AN ARCHAEOLOGICAL ASSESSMENT FOR THE BOYER LOT SPLIT

SAN DIEGO COUNTY
TPM 20794, LOG NO. 03-08-063

Submitted to:

County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego, California 92123

Prepared for:

Earl Boyer
28440 Mountain Meadow Road
Escondido, California 92026

Prepared by:

Richard Herrmann, Project Archaeologist
Brian F. Smith, Principal Investigator
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DEPARTMENT OF PLANNING
AND LAND USE

May 11, 2004
Revised July 29, 2004

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National Archaeological Data Base Information

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Report Date:	May 11, 2004, Revised July 29, 2004
Report Title:	"An Archaeological Assessment for the Boyer Lot Split"
Submitted to:	County of San Diego Department of Planning and Land Use 5201 Ruffin Road, Suite B San Diego, California 92123
Prepared for:	Earl Boyer 28440 Mountain Meadow Road Escondido, California 92026
USGS Quadrangle:	*Valley Center* (7.5 minute)
Study Area:	Approximately 3.0 acres gross
Key Words:	Survey of 3.0 acres; *Valley Center* Quadrangle (7.5 minute); prehistoric resource; Luiseño; Site SDI–16,986; bedrock milling; lithic scatter; subsurface deposit; initial testing; potentially significant impacts.

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1.0 MANAGEMENT SUMMARY/ABSTRACT

The Boyer Lot Split Project is located in the southeast quarter of Section 11 in Township 11 South, Range 2 West of the San Bernardino Baseline and Meridian. Brian F. Smith and Associates (BFSA) conducted a records search and field survey of the project as part of our initial study in support of an application to the County of San Diego for a land development permit. On April, 10, 2004, BFSA conducted an archaeological reconnaissance of the project and identified one bedrock milling site and a sparse surface lithic scatter with associated dark midden soil. Subsequently, the study was expanded to conduct a significance evaluation of the archaeology site. The present study supplemented the previous records search and field reconnaissance, and included testing of the single archaeological resource, Site SDI–16,986, identified on the property. All three efforts were directed by Brian F. Smith, the Principal Investigator for this project. This cultural resource study was conducted in compliance with the California Environmental Quality Act (CEQA), the County of San Diego Guidelines for CEQA Conformance, and the San Diego County Resource Protection Ordinance.

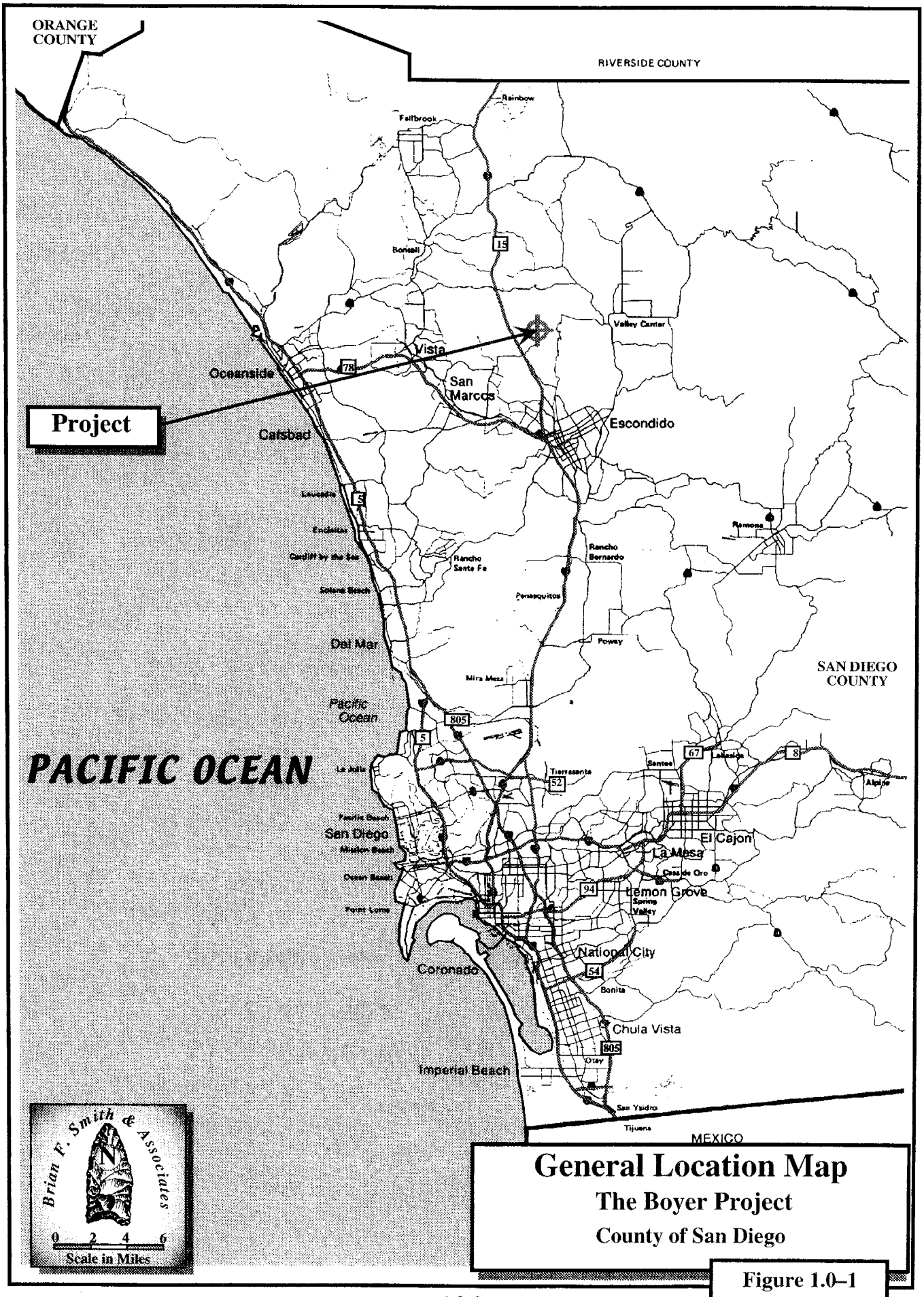
The purpose of these investigations was to locate and record any cultural resources present within the project boundaries and to provide significance testing information of the one discovered resource for conformance to County of San Diego requirements as stated in a letter dated January 30, 2004. The surface area of the site at the time of the field reconnaissance was represented by bedrock milling features and associated midden soil in an area of non-native grasses and avocado trees. Significance testing concluded May 23-26, 2004 included a surface artifact collection, shovel test series, a single test unit excavation, and recordation of the bedrock milling features. Six of the 12 shovel tests proved positive with identified cultural materials consisting primarily of lithic production waste, to a depth of 20 to 30 centimeters. A test unit was placed near the milling area and an in the area area of positive shovel tests. The test unit revealed dark midden soil containing evidence of tool production, obsidian, burnt bone and marine shell to a depth of 60 centimeters. Based upon the results of the testing program, Site SDI–16,986, has been evaluated as a significant resource. The site is not RPO–level significant, however, the subsurface deposit does represent measurable research potential regarding the Late Prehistoric use of the Hidden Meadows area.

The review of the institutional record searches indicated that no previously recorded site was located within the project boundaries, but seven archaeological sites are recorded within one mile of the project. The nearby resources vary from simple food extraction and processing stations and temporary camps to a possible house pit and a pictograph panel. These sites are exclusively attributed to the Late Prehistoric Luiseño culture.

The conclusion of the significance assessment of Site SDI–16,986 is that the proposed development of the project will cause a significant direct impact to the significant archaeological resource. Measures will be required to mitigate the potential impacts to the resource. Possible

mitigation measures include the preservation of the site in open space or implementation of a data recovery program.

All artifacts, a copy of this report, notes, photographs, and other materials will be curated at the San Diego Archaeological Center in perpetuity.

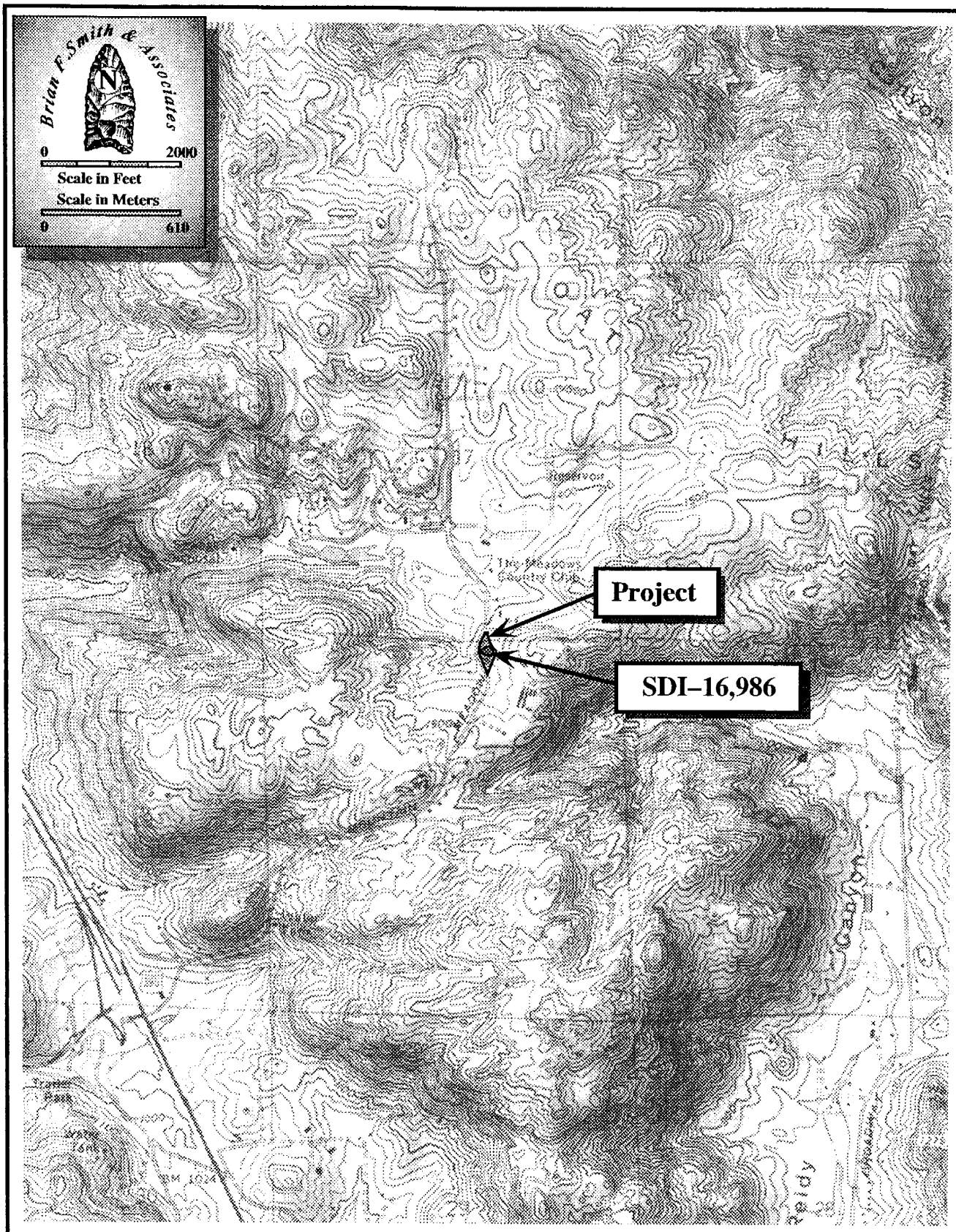


General Location Map

The Boyer Project

County of San Diego

Figure 1.0–1

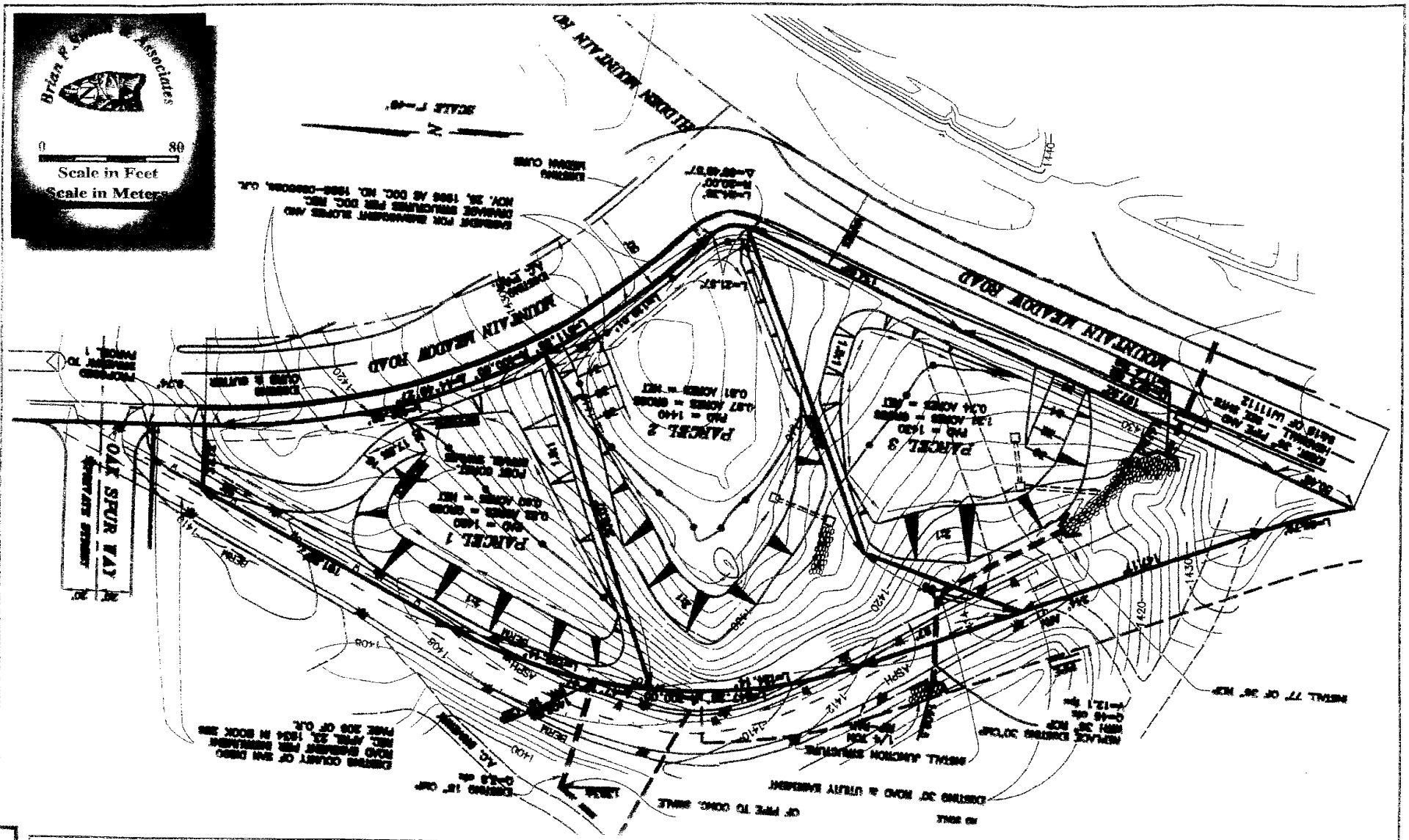


Cultural Resource Location Map

The Boyer Project

USGS *Valley Center* Quadrangle (7.5 minute series)

Figure 1.0–2



Project Development Map

The Boyer Project

Figure 1.0-3

Figure 1.0–4

Project Development Map
Site SDI-16,986
(Deleted for Public Review; Bound Separately)

2.0 UNDERTAKING INFORMATION/INTRODUCTION

The archaeological survey and significance evaluation program for the Boyer Lot Split was required by the County of San Diego in conformance with CEQA and the County's environmental guidelines including the County Resource Protection Ordinance. The proposed development will consist of 3 new home sites and onsite access road improvements within a three-acre property. BFSA was engaged by the property owner, Earl Boyer, to conduct a records search and a field reconnaissance in March, 2004, and subsequently to conduct significance testing of an archaeological site in April, 2004. BFSA conducted the archaeological records search, field reconnaissance, and significance testing in conformance with stated requirements of the County of San Diego Department of Planning and Land Use. The County required the archaeological study for the project based upon cultural resource sensitivity suggested by known archaeological site density in the area and from observations made during an onsite visit by County personnel.

The archaeological study was conducted within the County of San Diego, on property owned by Earl Boyer (Figure 1.0–1). The project boundaries are depicted in Figure 1.0–2 on the appropriate portion of the USGS *Valley Center* 7.5-minute topographic quadrangle and in the project development map in Figure 1.0–3. The area surveyed consisted of approximately 3.0 acres (gross) of land situated off Mountain Meadow Road near the Meadows Country Club. The archaeological survey covered the entire project, with significance testing performed at Site SDI–16,986.

The institutional records searches did not identify any cultural resources within the project, but seven sites are located nearby. Significance testing of a single prehistoric archaeological site located on the property as a result of the field reconnaissance resulted in a determination that the site is potentially significant. Based upon the results of the study, the proposed development of the project for residential use would have potential significant negative impacts to the cultural resources existing onsite because the footprint of the proposed grading for structures and the required onsite road improvements would impact the identified prehistoric site.

3.0 SETTING

The project setting includes both physical and biological contexts of the proposed project, as well as the cultural setting of prehistoric and historic human activities in the general area.

3.1 Natural Setting

The 3.0-acre (gross) parcel is located in the Hidden Meadows area of Escondido, near the Meadows Country Club. (Figures 1.0–1 and 1.0–2). The Boyer Lot Split Project is located on valley fill soils derived from the surrounding decomposed Mesozoic granitic and intrusive rocks with an admixture of biogenic loam associated with the valley floodplain (Merriam 1954). The lithic materials identified at the prehistoric archaeological site being studied were derived from chert, metavolcanic, quartz, obsidian, and granite rocks.

The biological setting observed in the area of the project during the field survey consisted of an avocado agricultural vegetative community dominated by introduced, non-native grasses and other plants (Beauchamp 1986). Faunal resources in this area provided needed protein in the aboriginal diet, and included rabbit and other rodents, deer, reptiles, insects, and birds that would have thrived in, what once was, a diverse biological community.

The natural setting during the prehistoric occupation of this valley offered a rich nutritional resource base. Fresh water was probably obtainable from the nearby drainage and various tributaries during most of the year. This part of the valley has a shallow water table and water was probably obtainable even in dry years by digging shallow wells in the drainage bed.

3.2 Cultural Setting

The area of northern San Diego County has a very rich and extensive record of both prehistoric and historic activity. The archaeological cultures, which have been identified in the general vicinity of the project, include the Archaic La Jolla Complex and the Late Prehistoric Luiseño Indians. Previously, a Paleo-Indian culture identified as the San Dieguito (11,000 to 9,000 years before present [YBP]) was thought to exist in the county, but this evidence has recently been found to be much younger and belongs to the Archaic Period. In historic times, the Spanish and Mexican peoples may not have used this high valley, but the American period of settlement brought agricultural and herding activities into the project area. A brief discussion of the cultural elements present in the project area are provided in the following subsections.

3.2.1 Prehistory

The San Dieguito Complex

The San Dieguito Complex, a Paleo-Indian culture previously thought to have been present in the San Diego County region, has become increasingly difficult to substantiate. Currently, controversy exists among researchers, which centers upon the relationship of the San Dieguito and the subsequent archaeological manifestation in the area, the La Jolla Complex. Recent identification

of the San Dieguito assemblage as an inland manifestation of the La Jolla Complex may clarify the relationship of coastal and inland assemblages as a function of lithic sources and subsistence media (Byrd and Serr 1993; Pigniolo 1996). The origin of the earliest local inhabitants is clarified with each new radiocarbon date at inland La Jollan sites. For example, at Scraper Maker Hill, Malcom Rogers' discovery site of the lithic assemblage he identified as San Dieguito has been identified as an inland manifestation of the archaic La Jolla and dates between approximately 2,200 and 5,000 years ago (Raven-Jennings and Smith 1999a and 1999b). Moreover, the crescentics most often identified as uniquely San Dieguito have been found in numbers at 4S Ranch in archaic La Jolla sites (Smith et al. in progress).

The La Jolla Complex

At approximately 9,000 to 8,500 YBP, a major Archaic Period cultural tradition was established in the San Diego region, primarily along the coast. Locally called the La Jolla Complex, radiocarbon dates from sites attributed to this culture span a period of over 7,000 years. The La Jolla Complex is best recognized for its pattern of shell middens, cobble-based tools, and grinding tools, closely associated with the marine resources of the coast, and flexed burials (Shumway, Hubbs and Moriarty 1961; Smith and Moriarty 1985). Recently, increasing numbers of inland sites have been identified as dating to the Archaic Period and focused on terrestrial subsistence (Cárdenas 1986; Smith 1996; True 1958, 1966).

The tool typology of the La Jolla Complex displays a wide range of lithic manufacturing techniques used to create the tools found at their sites. Scrapers, the dominant flaked tool type, were created either by splitting cobbles or by finely flaking quarried material. After about 8,200 YBP, milling tools appear in La Jolla sites. Inland sites of the La Jolla Complex sometimes lack marine-related food refuse and contain large quantities of milling tools and food bone, and the lithic tool assemblage shifts slightly to encompass the procurement and processing of terrestrial resources, suggesting seasonal migration from the coast to the inland valleys (Smith 1986).

The Late Prehistoric Luiseño Indians

Approximately 1,300 YBP, a Shoshonean-speaking group from the Great Basin region moved into San Diego County, marking the transition to the Late Prehistoric Period. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations. Technological developments during this period include the introduction of the bow and arrow between 400 and 600 A.D. Other hallmarks of the Late Prehistoric Period include extensive trade networks as far reaching as the Colorado River Basin, and cremation of the dead. Through radiocarbon dating, the introduction of pottery and the initiation of the San Luis Rey II phase began at approximately 1300 A.D. San Luis Rey I is characterized by the use of portable shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremations, bone awls, and stone and shell ornaments are

also prominent in the material culture. The later San Luis Rey II assemblage is augmented by pottery cooking and storage vessels, cremation urns, and polychrome pictographs. The fluorescence of rock art likely appeared as the result of increased population sizes, and increased sedentism (True *et al.* 1974). Flaked stone dart points are dominated by the Cottonwood Triangular series, but Desert Side-notched, Dos Cabazas Serrated, leaf-shaped, and stemmed styles also occur. Subsistence is thought to be focused on the utilization of acorns, a storable species that allowed for a relative sedentism and increased population sizes.

Ethnohistorical and ethnographic evidence indicates that the Shoshonean-speaking group that occupied the northern portion of San Diego County was the Luiseño. Along the coast, the Luiseño made use of the marine resources available by fishing and collecting molluscs for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. The elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian, resources from the eastern deserts, and steatite from the Channel Islands.

The Luiseño occupied sedentary villages, most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching, and in areas that offered thermal and defensive protection. Villages were comprised of areas that were both publicly and privately, or family, owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were utilized, particularly from January to March, when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. For the remainder of the year, the Luiseño remained at village sites, where food resources were within a day's travel (Bean and Shipek 1978).

3.2.2 *History*

The historic period in San Diego County began with the landing of Juan Rodriguez Cabrillo and his men in 1542. Actual colonization of the San Diego area began on July 16, 1769, when the first Spanish land exploring party, commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations), arrived in San Diego to secure California for the Spanish crown (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the subsequent growth of the civilian population. As increasing numbers of Spanish and Mexican people, and later Americans during the Gold Rush, settled in the area, the Indian populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983). The route of El Camino Real served as the primary channel through which transportation, commercial and military activities, and eventually, roads and railroads were funneled along the coast from San Diego to Los Angeles and San Francisco, with connections to the east.

The project is not located within the boundaries of any Rancho. This simply means that The Hidden Valley area was not identified as an early site of stock raising or cultivation. It is possible that cattle and sheep from Rancho Rincon del Diablo (Escondido) or even Mission San Luis Rey used this high valley in drought years to supplement their rangeland, but no documentation was found to confirm this.

3.3 Results of the Records Search Review

Archaeological records searches were conducted in 1999 by BFSA for another project within 400 meters of the Boyer project (Appendix I). This records review was updated for the current project. A review of these records searches found that no previously recorded resource is located within the project boundaries, but seven sites are located within one mile of the project (Table 3.0–1). Prehistoric sites nearby consist mostly of resource extraction and processing locations generally associated with the Late Prehistoric Luiseño subsistence strategies. These are located to the south and within the same valley. The recorded sites consist of three camp sites, a bedrock milling site with an artifact scatter, a possible house pit with midden, a bedrock milling site, and a single panel of pictographs which have been vandalized with modern graffiti.

A total of seven previous studies have been performed in the general vicinity of the project. Of these, none covered the area of the present project (Table 3.0–2).

TABLE 3.0–1

Archaeological Sites Located Near the Boyer Lot Split Project

Sites	Description
SDI–5189 (W–1496); SDI–5190 (W–1497); SDI–5192 (W–1499)	Prehistoric Camp Sites
SDI–5191 (W–1498)	Artifact Scatter with Bedrock Milling
SDI–11,053	Prehistoric House Site with Subsurface Midden
SDI–11,949 (W–4581)	Bedrock Milling
W–6109	Pictograph

TABLE 3.0–2

Previous Studies Conducted in the Area of
The Boyer Lot Split Project

Berryman, Judy and Stan Berryman
1988 "Archaeological Test Program for Sites SDI–5190, SDI–5191, and SDI–11053 Phase II Test Results." TMI Environmental Services. Report on file at South Coastal Information Center, San Diego State University.

Berryman, Stanley R.
1988 "Mountain Meadow Road." TMI Environmental Services. Report on file at South Coastal Inofrmation Center, San Diego State University.

Gallegos, Dennis, et al.
1987 "A Cultural Resource Overview for Escondido, California." Westec Services Inc. Report on file at San Diego Museum of Man.

Gross, Timothy and Lorin Jacobsen
1990 "Cultural Resource Inventory: Mountain Meadow Road Realignment, Valley Center, San Diego County." Affinis. Report on file at South Coastal Information Center, San Diego State University.

PRC Toups
1981 "Draft Environmental Impact Report: Hidden Meadows (Final Phase)." Report on file at South Coastal Information Center, San Diego State University.

Smith, Brian F
2002 "An Archaeological Assessment for the Hidden Meadows Project" Brian F. Smith and Associates. Report on file at South Coastal Information Center, San Diego State University.

Walker, Carol J. and Charles S. Bull
1979 "A Cultural Resource Study of Proposed Access Roads Between the Escondido Substation and the Proposed Substation Site at Rainbow." RECON. Report on file at South Coastal Information Center, San Diego State University.

Westec Services Inc.
1983 "Monte Cerno Draft Environmental Impact Report, TM 4326, LSP 81–05, Log#81–8–173." Report on file at South Coastal Information Center, San Diego State University.

4.0 RESEARCH DESIGN

Because this report treats a survey and test of prehistoric archaeological deposits encountered during the field reconnaissance, no detailed research design was prepared. The thrust of this archaeological investigation focused on the potential significance of a discovered resource. Nevertheless, the recovered data provided the basis for interpretation of site function within a high valley subsistence area. The resultant data will aid in the understanding of just how these resources came into being and what circumstances existed throughout the period from deposition to rediscovery. In this way, the present study will contribute to the overall understanding of how such resources were developed and where additional resources with similar characteristics might be expected, an exercise known as predictive modeling. The circumstances surrounding the creation of the site can be formulated into a testable hypothesis for the occurrence of like deposits, then tested on the many similar projects currently underway or planned for the Valley Center area.

5.0 METHODOLOGY

The archaeological program for the Boyer Lot Split Project consisted of the use of an existing institutional record search (updated), an archaeological field reconnaissance, and significance testing. Approximately 43 person-hours were expended in fieldwork. This archaeological study conformed to County of San Diego Archaeological/Historical Guidelines, and is consistent with current County archaeological procedures. Statutory requirements of the California Environmental Quality Act (CEQA) Section 15064.5 and the County Resource Protection Ordinance were followed in evaluating the significance of the cultural resource during significance testing. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO March, 1995).

5.1 Field Methodology

The initial archaeological work began with the examination of record search information, which indicated no sites have been previously recorded on this property. An archaeological reconnaissance consisting of a series of parallel transects, spaced at five meter intervals was carried out to identify any cultural resources, which might be located within project boundaries. Limitations on the archaeological survey were moderate, due to dense non-native grasses covering most areas of the property (Plate 6.0–2). A single resource was found during the reconnaissance and identified as a bedrock milling station with an associated sparse lithic scatter.

The initial significance testing at SDI–16,986 consisted of identification and collection of surface artifacts and the mapping and recordation of bedrock milling features. All features, surface artifacts, and excavations were mapped and plotted accordingly (Figure 6.0–1). A series of shovel tests was excavated in the area defined by the location of the surface scatter of artifacts and dark brown midden soil in order to determine the boundaries and location of any subsurface cultural deposit that might be present. The pattern of shovel test pits was somewhat random in order to determine the extent of midden soil area, but generally the tests were placed on the higher elevations and around milling features. Twelve shovel tests were excavated in ten-centimeter increments to depths ranging from 30 to 70 centimeters, and all excavated soil was screened through 1/8-inch wire mesh. A single shovel test identified a small area, near the largest milling feature, of deep midden with recovery to 60 centimeters depth. One test unit was excavated within the deep midden deposit, which had recovery of cultural deposits to 60 centimeters depth. All collected specimens were placed in level bags, which were marked with provenience information. All collected specimens and recorded information were returned to the BFSA archaeological laboratory in Poway, California for processing and preparation of this report.

At the same time as the shovel tests were being excavated, the bedrock milling features were recorded. This was accomplished by drawing, measuring, and photographing each individual bedrock feature that had been used for milling and each milling surface thereon. Not all the bedrock exposures at this location had milling surfaces on them; therefore not all the bedrock

features were recorded except in a general sense. Figure 6.0–1 illustrates the location of the prehistoric site, the surface artifact locations, milling features, and the placement of excavations. Photographs of the site are provided in Plates 6.0–1 through 6.0–5.

5.2 Laboratory Procedures

A variety of laboratory methods were used to study the specimens and information recovered during the testing of SDI–16,986. Recovered artifacts and ecofacts were returned to the laboratory of BFSA and, in keeping with generally accepted archaeological procedures, were cleaned, identified and cataloged. After cataloging, identification, and analysis, the collections were marked with the appropriate provenience and catalog information, then packaged for permanent curation. The project collection, a copy of the report, photographs, and notes will be curated at the San Diego Archaeological Center. Documentation of the cultural resource included submitting the appropriate site record (DPR) forms with attachments to the South Coastal Information Center at San Diego State University (Appendix II).

5.2.1 Artifact Analysis

The cataloging process used to categorize the recovered materials was based on a classification system commonly used in this region. This was limited to the use of the research library and comparative collections at BFSA. The purpose of this exercise was to place the collection in temporal context and identify the functional category of individual specimens. Flakes were categorized according to size, type, and mineralogy. Ground stone characteristics and morphology were recorded with as much detail as possible. A biface tool, worked bone, and a projectile point were assigned to use categories and the degree of use was determined as appropriate. Once the functional characteristics were determined, interpretation proceeded using most likely function(s) for all collected specimens. The artifact catalogs for the project are provided in summary and in detail following the text.

5.2.2 *Ecofact Analysis*

Ecofacts recovered during testing operations included vertebrate faunal remains and marine shell. This faunal material will be combined with additional material gathered during the proposed salvage, and at that time the total faunal material will be identified to lowest taxonomic category, element, and symmetry by a BFSA faunal specialist using comparative faunal collections. Depending on condition and quality of faunal material, data recorded will include sex, age, degree of epiphyseal fusion in long bones, and modifications to the bones, including carnivore and rodent gnawing, chopping and cutting marks resulting from butchery practices, burning, and fragment size for each element. All data were entered into a database, which facilitated quantitative and statistical analyses. From these raw data, zooarchaeological measures of species composition will be generated using zooarchaeological quantification methods. Bone remains from the initial testing totaled 7.2 grams and the total shell was 0.6 grams.

5.3 Native American Consultation

No archaeological evidence of Native American religious, ritual, or other special activities was found at this location. For this reason, no consultation with the Native American community was sought. Should human remains or any evidence of religious, ritual, or traditional cultural values come to light as a result of further study or any mitigation monitoring of development, consultation with the Native American community will be required.

6.0 REPORT OF FINDINGS

6.1 Field Study of SDI–16,986

During the course of the archaeological study of the Boyer Lot Split Project, one archaeological resource was identified which had not been previously recorded at the local institutions. This prehistoric site is identified as a bedrock milling station with 30 milling features, a lithic scatter, and midden associated with the Luiseño use of this valley in their subsistence strategy. Site SDI–16,986 was recorded with the South Coastal Information Center (Appendix II). During the significance testing of the site, the general boundaries of the surface artifact scatter, the bedrock milling features, and subsurface deposit were noted (Figure 6.0–1). The site covered an area measuring 178 feet (53.4 meters) east to west and 130 feet (39 meters) north to south, encompassing an area of approximately 17,499 square feet (1,626 square meters). The identified extent of the subsurface midden area is approximately 93 feet (28 meters) east to west and 52 feet (15.6 meters) north to south, encompassing an area of approximately 3,326 square feet (309 meters).

The survey did not locate any evidence of historic structures or foundations within the project. The possibility that the property was part of historic land uses could not be substantiated as part of this research effort. No evidence of any historic materials or structural elements 50 years old or older were identified during the survey.

A total of five bedrock milling features among the bedrock outcrops showed evidence of milling surfaces. Of these, a total of 27 slicks and 3 basin/ovals were identified on the five features. No other milling surface forms were located anywhere on the property. Table 6.0–1 provides the measurements and descriptions of the bedrock milling features. Locations of the bedrock milling features are shown in Figures 6.0–3 to 6.0–7.

The surface scatter consisted of only flakes and debitage. The small quantity of surface artifacts discovered is the direct result of the dense ground cover of grasses and weeds. The surface recovery is summarized in Table (6.0–2) and detailed in Table 6.0–3. Locations of surface recovery are shown in Figure 6.0–1.

The potential for subsurface archaeological deposits at SDI–16,986 was investigated by excavating a series of 12 shovel test pits (STPs). The locations of the STPs are shown in Figure 6.0–1. All of the STPs were excavated in decimeter levels to a depth of 30 centimeters or until a culturally sterile soil horizon was encountered. Twelve artifacts, including charcoal and a shell fragment, were recovered from six positive STPs at the site. Recovery of lithic production waste was highest in STPs 1, 3, and 6. Depth of recovery ranged from 10 centimeters in STP 1 and 20 to 50 centimeters in STP 6. Recovery from the STPs is summarized in Table 6.0–4 and is detailed in Table 6.0–5.

Subsurface testing of SDI–16,986 continued with the excavation of a standard unit. The test unit was positioned to sample the area of greatest potential to produce subsurface deposits, as identified by the STP series, proximity to milling and surface scatter. The location of the test unit is

illustrated in Figure 6.0–1. The test unit was excavated in standard decimeter levels to a culturally sterile soil horizon, and all removed soils were sifted through 1/8-inch mesh hardware cloth. Excavations resulted in the recovery of 45 artifacts, including, one biface, one projectile point, one granite mano, one worked bone, 7.2 grams of vertebrate bone, 0.5 grams of marine shell, and 5.2 grams of charcoal. The summary of recovery from the test unit is presented in Table 6.0–6 and detailed in Table 6.0–7. The soil profile from Test Unit 1 was characterized by brown (10YR3/2) sandy, silty loam to a depth of 20 centimeters, overlying a dark brown (10YR2/2) to very dark brown silty, sandy loam to 55 centimeters. The final five centimeters gives way to reddish brown (5YR4/6) to brown sandy silt loam with hard, massive granules becoming approximately 30% gravels. A drawing of the north wall of Test Unit 1 is presented in Figure 6.0–2. The north wall of Test Unit 1 is provided in Plate 6.0–1.

The lithic collection is dominated by fine-grained and medium-grained metavolcanic materials, and quartz. Metavolcanics account for 28.3% (N=19) of all lithic artifacts and quartz/quartsite also accounts for 28.3% (N=19). The next most common lithic material is obsidian, representing 10.4% (N=7) of the assemblage, followed by chert 7.5% (N=5) and granite with 1.5% (N=1). The artifact recovery suggests that the site appears to represent an area where lithic tool maintenance and resource processing occurred. Lithic material distribution is shown in Table 6.0–9.

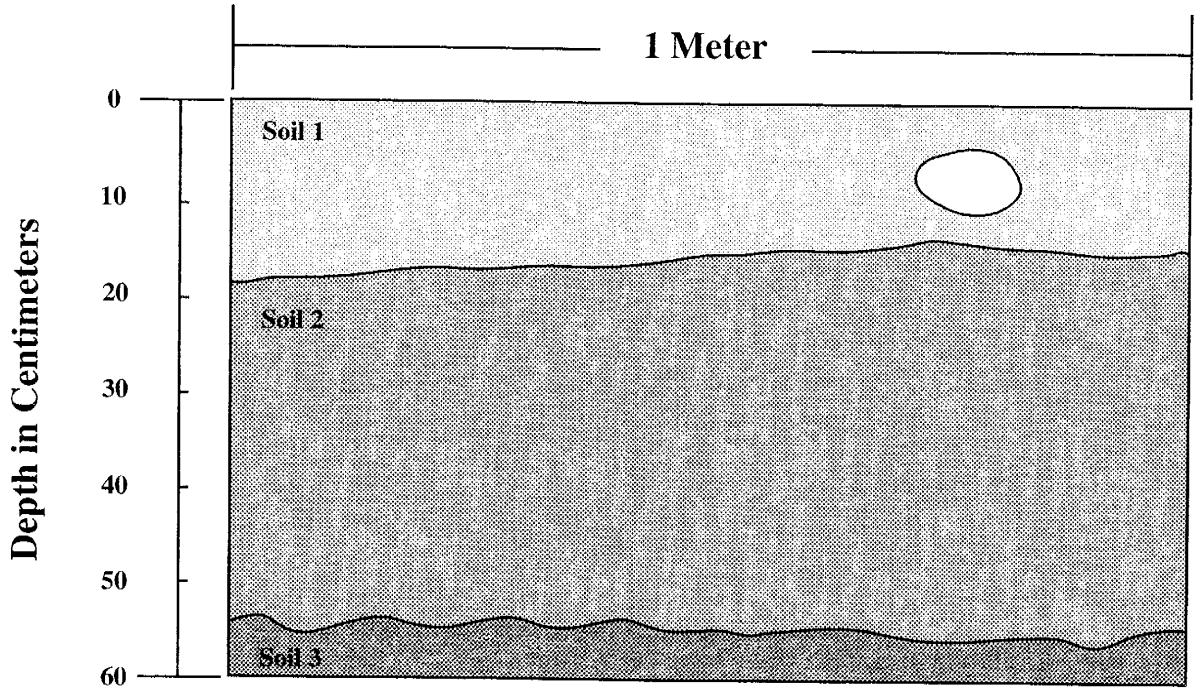
Six artifacts were collected from the surface of the site to total six pieces of lithic production waste. The 12 shovel tests resulted in the recovery of 15 artifacts: 12 pieces of lithic production waste and one each shell, charcoal, and bone. The test unit produced 32 specimens of lithic production waste, one obsidian biface, one projectile point, one granite mano, one worked bone fragment, 7.2 grams of bone, 5.2 grams of charcoal, and 0.5 grams of marine shell. The artifact materials recovered from this site show variability and indicate a prehistoric camp where animal and plant resource procurement and processing, cooking, and lithic tool manufacture and maintenance occurred and were primary site activities. The presence of burnt bone and charcoal suggests a possible cooking fire.

The excavation of the STPs and the test unit identified a moderately deep, dark brown midden soil containing a subsurface deposit of artifacts, charcoal and faunal remains. The observed subsurface deposit measures 430 square meters, although this total area includes approximately 150 square meters of bedrock and approximately 280 square meters of deposit. The maximum depth of the deposit was 60 centimeters. Although STPs 7 and 5 proved positive with one lithic flake recovered in each, the artifacts were found in the top 10 centimeters and because this area had been scraped and severely disturbed in the past, the area that contains STPs 5 and 7 are not included in the identified subsurface deposit. The excavated STPs and test unit represent a total of 0.5% sampling of the site. The presence of artifact variety, charcoal, burnt bone, obsidian, projectile point and other tools indicate that this was a resource extraction site that was likely occupied on a seasonal basis.

Figure 6.0–1

Data Recovery Map

(Deleted from public review; bound separately)



– Rodent Hole

1 Brown (10YR 3/2) sandy silt loam.

2 Dark Brown (10YR 2/2) sand silt loam.

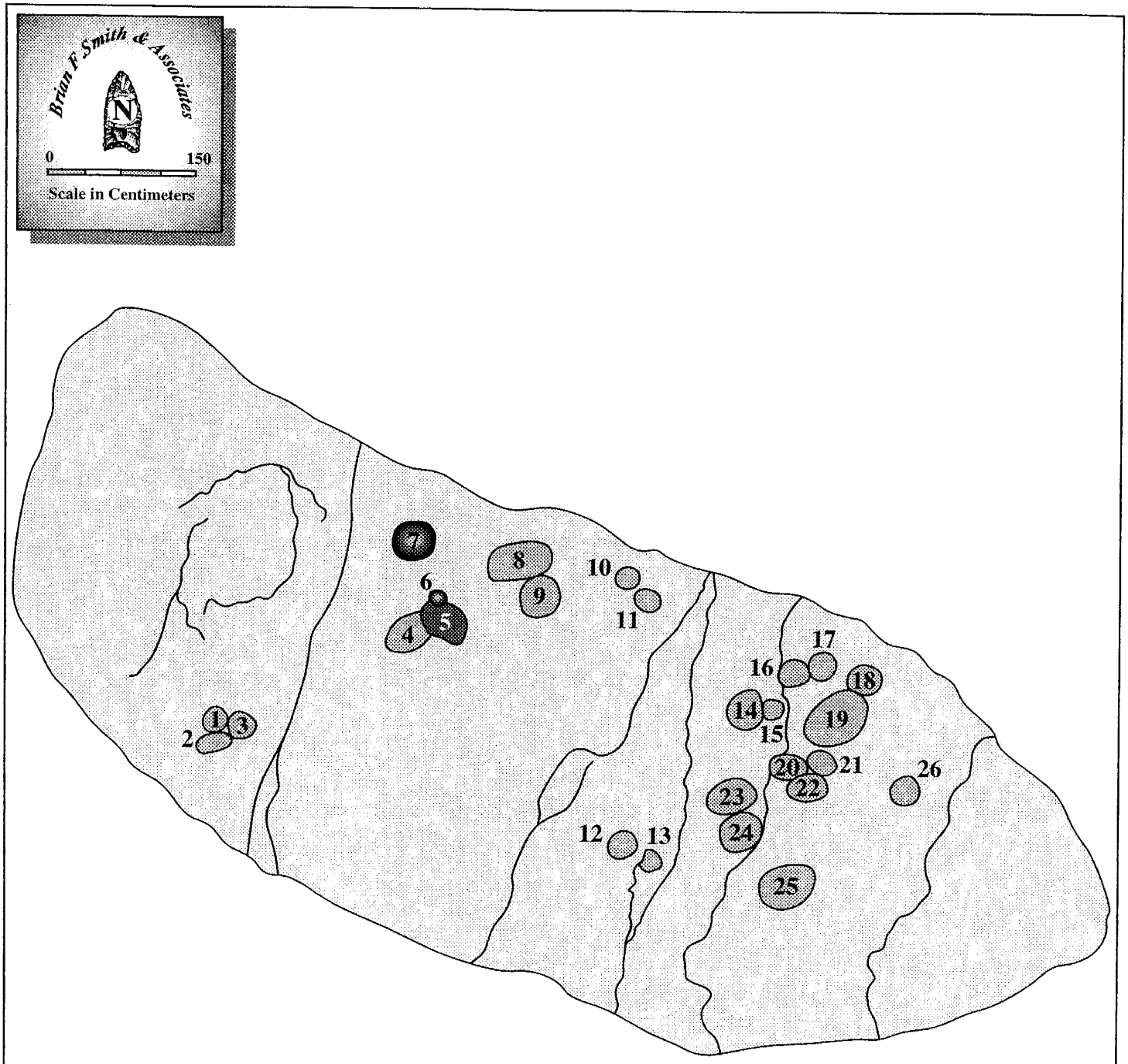
3 Reddish Brown (5YR 4/6) gravel loam.

Profile of Test Unit 1, north wall (0 to 60 centimeters)

Site SDI–16,986

The Boyer Project

Figure 6.0–2

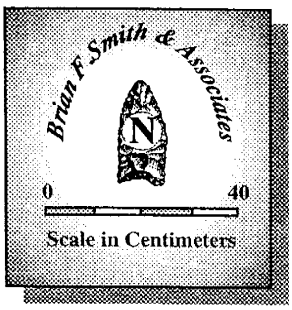


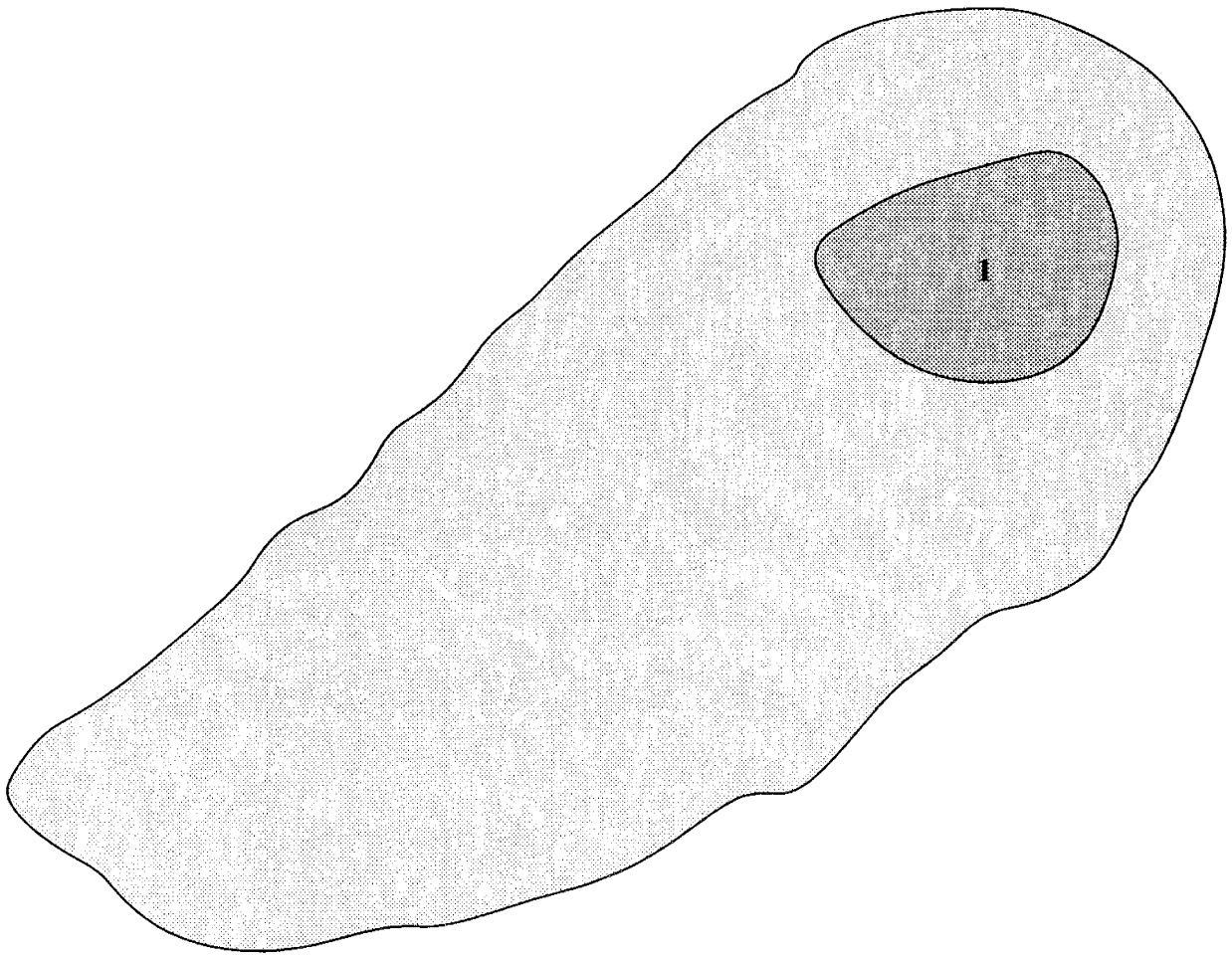
Bedrock Milling Feature A

Site SDI–16,986

The Boyer Project

Figure 6.0–3

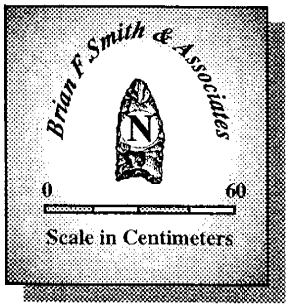


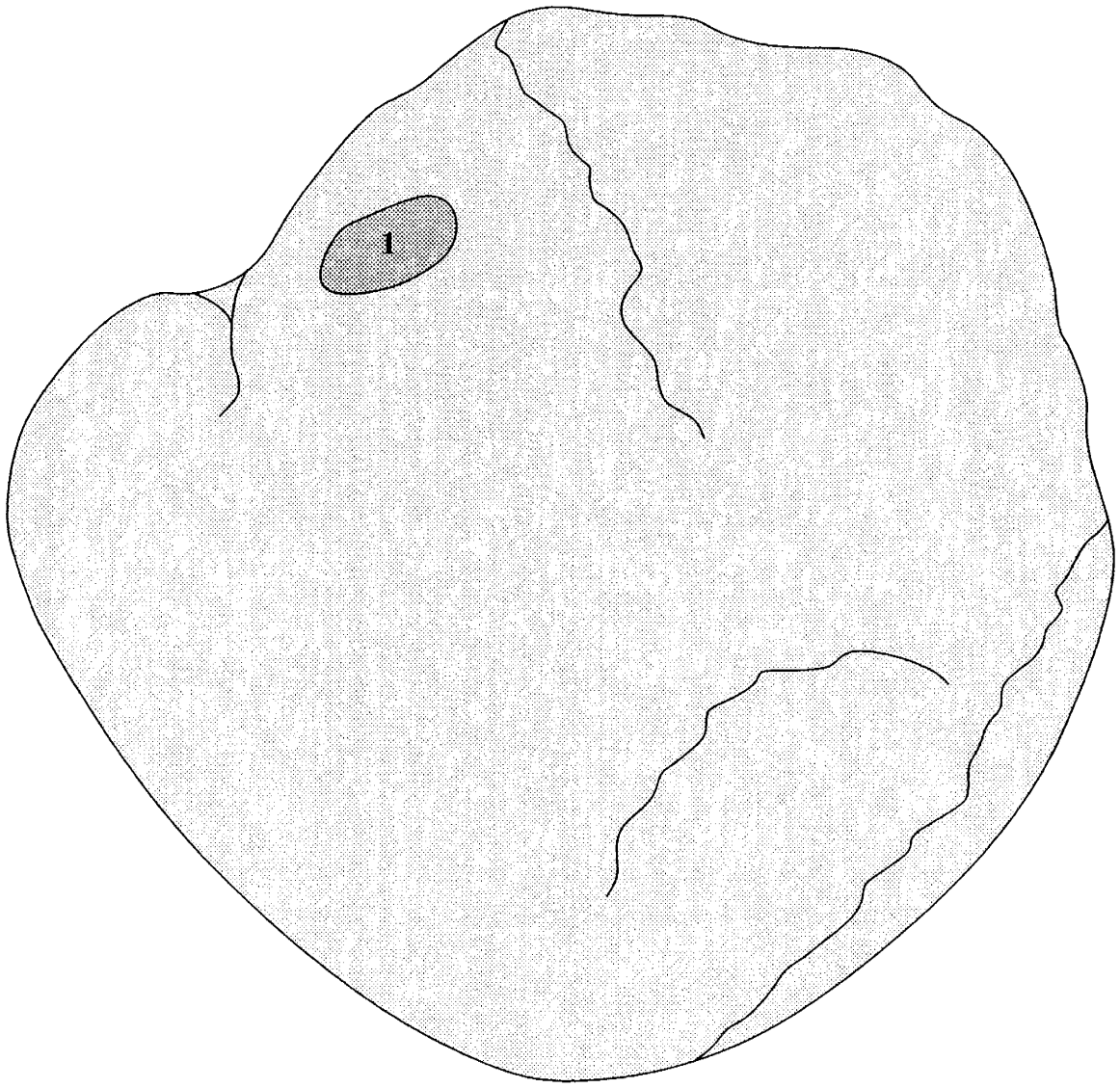


– Slick

Bedrock Milling Feature B
Site SDI–16,986
The Boyer Project

Figure 6.0–4

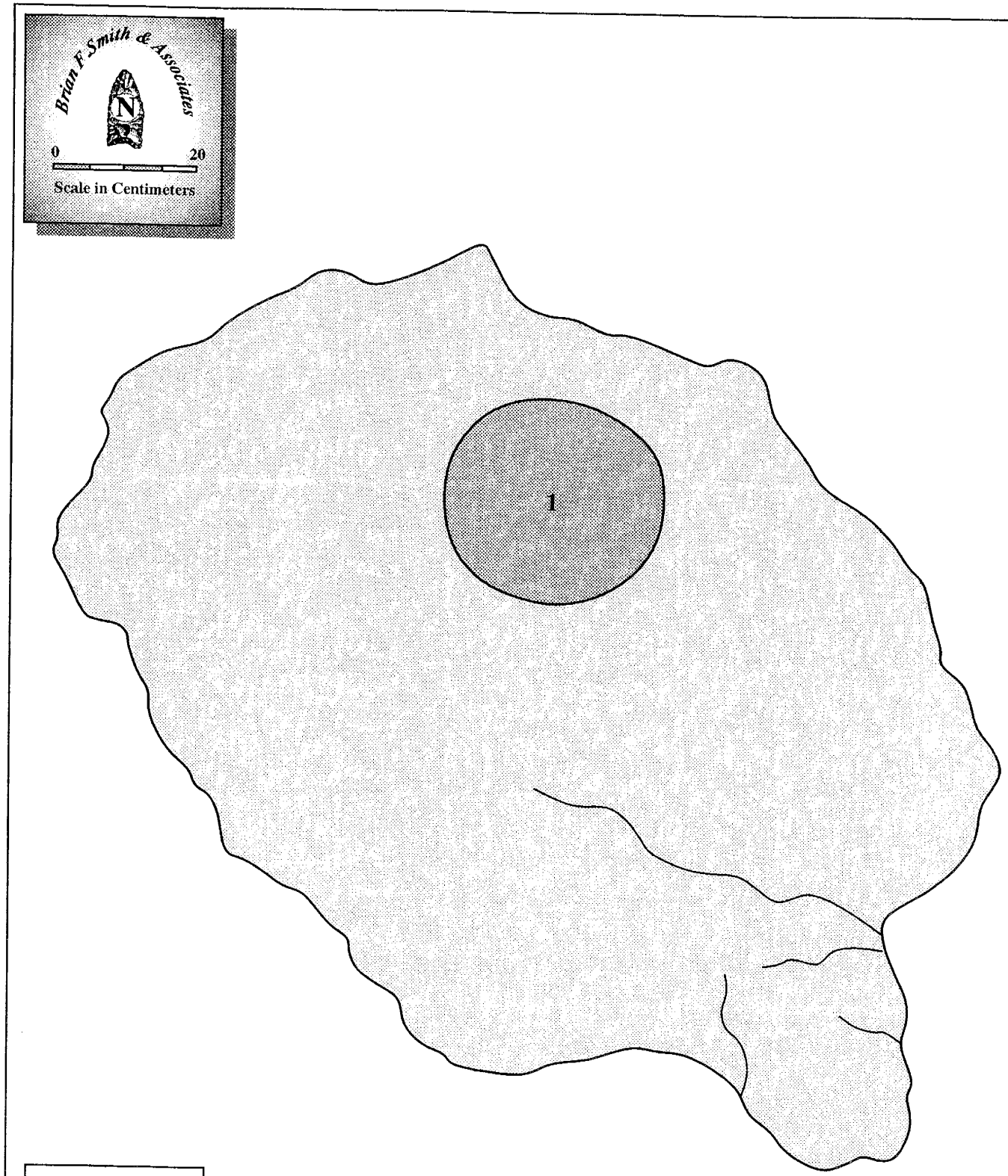




– Slick

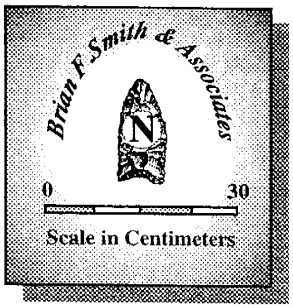
Bedrock Milling Feature C
Site SDI–16,986
The Boyer Project

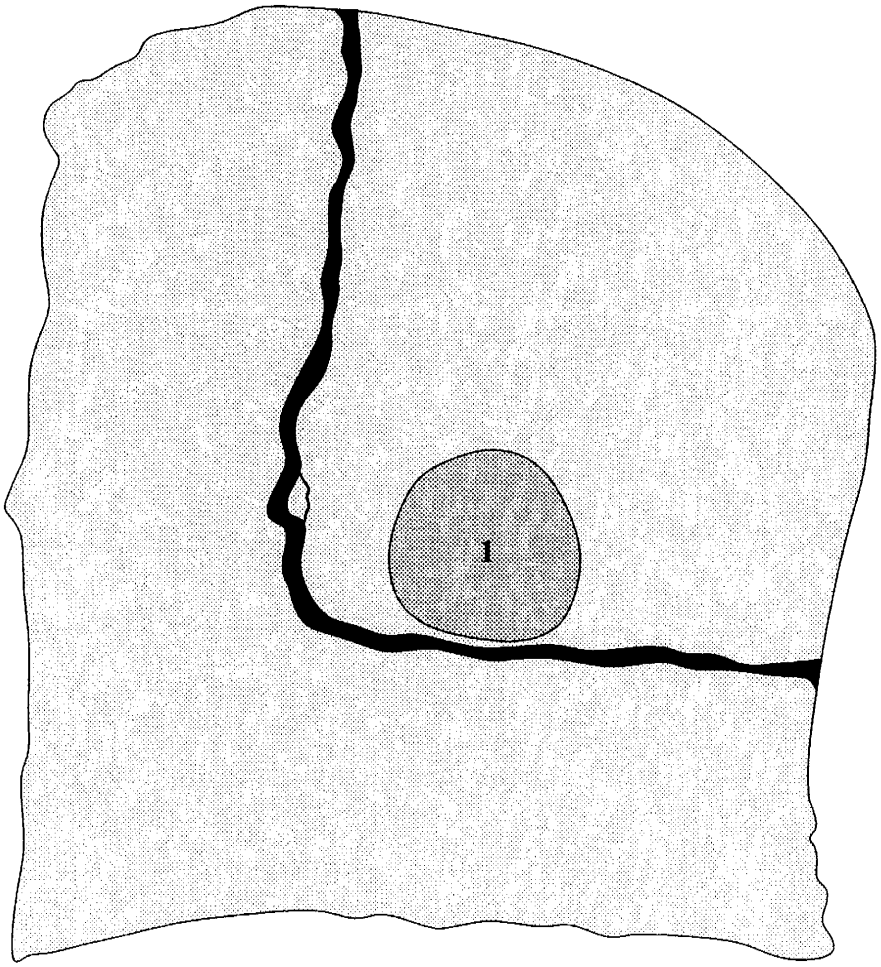
Figure 6.0–5



Bedrock Milling Feature D
Site SDI–16,986
The Boyer Project

Figure 6.0–6





– Slick

Bedrock Milling Feature E
Site SDI–16,986
The Boyer Project

Figure 6.0–7

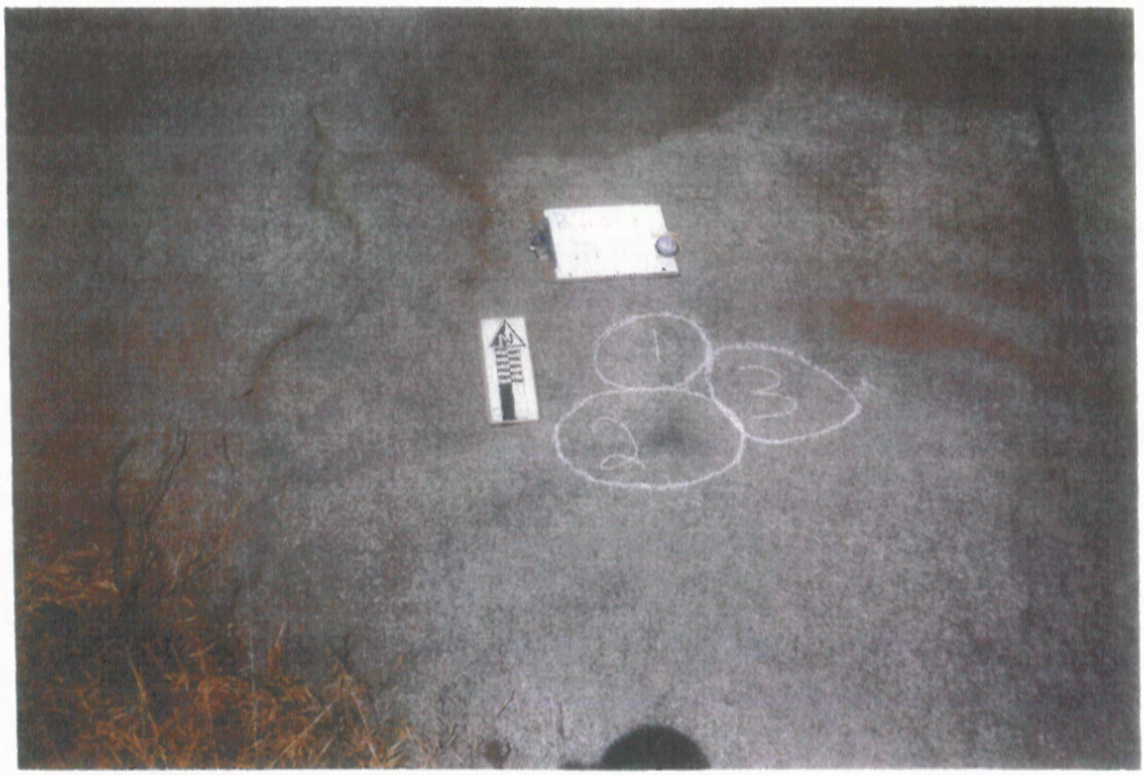
View of the north wall of Test Unit 1, 0 to 60 centimeters, Site SDI–16,986.

Plate 6.0–1

View of Site SDI–16,986 looking west.

View of the thick ground cover at Site SDI–16,986.

Plate 6.0–2



View of Bedrock Milling Feature A.

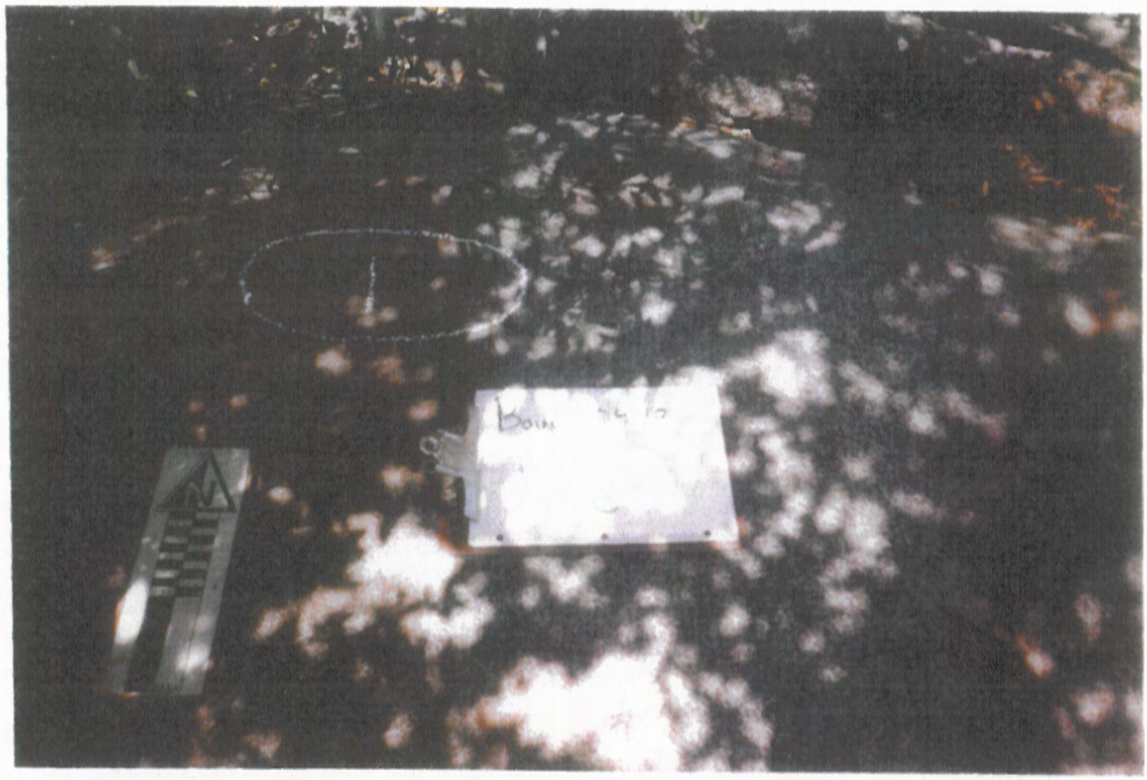
View of Bedrock Milling Feature A.

Plate 6.0–3

View of Bedrock Milling Feature A.

View of Bedrock Milling Feature B.

Plate 6.0–4



View of Bedrock Milling Feature C.

View of Bedrock Milling Feature D.

Plate 6.0–5

View of Bedrock Milling Feature E.

Plate 6.0–6

TABLE 6.0–3

Surface Recovery Data
Site SDI–16,986

Recovery Location	Location from Datum A Azimuth/Range	Quantity/ Weight	Recovery	Material	Cat. No.
1	250°/ 66 Feet	2 Flakes		MGM	1
2	246°/ 54 Feet	4 Flakes		Quartz	2
3	222°/ 47 Feet	1 Flake		PDL Chert	3
		1 Flake		CGM	4
		1 Debitage		Quartz	5
4	237°/ 94 Feet	1 Debitage		Quartz	6

TABLE 6.0–4

Summary of Shovel Test Recovery
Site SDI–16,986

Artifact Category	Total	Percent
Ecofacts:		
Bone	0.1 g.	
Charcoal	0.1 g.	
Marine Shell, *Chione* sp.	0.1 g.	
Lithic Production Waste:		
Debitage	3	23.08
Flakes	10	76.92
Total:	13	100.00

TABLE 6.0–5

Shovel Test Recovery Data
Site SDI–16,986

Shovel Test	Location from Datum A Azimuth/Range	Depth	Quantity/ Weight	Recovery	Material	Cat. No.
1	258°/ 37 Feet	0-10	1	Flake	MGM	7
		10-20	1	Flake	MGM	8
			1	Debitage	Obsidian	9
			0.1 g.	Charcoal	Charcoal	10
			0.1 g.	Bone	Bone	11
2	223°/ 40 Feet	0-10		No Recovery		
		10-20	1	Flake	MGM	12
		20-30		No Recovery		
		30-40		No Recovery		
3	251°/ 73 Feet	0-10	1	Flake	Quartz	13
		10-20	1	Flake	Quartz	14
		20-30	1	Debitage	Quartz	15
		30-40		Marine Shell	*Chione* sp.	16
		40-50		No Recovery		
4	263°/ 102 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		

Shovel Test	Location from Datum A Azimuth/Range	Depth	Quantity/ Weight	Recovery	Material	Cat. No.
5	90°/ 33 Feet	0-10	1	Flake	MGM	17
		10-20		No Recovery		
		20-30		No Recovery		
		30-40		No Recovery		
		40-50		No Recovery		
6	169°/ 44 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30	2	Flakes	MGM	18
			1	Debitage	Quartz	19
		30-40		No Recovery		
		40-50	1	Flake	Chert	20
		50-60		No Recovery		
		60-70		No Recovery		
7	2°/ 36 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30	1	Flake	MGM	21
		30-40		No Recovery		
		40-50		No Recovery		
8	345°/ 75 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		
		30-40		No Recovery		
		40-50		No Recovery		

Shovel Test	Location from Datum A Azimuth/Range	Depth	Quantity/ Weight	Recovery	Material	Cat. No.
9	303°/ 96 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		
10	185°/ 86 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		
		30-40		No Recovery		
11	344°/ 114 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		
12	220°/ 116 Feet	0-10		No Recovery		
		10-20		No Recovery		
		20-30		No Recovery		

TABLE 6.0–6

Summary of Test Unit Recovery
Site SDI–16,986

Artifact Category	0-10	10-20	20-30	30-40	40-50	50-60	Total	Percent
Ecofacts:								
Bone	0.6 g.	0.4 g.	2.0 g.	2.5 g.	1.3 g.	0.4 g.	7.2 g.	
Charcoal	-	0.1 g.	2.1 g.	2.3 g.	-	0.7 g.	5.2 g.	
Marine Shell,								
Chione sp.	-	-	-	0.5 g.	-	-	0.5 g.	
Unidentifiable	0.1 g.	-	-	-	-	-	0.1 g.	
Ground Stone Tools:								
Mano	-	-	1	-	-	-	1	0.72
Lithic Production Waste:								
Debitage	2	3	9	-	5	1	20	14.39
Flakes	24	27	26	23	11	4	115	82.73
Precision Tools:								
Biface	-	1	-	-	-	-	1	0.72
Projectile Point	-	-	-	1	-	-	1	0.72
Non-Lithic Uncommon Items:								
Worked Bone	-	1	-	-	-	-	1	0.72
Total	26	32	36	24	16	5	139	100.00
Percent	18.71	23.02	25.90	17.27	11.51	3.60		100.00

TABLE 6.0–7

Test Unit Recovery Data
Site SDI–16,986

Location	Azimuth/ Range	Depth	Quantity/ Weight	Recovery	Material	Cat. No.
1	258°/ 50 Feet	0-10	1	Debitage	MGM	22
			10	Flakes	MGM	23
			5	Flakes	Obsidian	24
			1	Debitage	Quartz	25
			9	Flakes	Quartz	26
			0.1 g.	Marine Shell	Unidentifiable	27
			0.6 g.	Bone	Bone	28
		10-20	2	Flakes	FGM	29
			5	Flakes	MGM	30
			1	Biface Fragment	Obsidian	31
			1	Flake	Obsidian	32
			3	Debitage	Quartz	33
			19	Flakes	Quartz	34
			0.1 g.	Charcoal	Charcoal	35
			1	Worked Bone Fragment	Bone	36
			0.4 g.	Bone	Bone	37
		20-30	1	Debitage	PDL Chert	38
			1	Flake	Chert	39
			1	Mano, biface, polished, pecked, heavy	Granite	40
			1	Flake	FGM	41
			2	Debitage	MGM	42
			8	Flakes	MGM	43
			1	Debitage	Obsidian	44
			6	Flakes	Obsidian	45
			4	Debitage	Quartz	46
			10	Flakes	Quartz	47
			1	Debitage	Quartzite	48
			2.1 g.	Charcoal	Charcoal	49
			2.0 g.	Bone	Bone	50
		30-40	9	Flakes	MGM	51
			1	Projectile Point Fragment, arrow, side notched, concave base	Quartz	52
			14	Flakes	Quartz	53
			0.5 g.	Marine Shell	*Chione* sp.	54
			2.5 g.	Bone	Bone	55
			2.3 g.	Charcoal	Charcoal	56

Location	Azimuth/ Range	Depth	Quantity/ Weight	Recovery	Material	Cat. No.
		40-50	1 Flake		PDL Chert	57
			8 Flakes		MGM	58
			1 Flake		Obsidian	59
			5 Debitage		Quartz	60
			1 Flake		Quartz	61
			1.3 g. Bone		Bone	62
		50-60	1 Debitage		PDL Chert	63
			2 Flakes		MGM	64
			2 Flakes		Quartz	65
			0.7 g. Charcoal		Charcoal	66
			0.4 g. Bone		Bone	67

TABLE 6.0–8

Summary of Artifact Recovery
Site SDI–16,986

Artifact Category	Surface	Shovel Tests	Test Units	Total	Percent
Ecofacts:					
Bone	-	0.1 g.	7.2 g.	7.3 g.	
Charcoal	-	0.1 g.	5.2 g.	5.3 g.	
Marine Shell, Chione	-	0.1 g.	0.5 g.	0.6 g.	
Unidentifiable	-	-	0.1 g.	0.1 g.	
Ground Stone Tools:					
Mano	-	-	1	1	0.62
Lithic Production Waste:					
Debitage	2	3	20	25	15.43
Flakes	8	10	115	133	82.10
Precision Tools:					
Biface	-	-	1	1	0.62
Projectile Point	-	-	1	1	0.62
Non-Lithic Uncommon Items:					
Worked Bone	-	-	1	1	0.62
Total	10	13	139	162	100.00
Percent	6.17	8.02	85.80		100.00

TABLE 6.0–9

Lithic Material Distribution
Site SDI–16,986

Artifact Category	CCM	Chert	FGM	Granite	MGM	Obsidian	PDL Chert	Quartz	Quartzite	Total	Percent
Ground Stone Tools:											
Mano	-	-	-	1	-	-	-	-	-	1	0.62
Lithic Production Waste:											
Debitage	-	-	-	-	3	2	2	17	1	25	15.53
Flakes	1	2	3	-	51	13	2	61	-	133	82.61
Precision Tools:											
Biface	-	-	-	-	-	1	-	-	-	1	0.62
Projectile Point	-	-	-	-	-	-	-	1	-	1	0.62
Total	1	2	3	1	54	16	4	79	1	161	100.00
Percent	0.62	1.24	1.86	0.62	33.54	9.94	2.48	49.07	0.62		100.00

7.0 DISCUSSION

The archaeological study of the Boyer Lot Split Project consisted of archaeological records searches, an archaeological survey, significance testing of a prehistoric site, and the preparation of this report. Treatment of the prehistoric archaeological site discovered during the course of the survey and of the information and specimens recovered from the site during the testing program was conducted according to procedures included in the County of San Diego's Guidelines. Significance testing was conducted on SDI–16,986 and did not include any investigation of other sites in the area beyond a review of the site records.

The site is one of many Late Prehistoric occupation-processing sites in the area. The artifact collection from SDI–16,986 contains lithic production waste and finished tools, which suggests tool maintenance and tool manufacturing. Dark midden soils and associated charcoal and burnt bone suggests occupation and cooking activities. Other activities linked to the artifact recovery include hunting (point and bone) and food collection and processing (milling tools).

Identification of the age and cultural assignment of the site was based on the state of preservation of bedrock milling surfaces and on the known cultural assignment of the other sites nearby. The presence of milling indicates that milling took place at the site, and probably procurement as well. The evidence for sharpening stone tools is also compelling for extraction in addition to processing of food resources. This location could have been one of the camps in the Luiseño seasonal round as part of their hunter-gatherer subsistence strategy. Furthermore, the projectile point is a firm temporal marker for the Late Prehistoric.

The level of information already obtained from the site indicates that significant research potential remains at the site. The research potential represented by the midden deposit consists of artifacts and ecofacts associated with the long-term use of this resource processing station, which the overall subsistence pattern followed within the Hidden Meadows Valley. The intrusive use of this valley by the Luiseño is manifested by the number of sites identified, including some major occupation sites that have produced human bone (cremations) and trade material. Information from SDI-16,986 will be an important contribution to the development of our understanding of subsistence strategies employed by the Luiseño in this secluded highland valley.

8.0 MANAGEMENT CONSIDERATIONS

8.1 Statement of Effects

The proposed Boyer Lot Split plans to develop three lots totaling approximately three acres. The lots will be developed with associated access road improvements, utilities and landscaping. SDI–16,986 is located within Lot 2 and would be directly impacted by the proposed project. The analysis of the archaeological information recovered during the initial testing program of SDI–16,986 demonstrated that this resource has potential to answer questions related to the prehistory of the area, and therefore, is a culturally significant resource as defined by CEQA. Although the site is evaluated as significant, the site is not RPO–level significant, as it does not contain the abundance of materials and artifact classes typically associated with RPO–level significant sites. The portion of the site with concentrated dark midden soil indicating a subsurface deposit in immediate proximity to the milling feature is considered the significant component of the site. The site has been marginally impacted in modern times by clearing and orchard uses; however, the subsurface deposit appears to be generally below the upper 20 centimeters that was likely disturbed by clearing operations.

8.2 Recommendations

Since the site is an important cultural resource, any impacts to the site resulting from development activities, such as grading or the building of residential units, would be significant. If further development activities were to proceed, adverse impacts to Site SDI–16,986 would have to be mitigated in order to reduce the impacts to level below significant. Mitigation can be achieved through the preservation of the site in an open space easement or by the implementation of a data recovery program, which includes the statistical sampling of the deposit aimed at exhausting the research potential of the site after which the site could be graded and developed. Either of these mitigation alternatives will satisfy the CEQA requirements to reduce potentially significant impacts.

Preservation of cultural resources is typically considered the preferred alternative for mitigation of impacts because such resources are dwindling and are non-renewable elements of North American history. If Site SDI–16,986 is preserved, an open space easement will be required to ensure that the site is permanently protected. The easement will prohibit any grading or landscaping within the site by future residents. A map illustrating the configuration of the easement is provided in Figure 8.0–1. If the site is to be preserved within an open space easement, portions of the road and housepad planned for this portion of the project would need to be redesigned.

If data recovery is selected to accomplish mitigation of impacts, this should be listed as a condition of approval of the project and should be completed prior to the issuance of a grading permit. The scope of the data recovery program would be presented in a research design to be prepared and submitted to the County of San Diego prior to the initiation of any field investigations. The data recovery program will focus upon the excavation of a statistically valid sample of the subsurface deposit. Typically, a sample of two to four percent will satisfy the

research potential of a site with limited research range. Any feature, such as hearths, encountered during the excavations should be thoroughly uncovered and investigated as part of the data recovery effort. In the event that a concentrated deposit of unusually diverse cultural materials is discovered that is dramatically different from the remainder of the site, an additional focused excavation may be required to exhaust the research potential of the discovery. All cultural materials recovered during the data recovery process will require laboratory analysis. Special studies, such as radiocarbon dating or obsidian hydration analysis, may be appropriate if samples are available. A technical report will be prepared to document all field and laboratory results, and to use the data to discuss research questions presented in the research design. Upon acceptance of the data recovery report, or a letter from the consulting archaeologist stating that the field work was completed and grading can proceed while laboratory work and report preparation are completed, the County could permit grading to the proposed project.

The project applicant has determined that due to the constraints of the size of lots and access issues, preservation of SDI–16,986 is not feasible. Therefore, the applicant has selected the option to mitigate impacts to SDI–16,986 through a data recovery program. For this data recovery effort, the sample of deposit would be phased and stratified to maximize the recovery from areas with the highest potential to produce important information. The subsurface deposit at SDI–16,986 encompasses approximately 309 square meters. An initial 2% sample to index the deposit would include five test units (one meter square). The results of this first phase would be reviewed and the information used to stratify the site and delineate an area with measurably greater research potential. For a site of this type, the stratified area of greater importance is typically found to be approximately 10% of the total midden deposit. In the case of SDI–16,986, this would equate to approximately 30 square meters. A 10% sample of this stratified area would be accomplished with the excavation of three test units. Therefore, the total excavated sample needed to achieve the mitigation of impacts would include eight test units. Additional units could be added as needed if features were identified that required further investigation. All materials recovered as part of the data recovery program would be placed in a permanent curation facility such as the San Diego Archaeological Center. The data recovery program is outlined in the following section.

Figure 8.0–1

Proposed Open Space Easement

(Deleted from public review; bound separately)

9.0 DATA RECOVERY PLAN

9.1 Introduction

The following section is a research design for mitigation of the potentially adverse impacts to Site SDI-16,986, a prehistoric seasonal camp that has been determined to be significant under criteria listed in CEQA. The site is considered significant under CEQA Section 15064.5, Criteria D, which is based on its potential to provide important information regarding Late Prehistoric settlement and subsistence in the region.

The purpose of this research design is to present the strategy, methods, and rationale to be employed in the direction of the data recovery program for Site SDI-16,986. The site was determined to be a significant cultural resource based upon surface and subsurface investigations that identified cultural deposits associated with a prehistoric occupation of the area. Through the implementation of a data recovery program, the research potential of the site will be exhausted and the impacts reduced to a level below significant. This research design discusses guidelines by which data pertinent to posed research questions may be extracted from the site prior to the proposed development. The data recovery program will not be conducted until the County approves the research design.

9.2 Research Design

This research design discusses guidelines by which data pertinent to posed research may be extracted from the site, and provides a general theoretical framework to be employed in the process of mitigation. Although impacts and mitigation are restricted to one site, archaeological research must consider a much larger region in order to establish a valid foundation and database for the study of this site. For this research, the study area has been projected as the region characterized by the northern San Diego County inland valleys, where a subsistence pattern was focused within valleys along major drainages that define the area.

The cultural resource, Site SDI-16,986, is a Late Prehistoric Luiseño temporary camp site located in Valley Center that will shed light upon questions regarding subsistence strategies in the inland northern San Diego County area. Site SDI-16,986 is located in close proximity to several other Late Prehistoric camp sites including Site SDI-5190 which consisted of extensive milling stations and associated midden soils. More importantly, the comparison of the data from this site with data from earlier inland Archaic Period sites, and to Late Prehistoric Kumeyaay sites located in the southern portion of San Diego County, could support research related to the analysis of differences between cultural groups that occupied the same area during separate prehistoric time periods, and between different cultural groups who occupied similar environments and adjacent territories during the same time period.

The degree to which Archaic and Late Prehistoric Period cultures represent alternate adaptations to coastal resources has been an issue of much interest and debate in San Diego County

(Laylander 1993). As is true elsewhere in California, an early hunting orientation was replaced by a more diversified, plant-oriented strategy during the Archaic Period, becoming ever more broad-based over time (Moratto 1984). In San Diego County, Archaic Period adaptations include both a marine resource focus (La Jolla Complex), and an inland terrestrial resource focus (Pauma Complex). The Late Prehistoric Period was the scene of an even wider use of resources but was characterized by new strategies, which focused on storable species, particularly acorns (Chartkoff and Chartkoff 1984). This specialization may have been fueled, particularly in northern San Diego County, by the silting of previously resource-rich lagoons circa 3,500 YBP (Warren 1964); while in the southern portion of the county, the formation of San Diego Bay encouraged an even more specialized marine orientation. A subsistence shift may have occurred when the coastal areas north of Mission Bay became less attractive, prompting a switch to inland strategies (Gallegos and Kyle 1988). The inland expression of the Archaic Period, the Pauma Complex, may have also gained importance over time as the coastal environments deteriorated.

The coastal La Jolla Complex adaptation, which emphasized the use of marine over terrestrial resources, and the inland Archaic Period adaptation, which focused on hunting and gathering of terrestrial resources, was "replaced" by the Late Prehistoric Period pattern, in which inland, gathered resources were the primary focus of the subsistence economy. There is general agreement that Late Prehistoric Period characteristics include greater settlement densities and a more specialized terrestrial focus, notably with the use of acorns. This change in adaptive strategies is perhaps most visible in differences between the Late Prehistoric and Archaic Period tool kits and cultural practices. The Late Prehistoric hallmarks include the introduction of small projectile points, exotic lithic materials, especially obsidian from Obsidian Butte; the appearance of pottery; and the practice of cremation of the dead (Christenson 1992). The differences in these adaptive strategies are pronounced when contrasting Archaic and Late Prehistoric Period sites. A mixed hunting/gathering strategy prevailed over both time periods, yet there are enough cumulative differences to make the discrimination between Archaic and Late Prehistoric Period sites and site components a worthy task in order to isolate and characterize subsistence and settlement strategies over time. Site SDI-16,986 and other nearby sites may provide an opportunity to look at the changing use of the same general location spanning the transition between the Archaic and Late Prehistoric time periods.

Likewise, questions regarding differences between Late Prehistoric Luiseño and Kumeyaay cultures as expressed through settlement/subsistence patterns and material culture can also be examined with the current and future studies. These groups, who contemporaneously occupied portions of San Diego County (the Luiseño in the north and the Kumeyaay in the south), are known to have had different origins, as reflected through linguistic relationships; therefore, cultural differences between these groups likely existed, which may be recognizable in the archaeological record. For example, ethnohistoric data suggests that settlement patterns between these groups may have differed. The Luiseño are reported to have settled in sedentary villages, with seasonal forays to

mountain oak groves in autumn, and to coastal areas in late winter. Throughout the remainder of the year, the Luiseño operated from these permanent villages, and food resources were located within a day's travel from the village (Bean and Shipek 1978). The Kumeyaay, in comparison, may have been relatively more mobile than the Luiseño. Luomala (1978) suggests that the Kumeyaay did not occupy permanent villages, but rather occupied numerous temporary campsites during a seasonal round. Kumeyaay bands traveled in a vertical manner throughout their territories during their annual, seasonal round, which coincided with the ripening of resources at different altitudes. As a result, different settlement and land use patterns between these two groups may be visible in the archaeological record; likewise, subsistence patterns may have differed between these groups. Both groups are known to have depended primarily on deer (*Odocoileus hemionus*), and rabbits and hares (*Leporidae*), for meat sources, but differences in the degree of use of these resources may have existed. Also, differences in use of marine resources or other terrestrial resources may have existed between the two groups, which may be visible through analysis of vertebrate faunal materials recovered from archaeological sites. Seasonal markers in faunal assemblages may assist in determining whether sites were occupied throughout the year, as would be expected in the case of the Luiseño, or occupied on a seasonal basis, as would be expected at Kumeyaay camps.

In attempting to understand cultural adaptations across time and space, several research domains must be addressed, including settlement and subsistence, chronology, technology, and trade and external relations. These topics are presented below with individual research questions and data requirements, although all are designed to contribute to the overall understanding of prehistoric subsistence and settlement strategies.

9.2.1 Research Topics

Settlement/Subsistence Patterns

As stated above, the major change during the Archaic to Late Prehistoric Period transition is believed to be in the subsistence and settlement sphere, driven by environmental changes. Various researchers (True and Waugh 1982; Byrd and Serr 1993) have found it useful to employ Binford's (1980) distinction between foragers and collectors to contrast local Archaic and Late Prehistoric Period patterns. The difference between foraging and collecting strategies is a matter of relative mobility and the spatial relationship between consumers and resources, both of which have implications for the resulting archaeological record. The Archaic Period is associated with the foraging strategy, in which residential camps were placed near desired resources and occupied for short periods of time. This focus on high mobility and very local resource procurement and consumption results in quite small, resource-specific locations and toolkits. The Late Prehistoric pattern, in contrast, can be characterized as a collector strategy, in which habitation sites are relatively more sedentary, although seasonal, in nature, and thus are larger and display a greater diversity of tool types. Logistical forays were staged from these areas to seek out a wide variety of resources, which likely resulted in the appearance of many ancillary resource procurement

locations. At the large sedentary camps, faunal resources, in particular, typically exhibit greater taxonomic diversity. Waugh (1986), while noting this correlation, states that it is uncertain whether this diversity is due to growth in population sizes and increased hunting pressure over a small area, or whether sedentism is a response to the depletion or absence of larger animals, thereby necessitating harvest of a broad range of smaller species.

The forager/collector model can also be used to compare settlement and subsistence patterns between the Late Prehistoric Luiseño and Kumeyaay. The collector strategy, again, can be applied to the Luiseño, who occupied permanent villages for the majority of the year and made logistical forays for collection of seasonally-dependent resources. The Kumeyaay, in contrast, followed a pattern that, in relation to the Luiseño settlement pattern, was more of a foraging strategy.

Discriminating between subsistence practices for Archaic and Late Prehistoric Period populations, and between Luiseño and Kumeyaay ethnic groups, is central to the issue of adaptive change over time and space. It will be necessary, therefore, to document the range of resources taken through the collection and analysis of ecofactual data.

Research Questions:

- Do the faunal remains from the Luiseño deposit at Site SDI-16,986 reflect a greater diversity of animals taken, in keeping with the predicted broader harvest of resources compared to Archaic Period sites? Do the faunal remains from Luiseño sites reflect a higher diversity of animals taken as predicted by their relative sedentism compared to the Kumeyaay?

  Data needs — Understanding subsistence strategy can be accomplished by reconstructing the activities conducted at the site, as well as the paleoenvironment for the period in question, including the recovery of faunal remains. Faunal material collected from Site SDI-16,986 would be compared to collections that exist at BFSA and the San Diego Archaeological Center. Comparisons would include the types and variety of faunal representatives in the various Late Prehistoric collections. Faunal analyses will be conducted by a qualified professional in order to identify the resources utilized, patterns in the processing techniques used, and task-specific activity areas. The use of 1/8-inch screen will allow direct comparisons to be made with other investigations in the region.

- How important were coastal resources (bony fish, molluscs) to inland Archaic Period sites in relation to inland Late Prehistoric Period sites? How important were coastal resources at inland Luiseño sites in relation to inland Kumeyaay sites? What can be inferred about how these resources were transported to the site?

  Data needs — Evidence of the import of coastal food resources has been documented at

many inland sites in the form of shell, fish bone, and marine mammal bone. In order to study this research issue from the perspective of the Late Prehistoric Luiseño, archaeological investigation of Site SDI-16,986 must focus on the recovery of ecofacts originating on the coast. Analysis of stratigraphic patterns of coastal ecofactual remains would demonstrate either continuity or change over time between cultural groups. The relative or absolute dating of specific occupation levels containing coastal remains would also help to provide comparisons between cultural groups. The identification of hearth features, localized areas of resource processing, and protein residues on lithic artifacts may indicate whether and in what manner resources were processed on site.

- Do Luiseño sites reflect a more sedentary lifestyle than Kumeyaay sites, as expressed in the artifact and ecofact assemblages? Do Luiseño sites exhibit greater development of midden deposits, a greater diversity of artifact types, and a greater range of seasonal resources than Kumeyaay sites?

  Data needs — Various elements in the archaeological record have been used as arguments for greater sedenstim; these include greater depth and extent of midden deposits, an increase in the diversity of lithic and bone tools, the presence of non-utilitarian artifacts such as beads and decorative items, the presence of hearth features. The presence of faunal remains that exhibit year-round resource acquisition can also be evidence of increased sedentism. The study of Site SDI-16,986 will focus on specific identification of midden boundaries and feature identification through excavated units, as well as the identification and analysis of specific artifact types including both lithic and non-lithic remains. The recovery and analysis of faunal materials from the excavated units, specifically those animals that are sensitive to seasonal changes, will help to identify seasonal trends in resource procurement. Pollen analysis of specific deposits such as features could also contribute to the understanding of the time of year that the site was occupied. Results from these analyses will be compared with investigations at Late Prehistoric Kumeyaay sites.

- How do settlement data from Site SDI-16,986 compare to other Luiseño sites and to Kumeyaay sites? Are there differences in settlement or subsistence patterns due to seasonality between the Luiseño and Kumeyaay?

  Data needs — Again, this research question will require the comparison of results from the investigation of Site SDI-16,986 to other Luiseño sites, as well as to Late Prehistoric Kumeyaay data sets that are available at BFSA and at the San Diego Archaeological Society. Areas of comparison would include artifact diversity, evidence of sedentism, and faunal assemblage diversity and seasonality. Lithic and non-lithic artifact distributions will

be examined on both a vertical and horizontal scale in order to identify specific use areas, evidence of which has been identified at several Kumeyaay sites in San Diego County (Raven-Jennings and Smith 1999).

Chronology

Chronology is the foundation of most archaeological research; in the current case, where contrasts within and between time periods are sought, it is imperative to maximize the number of solidly dated associations. Culture-sensitive materials include pottery and projectile points, while relative and absolute dating techniques can be employed on obsidian, shell, charcoal, and soil samples. Based upon the recovery of a time-sensitive quartz arrow point at Site SDI-16,986, it appears that temporal controls will not be difficult to establish. The exact span of time the site was occupied will be an important research task.

Research Questions:

- When do the Luiseño and La Jollan occupations of inland San Diego County occur? How spatially separate are they? Is there a hiatus between the La Jolla and Luiseño habitation of these sites?

  Data needs — The placement of sites within a temporal chronology is the foundation of most archaeological research. In the current case, in which contrasts between cultures are sought, it is imperative to maximize the number of solidly-dated associations. Culture-sensitive materials include projectile points, while relative and absolute dating techniques can be employed on obsidian, charcoal, and soil samples. At the very least, radiocarbon dating of bulk soil samples would provide valuable information regarding the time of occupation and would help to place the site in its regional context. Intersite comparisons within the area will help to more firmly place general lithic assemblages within the local chronology.

- How does the timing of the occupation of inland sites correspond to environmental changes that affected cultural processes?

  Data needs — Inland sites, such as SDI-16,986, and their associated artifact assemblages will need to be placed within a temporal chronology by utilizing the radiocarbon dating of bulk soil samples to firmly establish the time of occupation. Once the sites are placed in a regional context, the dates of occupation can be compared to known periods of environmental changes. One of the major known environmental events to affect San Diego prehistory was the silting up of the lagoons and estuaries during the mid-late Holocene. This event had a negative effect on shellfish populations and the consequences of the depletions of coastal resources had far-reaching implications for subsistence and settlement

patterns during the period between 3,550 and 1,500 YBP. Research suggests that during this period, terrestrial habitats became important to the subsistence and settlement patterns of local Archaic peoples. Examination of the variety and proportions of faunal remains as opposed to shellfish remains of different sites from this time period may help to substantiate such research. The dates provided by radiocarbon dating and other dating techniques for inland sites can be compared to dates of past environmental changes, such as the silting of the lagoons, to investigate whether or not the timing of occupation of the sites corresponds with specific environmental events.

Technology

To expand the interpretive value of the non-diagnostic artifacts recovered, characteristic tools kits of the Late Prehistoric and inland Archaic Period groups should be identified in datable contexts. If diagnostic tool kits could be identified, these could be used to assist in the interpretation of the cultural affiliation of other sites lacking individually diagnostic tools or absolute dates.

Cobble and domed scrapers, scraper planes, and cobble tools in general (Kowta 1969; Kaldenberg 1982) with associated cortical debitage (Rosen 1989), marine mollusc shell, particularly *Pecten* and *Chione* sp., and heavier tools are thought to be associated with the Archaic Period. At the 4S Ranch, approximately 15 miles south of Site SDI-16,986, several archaic sites were studied that contained shell deposits, although not in the same quantities typical of sites closer to the coast, but still classic in their use of local cobble or quarried cores to make unifacial tools and bifacial knives (Smith in prep). The Archaic Period sites at 4S Ranch have been dated from 8,000 to 5,000 YBP, and were focused on resources on mesa tops, reflective of established subsistence strategies. Further inland, at Site SDI-4608C, an Archaic Period site with components ranging from 5,000 to 2,000 YBP, a more terrestrial focus is observed, with very little marine mollusc shell recovered from the site (Raven-Jennings and Smith 1999). Use of locally available resources, including metavolcanic rock and quartzite, was apparent at this site, while utilized flakes and scrapers dominated the tool type distribution.

The ground stone tool kit is thought by some to be temporally sensitive. Portable metates appear to be associated with Archaic Period sites (Byrd and Serr 1993), while bedrock mortars and pestles are considered hallmarks of the Late Prehistoric Period (Carrico and Taylor 1983; Byrd and Serr 1993). Bedrock milling stations are considered by some to be diagnostic of Late Prehistoric use (Forstadt *et al.* 1992; Byrd and Serr 1993), although some believe that they may be present in Late Archaic Period sites as well (WESTEC 1981). Byrd and Serr (1993) found bedrock milling at one of their Archaic Period sites and in all but one of their Late Prehistoric Period sites, leading one to believe that perhaps the frequency of these features is more at issue.

Without empirical evidence, it is difficult to ascertain the function of even the more intuitively obvious tool types; as Carrico and Kyle (1987) point out, the presence of knives may

indicate not only hunting, but any activities which include scraping and cutting, such as the processing of wood, shell, and hide. Byrd and Serr's (1993) residue analysis was a case in point: hammerstones showed residues from rabbit and deer, one Desert Side-Notched projectile point contained pronghorn blood, another had trout (or salmon), while an Elko point had rabbit blood residue. All of this is further confounded by the fact that assemblage-oriented analysis to make cultural discriminations is often derailed by seasonal or special activity tool kits (Binford 1980).

What is needed, in short, is more information on both the function and the temporal association of tools in order to get a clearer idea of Archaic and Late Prehistoric Period activities. Sampling at tool-rich sites with long occupational histories is the ideal arena in which to perform these tasks.

Research Questions:

- Are the previously accepted culturally diagnostic artifact types (including marine shell, portable groundstone tools, and cobble-based tools for La Jolla; ceramic, small projectile points, and bedrock milling for Late Prehistoric) accurate cultural markers for this site?

  Data needs — These research questions will require the placement of the occupation of Site SDI-16,986 within a temporal chronology as discussed under the previous research issue (chronology). Whether the temporal placement is conducted using absolute or relative dating techniques, the results can then be compared to the proportion of recovered scraping tools. In order that effective comparisons can be made between other Archaic and Late Prehistoric assemblages, it will be necessary to establish a clear definition of the scraper-type tools to be included in the study; this is particularly necessary when comparisons are made with prehistoric assemblages recovered by other researchers. Correlation of the percentage of scraping tools with the chronological placement of sites could increase our understanding of a culturally diagnostic tool kit, which in turn could be a valuable diagnostic tool when dating methods are not available.

- Are fine-grained materials found only in Late Prehistoric sites?

  Data needs — As with the previous research question, this research question will first require the placement of the occupation of sites within a temporal chronology. After sites have been assigned to specific time periods, the lithic materials recovered from sites of different time periods will need to be analyzed to investigate the presence or absence of fine-grained materials. If dating techniques demonstrate that occupation of the site spans multiple cultural and/or temporal horizons, analysis of stratigraphic patters of fine-grained material recovery would demonstrate either continuity or change over time between culture groups.

- Are the average weights of precision tools significantly higher for Archaic Period sites than for Late Prehistoric Period sites?

  Data needs — Archaic Period sites are generally associated with heavier tools than Late Prehistoric sites. The weights of all precision tools recovered from this Late Prehistoric site will need to be averaged and compared to other Late Prehistoric and Archaic sites. The average weights for precision tools from sites of different time periods can then be compared to investigate the significance of precision tool weight as a time maker.

Exchange and Intergroup Relations

Different interpretations are placed upon the effects of interactions with people or ideas from the desert region to the east; Bull (1977, 1983) and Christenson (1992) use linguistic and ethnographic evidence to suggest the repopulation of the San Diego area by Yuman-speaking peoples from the west and Shoshonean-speaking peoples from the north with new lifeways approximately 1,000 YBP, as it appears that an exodus from the coastal areas by the previous inhabitants may have already occurred. These peoples may have moved unchallenged into the new territory, as it appears that an exodus from the coastal areas by the previous inhabitants may have already occurred. This view is given additional support by the paucity of radiocarbon dates from 1300 BC to AD 200 in many of the coastal areas. Some researchers (Rogers 1945, Carrico and Taylor 1983) probably wisely skirt the issue by citing desert peoples or influences at work to account for the appearance of elements foreign to the Archaic Period like pottery and exotic lithics, supported by ethnographic accounts of trade (Luomala 1978).

The use of non-local lithic materials may be helpful in illuminating the timing and direction of interactions. Obsidian sourcing appears to be very informative as to the period of occupation. Obsidian from Archaic Period sites is usually sourced to Coso or Casa Diablo, while the typical Late Prehistoric Period obsidian source is Obsidian Butte, a source that became available after 1640 AD as Lake Cahuilla was desiccated (Kaldenberg 1982).

The use of fine-grained materials appears to increase in the Late Prehistoric Period (True 1966; Cardenas and Van Wormer 1984; Byrd and Serr 1993). Chert, chalcedony, and jasper were once thought to indicate trade ties to the eastern desert, but recent studies by Pigniolo (1992) have identified a number of more local sources for various cryptocrystalline materials. A closer look at local sources may be in order before hypothesizing long-distance trade relations on the basis of the presence of these materials (Laylander 1993). Furthermore, the time period for these materials, previously attributed to the Late Prehistoric because of the eastern contacts known during that period, might become an open question. For example, Pigniolo's (1992) study of the Piedra de Lumbre chert source indicated high rates of production and trade of this material in the early Archaic as well as the Late Prehistoric Period.

Some indirect evidence might shed light on the origin of these resources. Robbins-Wade

(1990) proposed that exotic lithic materials should be distributed differently than local materials in that they would be found in base camps, but not in field camps. An identification of the distribution of local versus non-local cryptocrystalline materials by site type in Luiseño territory may reveal important information regarding the distribution of these materials among different site types. Furthermore, if some of these "exotic" materials are concluded to be available locally, the identification of these quarries would have implications for seasonal forays, since often procurement of such sources are "embedded" in other resource-procurement travels (Binford and O'Connell 1985).

Research Questions:

- Does the occurrence of fine-grained materials vary between Late Prehistoric Period and Archaic Period sites?

  Data needs — As discussed in the previous section, all lithic artifacts will be subjected to analysis including the identification of material types. Each material type represented in the collection of recovered artifacts will be quantified. Once Site SDI-16,986 is assigned to a specific time period, the totals for fine-grained and exotic materials recovered can be compared with totals from other known Late Prehistoric and Archaic sites, to calculate the statistical degree of use of these materials from each period. As part of the lithic assemblage analysis, it will be necessary to attempt to identify the sources of obsidian, chalcedony, and other fine-grained exotic materials recovered through macroscopic observation and, where possible, through X-ray florescence trace element analysis. Once the sources for exotic materials recovered is known, amounts of material from specific sources for each site can be compared to other sites from different time periods to lead to conclusions about which sources were most common during specific time periods. If dating techniques demonstrate that occupation of the site spans multiple cultural and/or temporal horizons, analysis of stratigraphic patters of fine-grained material recovery would demonstrate either continuity or change over time between culture groups.

- What types of tools are made from fine-grained materials, and does this selection process appear to change between the Late Prehistoric and Archaic periods?

  Data needs — This research question will first require that the lithic tools recovered from Site SDI-16,986 be subjected to thorough analysis as discussed under the previous research issue (technology). Tool analysis will begin with the identification of the tool and material types; critical measurements and weights will be taken of every tool recovered. As discussed in the previous section, a selection of tools types will be submitted for specialist studies, including phytolith, pollen, and starch analyses and protein residue. These analyses

will not only provide direct evidence for dietary subsistence, but will also provide information regarding the use of particular tool and material types and may identify trends or differences in tool and lithic material utilization over time. Fine-grained tools assemblages from particular cultural horizons can be compared to other assemblages to determine whether the selection of specific materials for certain tool types changes through time. Similarly, fine-grained tool assemblages from particular ethnic groups can be compared to assemblages of other groups from the same time period examine contemporary local and regional similarities and differences.

- Are there differences in degree of use of exotic materials, and sources for exotic materials, between the Luiseño and Kumeyaay?

Data needs — As discussed above, all lithic artifacts will be subjected to analysis including the identification of material types. Each material type represented in the collection of recovered artifacts will be quantified. The totals for exotic materials recovered from Site SDI-16,986 can be compared with totals from other Luiseño sites as well as with Kumeyaay sites in southern San Diego County, to calculate the statistical degree of use of these materials by each group. As part of the lithic assemblage analysis, it will be necessary to attempt to identify the sources of exotic materials as discussed above. Once the sources for exotic materials recovered is known, amounts of material from specific sources for each site can be compared to Kumeyaay sites to lead to conclusions about which sources were favored by or more easily acquired by different ethnic groups during the same time period.

9.2.2 Data Recovery Plan

In accordance with CEQA, Site SDI-16,986, has been evaluated as a significant cultural resource and will be adversely impacted by the proposed project; therefore, the project will require measures to mitigate potential impacts to the significant site. Because of constraints such as lot size and access issues, the applicant has decided to select data recovery as the mitigation alternative, and a program of excavation and recovery will be used to reduce the affects of the proposed development. This data recovery program must include adequate subsurface samples of the significant deposit. Special studies, including radiocarbon dating, faunal analysis, lithic material sourcing, and lithic tool analysis, should be conducted to exhaust the research potential of the site. The recovered materials should be treated according to standard archaeological procedures — each specimen should be identified, cataloged, and analyzed, and a technical report of findings should be prepared. This report should be prepared in accordance with professional archaeological standards.

A plan for a program to carry out the necessary data recovery procedures is presented below. The program is consistent with the policies and guidelines of the County and the Advisory Council on Historic Preservations' *Ideal Data Recovery Program.* In order to mitigate potential

impacts to the site in accordance with CEQA, a sample of the site area to be impacted will be required. The governing parameters to be used to determine the level of the sampling will be the redundancy of the recovered artifacts and the research potential of the site.

Field Methodology

The mitigation of the impacts to Site SDI-16,986 associated with the development of the property will include a data recovery program aimed at the recovery of information from the site until the recovery effort becomes redundant, and the potential to discover new or unique information is low. The County of San Diego does not require a specific level of excavation for data recovery programs. In most cases, the level of sampling is dictated by the research design and the information potential of the site. Data recovery is commonly discussed in terms of sampling percentages, referring to the percent of the area of the significant subsurface deposit which will be excavated. The proposed sampling size for the mitigation of impacts at this site will range between two and five percent of the deposit, depending upon the recovery from the excavations. The data recovery program at Site SDI-16,986 will utilize a stratified sampling approach to define areas of greatest research potential, coupled with an intuitive sampling procedure to focus on those areas with the most meaningful research value. The two phases of the sampling procedure to be used at the site included in the program are described below.

Phase 1 The first phase of excavation will involve an initial index of the deposit consisting of a 2% sample of the subsurface deposit identified during the testing of the site. Discounting the marginal areas where only one or two flakes were recovered from the shovel tests, the area of greatest importance appears to be encompassing an area of approximately 309 square meters. Five test units (one meter square) will be used to conduct the sampling; these will be situated based on a grid system that encompasses the subsurface deposit. The results of this first phase of excavation will be used to examine the research potential of the site and determine the focus of the second phase of excavation. A letter report that will detail the results of the Phase 1 testing and present the recommendations for further study will be prepared and submitted to the County of San Diego.

Phase 2 The second phase of excavation will consist of a more intensive sampling of the area of greatest research potential as identified in Phase 1. For a site of this type, the stratified area of greater importance is typically found to be approximately 10% of the total midden deposit, equating to approximately 30 square meters for Site SDI-16,986. This second phase will consist of a 10% sample of the stratified area of three additional test units to be placed intuitively to focus upon the recovery of samples from the areas of highest artifact and feature concentration. Additional units could be added as needed if

features were identified that required further investigation. The final number of test units to be included in this second phase will be determined by the consulting archaeologist and based upon the recovery sequence from the test units.

The data recovery program will focus upon the excavation of test units measuring one meter square. The units will be excavated in controlled, ten-centimeter levels. The screen size to be used during the test unit excavations will be 1/8-inch mesh. All artifacts recovered during the screening process will be properly labeled with provenience information in the field and subsequently subjected to standard laboratory procedures of washing (if appropriate) and cataloging. The excavation of the units will be documented with field notes, illustrations, and photographs.

Any features which are discovered will be exposed through careful hand-excavation. Additional test units may be needed to fully expose the features, which will then be recorded by sketching and photography. Any datable materials found in association with discovered features will be collected for radiocarbon dating. If obvious datable samples cannot be found at the site during the data recovery program, then bulk soil samples may be collected and processed in an attempt to date the deposits. All artifacts encountered on the surface of the site will be mapped and collected. Throughout the field operations, standard archaeological procedures will be implemented. All test units and features will be mapped utilizing an established datum.

Laboratory Methodology

The analysis conducted on artifacts recovered during the mitigation of a portion of Site SDI-16,986 will be guided by the research questions proposed in the research design. Every effort will be made to compile the maximum amount of information regarding the artifacts in order to identify intrasite patterns in lithic and non-lithic cultural material distributions.

All of the materials recovered from the field excavations will be subjected to standard laboratory analysis. Artifacts will be washed, if necessary, to permit proper identification. The artifacts will be sorted and cataloged, including counts, materials, condition, weight, provenience, and unique artifact identification numbers.

The lithic artifacts recovered from the project will be subjected to analysis which will include recordation of critical measurements and weight, and inspection for evidence of use-wear, retouch, patination, or stains. The recovered flakes will be subjected to an analysis of attributes such as size, condition, type, termination, and material.

Non-lithic materials, such as ecofacts (shell, bone, wood), shall be subjected to specialized analyses. The bone material will be weighed and subsequently analyzed. Other specialized studies will be conducted if the appropriate materials are encountered during the data recovery program. These specialized studies are briefly described below:

(a) *Shell Analysis*

A small amount of marine shell was recovered during the testing program. The potential, therefore, exists for an increased percentage of the marine shell with a larger sample size, and thus may be important in determining the particular resources and locations that were being exploited by the inhabitants of CA-SDI-16,986. The shell recovered from CA-SDI-16,986 will be recorded by weight and identified to the lowest taxonomic category. If the recovery of the shell is unexpectedly large, species identification may be conducted as a sampling of the collection; non-sampled, unidentified marine shell would be weighed and cataloged by provenience. The exact size of the sample will depend on the amount of marine shell recovered. Marine shell will be identified by in-house laboratory technicians under the supervision of Johnna L. Buysse, M.S.

(b) *Faunal Analysis*

Small quantities of prehistoric food bone were also recovered during the testing phase of the site and are expected during the data recovery program. Faunal material will be washed, dried, and identified to lowest taxonomic category, element, and symmetry. Data recorded will include sex, age, degree of epiphyseal fusion in long bones, and modification to the bones, such as carnivore and rodent gnawing, chopping and cutting marks resulting from butchery practices, burning, and fragment size for each element. Bones will be weighed to the nearest 0.1 gram. Degree of fusion of the long bone epiphyses will allow for distinction between juveniles and adult individuals. All data will be entered into a database that will facilitate quantitative and statistical analyses. From these raw data, measures of species composition will be generated using zooarchaeological quantification methods. Due to the small quantity of bone recovered during the testing phase, it is probable that all bone from the site will be analyzed. Faunal material will be analyzed in-house by Shannon Gilbert, M.S., faunal specialist, using comparative faunal collections.

(c) *Radiocarbon Dating*

This dating technique will be attempted whenever possible. The radiocarbon dating will be useful in conjunction with the stratigraphic recovery of cultural materials to establish the chronology of the site. Therefore, the collection of samples for dating should be based on the presence of diagnostic artifacts, features, or geological strata delineations. The desired material for radiocarbon dating is that of charcoal, a material that was not recovered during the testing phase. Should the possibility arise that insufficient charcoal is recovered, bulk soil samples will be collected from features and column samples for dating. Shell samples will not be submitted for dating, due to the tendency for calcium carbonate materials to result in earlier dates than charcoal or soil from the same deposit (Dr. Murray Tamers, personal communication).

(d) *Blood Residue and Pollen Studies*

Organic residue on lithic artifacts may be useful in the determination of the species of animals and plants represented by the residue. However, the use of such studies is necessarily dependent upon the identification of residues on artifacts — the potential presence of a testable residue must be made prior to washing, or the residue samples will be lost. Therefore, a selection of lithic precision and ground stone tools found *in situ* during excavation will be bagged separately and returned to the laboratory for possible blood residue and pollen analysis. A control sample of soil from the area adjacent to the artifact will also be collected. All material for blood residue and pollen analyses will be submitted to Paleo Research Institute in Golden, Colorado

(e) *Obsidian Hydration and Sourcing*

Any recovered obsidian artifacts will be submitted to a specialist to determine the source of the lithic material. The obsidian shall also be analyzed to produce hydration readings that may then be used to provide relative dates for the use of the artifacts.

9.2.3 Report Preparation and Curation

Prior to issuance of a grading permit, a final data recovery report must be approved by the Planning Director. The goal of the report will be to present the results of the data gathered and analyzed during the mitigation of Site SDI-16,986. The report will include the following information:

- Discussion of the project area history.
- Background information concerning the environmental and cultural setting.
- Research objectives and data requirements.
- Field and laboratory methodology employed.
- Results of the mitigation of Site SDI-16,986, including site maps, the presentation of all field data, a selection of photographs and sketches of representative test units, and documentation of all features identified during the investigation.
- Results of the laboratory analysis, including complete artifact catalogs, the presentation of the artifact recovery in both tabular and graph form, photographs of representative artifacts recovered from the site, and the presentation of all specialized analyses conducted.
- Discussion of the research questions posed in this research design including interpretations and general research conclusions regarding Site SDI-16,986.
- List of all personnel involved in the project and relevant certifications.

All cultural material collected from the testing and data recovery programs will be processed and curated according to professional repository standards. The project field notes, collections, and

reports will be temporarily curated at the offices of BFSA. The collections and associated records will eventually be curated at the San Diego Archaeological Center.

9.2.4 Native American Consultation

Local Native American representatives will be contacted about this data recovery effort. The site will remain available to any Native American representatives who wish to visit the site during the archaeological study.

9.2.5 Provisions for the Discovery of Human Remains

The possibility exists that human remains may be discovered during the data recovery program, although no human bone material was identified during the testing program. In the event that human burials are encountered, standard procedures for such discoveries will be implemented, including notification of the San Diego County Coroner's Office, the County of San Diego, and the Native American Heritage Commission in Sacramento. Field work will be discontinued in the area of any such discovery. The Native American representative will be consulted to determine a preferred course of action, and the burial will be treated accordingly.

9.3 Conclusions

The data recovery plan will attempt to preserve site information through the documentation of site characteristics and curation of artifacts. The research questions posed in this treatment plan have been utilized to shape the proposed recovery plan. However, the goal of the data recovery program is not limited to the research questions, but is in fact aimed at the general gathering of information at the site. Although the research questions posed were formulated in an attempt to cover a wide range of current regional archaeological topics, these questions are necessarily limited and cannot address the full range of questions posed by the archaeological community. The final stages of data recovery programs such as those to be conducted at Site SDI-16,986 must be directed not only at current research topics, but also at the study of future research. The program at Site SDI-16,986 will therefore be as broad and complete as possible; in this way, data from the site will not only be applicable to research posed by this company, but also to future research, as current topics are continually reanalyzed and new topics are formulated.

9.3.1 Project Grading and the Mitigation Program

Following the field program, a letter will be submitted to the County of San Diego outlining the results of the field work, and, assuming that no further work is required, a recommendation will be made to release the archaeological deposit for grading while the laboratory analysis and report are being completed. A recommendation will be made that an archaeologist monitor is present for the grading of the project in the area of the archaeological deposit. Should any deposits be discovered during grading, construction work in the area of the discovery should be stopped

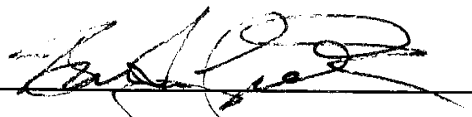
temporarily and the discovery analyzed and sampled, if necessary, before grading is resumed. Any discoveries should be reported to the County, and any significant findings requiring mitigation measures must be discussed with the County before any measures are implemented to reduce impacts.

10.0 PERSONNEL

The archaeological assessment for the Boyer Lot Split was directed by Brian F. Smith, with assistance from Charles Callahan, Chris Powell and Jason Richards. This report was prepared by Richard Herrmann and edited by Kyle Guerrero, Nora Collins and Brian F. Smith. Laboratory analysis was conducted by Kent Smolik and Kimberly Wade. Kimberly Wade produced the statistical tables. The report graphics were prepared by Robert Hernandez and Clint Callahan. Nora Collins was in charge of report production.

11.0 CERTIFICATION

The information provided in this document is correct, to the best of my knowledge, and has been compiled in accordance with the guidelines of the County of San Diego.



July 29, 2004

Brian F. Smith
Principal Investigator

Date

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Appendix I

Archaeological Records Search

(Deleted from Public Review; placed in Confidential Appendix)

Appendix II

Site Record Form

((Deleted from Public Review; placed in Confidential Appendix))

Appendix III

Confidential Maps

((Deleted from Public Review; placed in Confidential Appendix))