Collections to the SAN DIEGO ARCHAEOLOGICAL CENTER

SDI-266, -714, -731, and -9537/H

San Diego Archaeological Center
preserving pieces of the past

ACCESSION AGREEMENT
Transfer of Title of Archaeological Collections to the San Diego Archaeological Center

This Agreement outlines the specifications for the transfer of title of archaeological collections to the San Diego Archaeological Center (SDAC) by _***Shadow Run Ranch, LLC***_ (Collection Owner). This Agreement is in keeping with the mission of the San Diego Archaeological Center, the guidelines as stated in the SDAC Operations Manual, the State of California Comprehensive Statewide Historic Preservation Plan guidelines for the curation of archaeological collections and the stated objective of SDAC to curate both Federally-owned and non-Federally-owned collections in accordance with 36 CFR Part 79, Curation of Federally-owned and Administered Archaeological Collections.

The mission of the San Diego Archaeological Center is to preserve and curate prehistoric and historic archaeological artifacts and to promote the educational, cultural and scientific use of archaeological collections in partnership with American Indians, cultural groups and the communities we serve.

I. Collection

A. Collection Identification

The following collection is presented to SDAC:
Project Name: ***Cultural Resources Survey and Evaluation of a 286-Acre Parcel in Pauma Valley, The Shadow Run Ranch, North of State Route 76, San Diego County, California.***
Artifacts recovered from sites: ***SDI-9537/H; SDI-266, SDI-731; SDI-714***
Excavated by: ***Professional Archaeological Services***
Excavated on: ***April-May 2005***
Consisting of: __**2**__ **Boxes—prehistoric & historic artifacts from SDI-9537/H**
__**1**__ **Box of associated documents for SDI-9537/H**
__**1**__ **Shoebox for a shell from SDI-266**
__**1**__ **Shoebox for 2 projectile points from SDI-714**
__**1**__ **Shoebox for an obsidian flake and pestle from SDI-731**
__**4**__ **Unboxed artifacts (3 metates from SDI-9537/H and 1 stone bowl in 3 pieces from SDI-266).**

1. A Box is defined as a 15" x 12" x 10" archival-quality box with a lid and with an upper weight limit of 30 pounds.
2. An unboxed artifact is a clearly marked artifact too large to fit in a standard box.
3. Associated records are those documents which describe the collection and the excavation, including, but not limited to, catalogues, maps, photographs, computer data, etc.

B. Collection Ownership

1. The Collection Owner affirms that it is the legal owner of the Collection.
2. The Collection Owner hereby unconditionally and irrevocably gives the Collection with all associated rights of the donor to the San Diego Archaeological Center, which may be used in any manner deemed appropriate to the SDAC.

C. Collection Condition

1. Hazards – To the best of its knowledge, the CRM Firm affirms that the Collection contains no hazardous materials, including, but not limited to radioactive matter, flammable liquids, explosives, live or dead insects or animals or other biological hazards.
2. Packaging - The CRM Firm affirms that the Collection is packaged in accordance with SDAC Collection Preparation Guidelines, using archival-quality packaging materials and specified organization methodology.
3. Associated Records - The CRM Firm affirms that the Collection is accompanied by all relevant documentation, including, but not limited to inventory, catalogues, field notes, photographs, maps, contracts, correspondence and other documentation relating to the Collection.
4. Pre-Transfer Inspection - SDAC reserves the right to inspect the Collection a maximum of five days before transfer to ascertain that the above is true and correct.
   a. If inspection reveals deficiencies, SDAC may require the deficiencies to be cured by the CRM Firm.
   b. If inspection reveals deficiencies, SDAC may require the deficiencies to be cured by the Collection Owner; or, SDAC may charge additional monies to correct same under a separate agreement.
   c. SDAC reserves the right to refuse any materials which, if in its judgement, would demand excessive attention, technical expertise or space, or which in any other way it considers inappropriate.
5. SDAC reserves the right to contact the CRM Firm if further clarification or documentation is necessary.

II. Terms of this Agreement

A. Costs Associated with this Agreement.

The curation fees shall be $600 for each cubic foot of artifacts, $125 for each quarter-box and $100 for each unboxed artifact for a total of **$_1,975.00_**, provided the Collection meets or exceeds the Collection condition as stated above.

B. Schedule for Invoicing and Payment

Full payment of **$_1,975.00__** must accompany the Collection upon delivery to the San Diego Archaeological Center. Full payment is due at delivery, even if the Collection Owner opts for phased delivery of the Collection.

C. Transportation of Collection

The Collection Owner or agent shall transport the Collection to the San Diego Archaeological Center for curation upon implementation of this Agreement.

NOTICE OF ACCESSION AGREEMENT

By execution of this Accession Agreement, the Collection Owner certifies that the Collection meets or exceeds the Collection Condition as specified above. The Collection Owner acknowledges that the Collection becomes irrevocably the property of the San Diego Archaeological Center and may be displayed, stored, maintained and disposed of as deemed appropriate by the SDAC. The Collection Owner is encouraged to seek the advice of a qualified appraiser before claiming a tax deduction. and understands the SDAC cannot value the donation.

Sherrill A. Schoepe, Manager — 9-19-05

Signature for Collection Owner, Title — Date

Shadow Run Ranch, LLC

09/23/05

Signature for SDAC, Title — Date

Please complete the following information for our records

Collection Owner (Person, Agency or Company): **Shadow Run Ranch, LLC**
Contact Person: **Sherrill Schoepe**
Address: **P.O. Box 1249, Pauma Valley, CA 92061**
Phone/Fax: **760-742-1893**

CRM Firm: **Professional Archaeological Services**
Contact Person for this Collection: **Philip de Barros, Ph.D., SOPA/RPA**
Address: **13730 Via Cima Bella, San Diego, CA 92129**
Phone/Fax: **760-807-9489; 858-484-3478 or 760-761-3516**

RECEIPT OF COLLECTION

On September 23, 2005, the following collection/object(s) were delivered to the San Diego Archaeological Center for curation by:

CRM Firm: Professional Archaeological Services
Contact Person for this Collection: Philip de Barros, PhD
Address: 13730 Via Cima Bella, San Diego, CA 92061
Phone/Fax: 760.807.9489; 858.484.3478 or 760.761.3516

Project Name: *Cultural Resources Survey and Evaluation of a 286-Acre Parcel in Pauma Valley, The Shadow Run Ranch, North of State Route 76, San Diego County, California*

Artifacts recovered from sites: *CA-SDI-9537/H, CA-SDI-266, CA-SDI-731, CA-SDI-714*

Listing of artifacts, associated documents, unboxed artifacts, conveyance documents and curation fees (if applicable):

2 boxes prehistoric & historic artifacts from SDI-9537/H
1 box of associated documents from SDI-9537/H
1 ¼ box of shell from SDI-266
1 ¼ box of projectile points from SDI-714
1 ¼ box of obsidian flake and pestle from SDI-731
4 unboxed artifacts (3 metates from SDI-9537/H and 1 stone bowl (3 pieces) from SDI-266

Philip de Barros 9/23/05
Signature for CRM Firm Date

09/23/05
Signature for SDAC, Title COLLECTIONS MANAGER Date

APPENDIX M

SACRED LANDS FILE RECORDS CHECK

NATIVE AMERICAN HERITAGE COMMISSION

Professional Archaeological Services

Philip de Barros, Ph.D.
13730 Via Cima Bella
San Diego, CA 92129
760-807-9489 (cell)
858-484-3478 (phone/FAX)
760-761-3516 (FAX)

March 30, 2009

Dave Singleton
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

RE: Sacred Lands Check for a 246.25-acre parcel for a proposed residential development in the Pauma Valley in San Diego County. The parcel is just north of State Route 76 and just west of Adams Road, in portions of Sections 31 and 32 of Township 9 South and Sections 5 and 6 of Township 10 South, both in Range 1 West, San Bernardino Base Meridian.

Dear Dave,

I am requesting a sacred lands check for the property referenced above. I have attached a portion of the 7.5' USGS ***Pala*** quad showing the approximate location of the proposed project.

Please fax the results of the search to Professional Archaeological Services at 760-761-3516. If you need to call me for any reason, please call at 760-807-9489.

Sincerely,

Philip de Barros

Philip de Barros, Ph.D.

Doing the Job Right the First Time!
Cost-Effective Resource Management!

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

April 3, 2009

Dr. Phillip de Barros, RPA, Inc.
PROFESSIONAL ARCHAEOLOGICAL SERVICES
13730 VIA CIMA BELLA
San Diego, CA 92129

Sent by FAX to: 858-484-3478 or 760-761-3516
No. of Pages: 3

Re: Request for a Sacred Lands File records search and Native American Contacts list for the Proposed Pauma Valley Project Located north of State Route 76 and west of Adams Road; San Diego County California

Dear Dr. de Barros:

The Native American Heritage Commission (NAHC) was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE). The SLF search did not indicate the presence of Native American cultural resources in the project area (APE or 'area of potential effect).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes that may have knowledge of cultural resources in the project area. We recommend that you contact persons on the attached list of Native American contacts. A Native American tribe or individual may be the only source of information about a cultural resource. They may have specific knowledge as to whether or not the known cultural resources identified may be at-risk by the proposed project. We also suggest that you contact the nearest information center of the California Historic Resources Information System (CHRIS); a location nearest you can be obtained by calling the Office of Historic Preservation at (916) 653-7278.

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contact
San Diego County
April 3, 2009

Pala Band of Mission Indians
Robert H. Smith, Chairperson
12196 Pala Mission Road, PMB 50 — Luiseno, Cupeno
Pala, CA 92059
(760) 891-3500
(760) 742-1411 Fax

Pauma Valley Band of Luiseño Indians
Bennae Calac, Tribal Council Member
P.O. Box 369 — Luiseno
Pauma Valley, CA 92061
bennaecalac@aol.com
(760) 617-2872
(760) 742-3422 - FAX

Pauma & Yuima
Christobal C. Devers, Chairperson
P.O. Box 369 — Luiseno
Pauma Valley, CA 92061
paumareservation@aol.com
(760) 742-1289
(760) 742-3422 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Interim Chairperson
P.O. Box 68 — Luiseno
Valley Center, CA 92082
council@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

Rincon Band of Mission Indians
Angela Veltrano, Rincon Culture Committee
P.O. Box 68 — Luiseno
Valley Center, CA 92082
ccouncil@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

San Luis Rey Band of Mission Indians
Carmen Mojado, Co-Chair
1889 Sunset Drive — Luiseno
Vista, CA 92081
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 - FAX

San Luis Rey Band of Mission Indians
Russell Romo
12064 Old Pomerado Road — Luiseno
Poway, CA 92064
(858) 748-1586

Cupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd.PMB Box 445 — Luiseno
Pala, CA 92059
cupa@palatribe.com
(760) 742-1590
(760) 742-4543 - FAX

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pauma Valley Project, north of S.R. 76 and west of Adams Road; San Diego County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contact
San Diego County
April 3, 2009

La Jolla Band of Mission Indians
ATTN: Rob Roy, Environmental Director
22000 Highway 76 Luiseno
Pauma Valley , CA 92061
lajolla-sherry@aol.com and
(760) 742-3790
(760) 742-1704 Fax

Mel Vernon, Chairperson
San Luis Rey Band of Mission Indians
1044 North Ivy Street Luiseno
Escondido , CA 92026
melvern@aol.com
(760) 746-8692
(760) 703-1514 - cell

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pauma Valley Project, north of S.R. 76 and west of Adams Road; San Diego County, California for which a Sacred Lands File search and Native American Contacts list were requested.

ERIC GIBSON
DIRECTOR

County of San Diego

DEPARTMENT OF PLANNING AND LAND USE

5201 RUFFIN ROAD, SUITE B, SAN DIEGO, CALIFORNIA 92123-1666
INFORMATION (858) 694-2960
TOLL FREE (800) 411-0017

January 13, 2010

TO:

Cupa Cultural Center
Ms. Shasta Gaughen, Assistant Director
La Jolla Band of Luiseno Indians
Larriann Musick, Chairperson
Rob Roy, Environmental Director
Pala Band of Mission Indians
Mr. Robert Smith, Chairman
Mr. Joseph Nixon, Cultural Resource Coordinator
Pauma/Yuima Band of Mission Indians
Mr. Christobal C. Devers Sr., Chairman
Ms. Bennae Calac, Culture Committee
Rincon San Luiseno Band of Mission Indians
Bo Mazzetti, Chairman
Angela Veltrano, Culture Committee
San Luis Rey Band of Mission Indians
Mr. Mel Vernon, Captain
Ms. Carmen Mojado, Co-Chair

RE: SACRED LANDS CHECK; Project Name: Shadow Run Ranch; Project Numbers: TM 5223, MUP 00-030, Log No. 00-02-035; Location: Pala Road at Adams Drive; Section: 31, 32; Township: 9S; Range: 01W; Thomas Brothers: 409 E6; USGS: Pala Quad. APN's: 111-080-08 thru 010 & 014-019; 111-070-12 & 13

The County of San Diego (County) requests your participation in the review process of the Shadow Run Ranch Subdivision TM 5223. This project proposes a 44 lot residential development on 248.25 acres; the lots would be 2 acres in size. It is located at Pala Road and Adams Drive in the community planning area of Pauma Valley and is subject to the California Environmental Quality Act (CEQA), and the County of San Diego Resource Protection Ordinance (RPO). The Native American Heritage Commission (NAHC) was contacted by the consulting archaeologist. NAHC has requested that the County contact you directly regarding the potential for the presence of significant Native American cultural resources that may be impacted by this project. The project is currently in the process of environmental review.

Any information you have regarding cultural places will be kept strictly confidential and will not be divulged to the public. Although we are providing to you for the purposes of your review this confidential information regarding the location of cultural places, this information is not available to the public.

The County of San Diego feels that your comments regarding decisions that may affect ancestral tribal sites are very important. Please forward any comments regarding this project to Gail Wright by February 13, 2010.

If you have any questions, you can reach me at (858) 694-3003; further contact information can be found below.

Sincerely,

Gail Wright

Gail Wright
Staff Archaeologist

Department of Planning and Land Use
5201 Ruffin Road, Suite B, MS 0650
San Diego, CA 92123-1666
(858) 694-3003
(858) 694-3373 fax
<mailto:gail.wright@sdcounty.ca.gov>

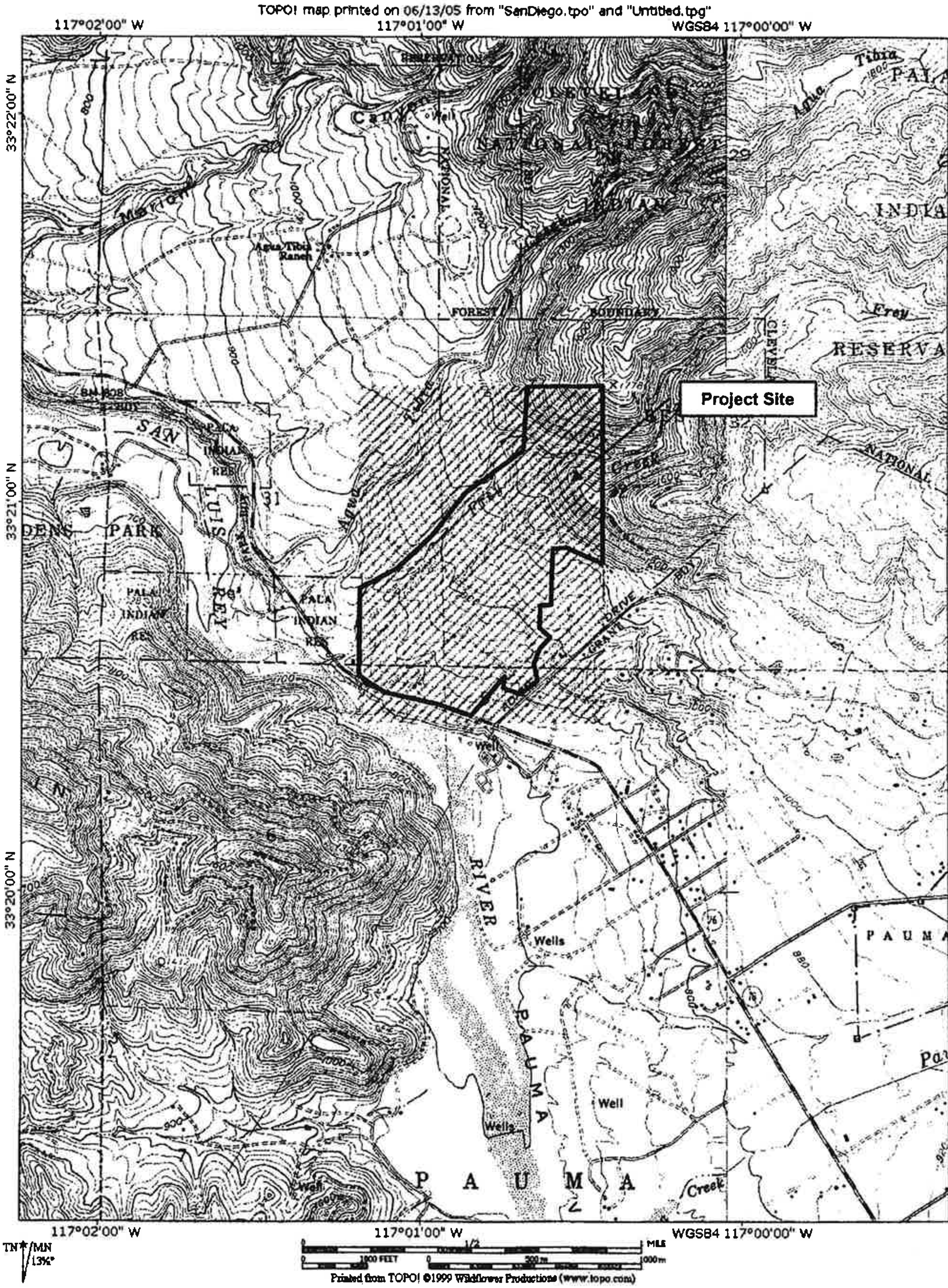
GW:gw

Attachments
USGS Pala Map
NAHC Letter, dated April 3, 2009

cc: Sherrill Schoepe, GM Shadow Run Ranch, LLC, P.O. Box 1249, Pauma Valley, CA 92061
TRS Consultants, 438 Camino Del Rio South, Suite 223, San Diego, CA 92108
Doug Masson, Masson & Assoc., 200 E. Washington, Ave. suite 200, Escondido, Ca 92025
Phillip de Barros, Professional Archaeological Services, 13730 Via Cima Bella, San Diego, CA 92129

e-mail cc:
Larry Hofreiter, Project Manager, DPLU
Rob Hingtgen, EIR Coordinator, DPLU
Teresa Brownyard, Tribal Liaison, Chief Administrative Office, M.S. 029

FIGURE 1. REGIONAL LOCATION - THE TM 5223RPL SUBDIVISION PROJECT PORTION OF THE USGS "PALA" AND "BOUCHER HILL" 7.5' QUADRANGLES



STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

April 3, 2009

Dr. Phillip de Barros, RPA, Inc.
PROFESSIONAL ARCHAEOLOGICAL SERVICES
13730 VIA CIMA BELLA
San Diego, CA 92129

Sent by FAX to: 858-484-3478 or 760-761-3516
No. of Pages: 3

Re: Request for a Sacred Lands File records search and Native American Contacts list for the Proposed Pauma Valley Project Located north of State Route 76 and west of Adams Road; San Diego County California

Dear Dr. de Barros:

The Native American Heritage Commission (NAHC) was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE). The SLF search did not indicate the presence of Native American cultural resources in the project area (APE or 'area of potential effect).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes that may have knowledge of cultural resources in the project area. We recommend that you contact persons on the attached list of Native American contacts. A Native American tribe or individual may be the only source of information about a cultural resource. They may have specific knowledge as to whether or not the known cultural resources identified may be at-risk by the proposed project. We also suggest that you contact the nearest information center of the California Historic Resources Information System (CHRIS); a location nearest you can be obtained by calling the Office of Historic Preservation at (916) 653-7278.

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contact
San Diego County
April 3, 2009

Pala Band of Mission Indians
Robert H. Smith, Chairperson
12196 Pala Mission Road, PMB 50 — Luiseno, Cupeno
Pala, CA 92059
(760) 891-3500
(760) 742-1411 Fax

Pauma Valley Band of Luiseño Indians
Bennae Calac, Tribal Council Member
P.O. Box 369 — Luiseno
Pauma Valley, CA 92061
bennaecalac@aol.com
(760) 617-2872
(760) 742-3422 - FAX

Pauma & Yuima
Christobal C. Devers, Chairperson
P.O. Box 369 — Luiseno
Pauma Valley, CA 92061
paumareservation@aol.com
(760) 742-1289
(760) 742-3422 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Interim Chairperson
P.O. Box 68 — Luiseno
Valley Center, CA 92082
council@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

Rincon Band of Mission Indians
Angela Veltrano, Rincon Culture Committee
P.O. Box 68 — Luiseno
Valley Center, CA 92082
council@rincontribe.org
(760) 749-1051
(760) 749-8901 Fax

San Luis Rey Band of Mission Indians
Carmen Mojado, Co-Chair
1889 Sunset Drive — Luiseno
Vista, CA 92081
cjmojado@slrmissionindians.org
(760) 724-8505
(760) 724-2172 - FAX

San Luis Rey Band of Mission Indians
Russell Romo
12064 Old Pomerado Road — Luiseno
Poway, CA 92064
(858) 748-1586

Cupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd.PMB Box 445 — Luiseno
Pala, CA 92059
cupa@palatribe.com
(760) 742-1590
(760) 742-4543 - FAX

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pauma Valley Project, north of S.R. 76 and west of Adams Road; San Diego County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contact
San Diego County
April 3, 2009

La Jolla Band of Mission Indians
ATTN: Rob Roy,Environmental Director
22000 Highway 76 Luiseno
Pauma Valley , CA 92061
lajolla-sherry@aol.com and
(760) 742-3790
(760) 742-1704 Fax

Mel Vernon, Chairperson
San Luis Rey Band of Mission Indians
1044 North Ivy Street Luiseno
Escondido , CA 92026
melvern@aol.com
(760) 746-8692
(760) 703-1514 - cell

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Pauma Valley Project, north of S.R. 76 and west of Adams Road; San Diego County, California for which a Sacred Lands File search and Native American Contacts list were requested.

PALA BAND OF MISSION INDIANS
Tribal Historic Preservation Office
35008 Pala Temecula Rd. PMB 445
Pala, CA 92059

Ph: (760) 891-3591
Fax: (760) 742-4543

February 10, 2010

Gail Wright, Staff Archaeologist
Department of Planning and Land Use
5201 Ruffin Road, Suite B, MS 0650
San Diego, CA 92123-1666

Re: Shadow Run Ranch, TPM 5223, MUP 00-030, Log No. 00-02-035

Dear Ms. Wright:

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. It is, however, within the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we request to be kept in the information loop as the project progresses and would appreciate being maintained on the receiving list for project updates, reports of investigations, and/or any documentation that might be generated regarding previously reported or newly discovered sites. Further, we recommend archaeological monitoring due to the proximity of known archaeological sites. If the project boundaries are modified to extend beyond the currently proposed limits, we request updated information and the opportunity to respond to your changes.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3591 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen

Shasta C. Gaughen, MA
Tribal Historic Preservation Officer
Pala Band of Mission Indians

ATTENTION: THE PALA TRIBAL HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **SHASTA C. GAUGHEN** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRMAN ROBERT SMITH. PLEASE ALSO NOTE THAT JOE NIXON NO LONGER WORKS FOR THE PALA THPO.